

# Fisher® Design ES Valve Eliminates Leaks In Hydrogen-to-Flare Application



## RESULTS

- An \$8,000 valve saves \$800,000 USD per year through improved shutoff.
- The valve eliminated the leak by using a match plug and seat, with extra seat load. It was tested by measuring downstream temperature. (Hydrogen heats up after a large pressure drop).
- The Fisher® Design ES valve replaced a competitor's valve, provided control (on average) better than 1%, and paid for itself in 3.8 days.



## APPLICATION

Pressure control valve to high-pressure flare.

## CUSTOMER

An oil refinery in Texas.

## CHALLENGE

A two-inch, 600# globe valve was leaking hydrogen directly to the flare. Figuring the price of hydrogen at \$2200 per MMSCF, any leak was costly. In this case, the leakage (>1 MMSCFD) represented more than \$800,000/year in lost hydrogen.

Hydrogen leakage rate was a minimum of 1 MMSCFD (41,667 SCFH). Blocking in the valve and comparing production verified the leakage. At that time, the price of hydrogen was between \$1800 and \$3200 per MMSCF. An Operations Support Engineer (OSE) advised the team to use \$2200 per MMSCF for the average hydrogen cost to justify this investment.

**FIELDVUE digital valve controllers enable on-line performance monitoring and diagnostics of control valves.**



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### SOLUTION

Jim Pfeil (account manager) and Craig Jeane (valve asset manager) of Puffer-Sweiven, Emerson Process Management's local business partner in Houston, Texas, used the cost of the lost hydrogen to justify the valve replacement. They recommended a new Fisher® valve with Class V shutoff, a Type 667 size 46 actuator, and a FIELDVUE® fieldbus digital valve controller with Advanced Diagnostics (AD) capabilities. Per these specifications, Emerson's Fisher valve division supplied a two-inch Design ES valve, which was installed during a turnaround.

Two years later, this pressure control valve is still providing tight, leak-free operation. No maintenance has been required to date.

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