



VALV PERFORMANCE TESTING™

Innovative Cycle Isolation Measurement





VALVTECHNOLOGIES IMPROVING RELIABILITY SINCE 1987

ValvTechnologies is the global leader in the design and manufacturing of flow control devices. We have built a worldwide reputation for superior quality and dependability with customers in every industry. From standard applications to the most sophisticated, ValvTechnologies provides solutions to manage your process.



APPLICATIONS

ValvTechnologies' valves are built to withstand the most severe applications. High-pressure, high-temperature, high-cycle, abrasive, corrosive and caustic media have all been considered in the design of our product line.

Industries we serve:

- Fossil Power
- Nuclear Generation
- Upstream Oil & Gas
- Downstream & Chemical Processing
- Mining and Minerals
- Petrochemical
- Pulp & Paper

ZERO LEAKAGE

The ValvTechnologies' V Series seat design provides improved performance, far beyond the capability of conventional seats with wear and corrosion prone crevices. Engineered to eliminate leak paths, maximize a smooth flow and make maintenance and repair easier, the ValvTechnologies' design and construction gives an absolute tight shut off, with zero leakage.



- Available sizes 1/4" - 4", ASME Class 900 - 4500
- End connections, butt weld, socket weld, flanged
- Proven sealing under every operating condition up to 1400°F (760°C).

ValvTechnologies can work with the site on the best strategy to improve operations for plant type and operational goals. ValvPerformance Testing™ can be conducted for the partial or complete plant, and replacement projects can be scheduled in phases to align with operational maintenance plans.

// A NUMBER OF THE ENGINEERS ON STATION, INCLUDING MYSELF, LIKE THE SIMPLE BUT ELEGANT DESIGN, CONSTRUCTION AND QUALITY OF THE VALVTECHNOLOGIES' V1-1 BALL VALVES. SEVERAL HUNDRED V1-1 VALVES HAVE BEEN INSTALLED ON THE STATION OVER THE YEARS AND THESE HAVE RESOLVED A NUMBER OF PROCESS PLANT ISSUES AND RECOVERED SIZEABLE MWE LOSSES. //

- Nuclear Systems Engineer

ValvPerformance Testing™ builds a historical database of predictive replacement analysis based on safety, economics & reliability.

INTRINSICALLY SAFE & NON-INTRUSIVE TO PLANT OPERATIONS

ASSET MANAGEMENT

SUPERIOR CYCLE ISOLATION TESTING AND EVALUATION SERVICES

- ✓ ValvPerformance Testing™ is a cycle isolation or valve leakage diagnostic program that assists end-users in understanding the value of zero leakage isolation and in identifying the best targets in their valve populations for effectively mitigating cycle isolation (plant efficiency) losses.
- ✓ ValvTechnologies' results-driven approach is verified accurate via independent testing and client testimonials, supported by fundamental fluid flow service.
- ✓ The ValvPerformance Testing™ program is low-cost and fast time-to-value. Technicians can test an average of 75 to 100 valves in a single day's work without hindering plant operations and with minimal impact on process pipe insulation.

**TEST
75 TO 100
VALVES**



**MINIMAL
PLANT
DOWNTIME**

BENEFITS

- Fast, non-intrusive, low-cost and accurate
- Takes the guess work out of valve maintenance by making hidden energy losses (leakage) transparent and quantifies the savings opportunities
- Improves or maintains plant operating efficiencies
- Increases plant output and energy/fuel cost savings
- Mitigates adverse environmental impact through improved energy efficiency which equates to reduced air pollution
- Improves diagnostic ability for better decision-making
- Reduces the cost due to unnecessary maintenance of functioning valves (i.e. condition-based maintenance)
- Savings in make-up water consumption
- Protects other plant equipment from unnecessary heat loads resulting from passing isolation valves
- Validates warranties and guarantees

RETURN ON INVESTMENT

CASE STUDY

An engine and boiler based power plant was experiencing significant steam loss from nearly 70 globe valves installed at the facility.

As a result, the energy provider sought ValvTechnologies to perform ValvPerformance Testing™ as a means to accurately identify and quantify losses across isolation valve seating surfaces.

RESULTS

ValvTechnologies' energy loss estimates are based on the product of the upstream fluid enthalpy and mass flow rate of fluid passing the valve seating surface. The cost of energy losses is developed by applying the cost of cycle energy and the plant/unit capacity factor.

A cycle energy cost of \$68/MWh was provided by the end user along with a plant operating capacity of 91%. The test results determined that nearly 74% of the total loss was attributed to 12 globe valves ranging in size from 1" to 1 1/2". These contributed to roughly 1800 lbs of lost steam per hour. ValvTechnologies recommended doing an economic analysis to determine the feasibility of replacing these valves.

With an expected annual energy loss of approximately \$415K, the plant decided to replace all 12 valves resulting in over \$1.5M in cost savings over the course of four years.

12

TOP VALVES
CONTRIBUTING LEAKAGE

\$415K

ANNUAL COST OF ENERGY LOSS

\$50K

FULL INVESTMENT TO REPLACE

810%

ANNUAL RATE OF RETURN
TO REPLACE 12 VALVES

BACKED BY OUR

FOUR YEAR ABSOLUTE ZERO LEAKAGE WARRANTY, GUARANTEED.



ONE WEEK AFTER INSTALLATION, WE ALREADY NOTICED HOW MUCH QUIETER THE VALVES ARE. THE TEAM IS IMPRESSED WITH THE LOOK, EASE OF OPERATION AND SEAT TIGHTNESS COMPARED TO THE VALVES WHICH HAVE BEEN REPLACED, AND WE CAN ALREADY VISIBLY SEE THE RESULTS OF ADDITIONAL CAPTURE IN OUR STEAM TANKS. WE PLAN TO REPLACE MORE VALVES IN THE VERY NEAR FUTURE.

- Biomass Power Station Operations & Maintenance Manager



Engineered Products for Severe Service Applications™

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