



ValvPerformance Testing®

Innovative Cycle Isolation Measurement



MCE Group

– Improving reliability since 1990

MCE Group commenced trading in 1990 offering mechanical, electrical and instrumentation services to the power generation and process industries. Over the years, MCE has streamlined its activities, in order to concentrate its core business on the provision of valve repair and supply. MCE provides factory-authorized valve modifications and repairs to customers throughout the UK.

Accreditations

MCE has earned PED 2014/68/EU accreditation for assembly, refurbishment and testing of high performance, zero leakage metal seated ball valves.

In addition, MCE holds the following certifications:

- ✔ UVDB Achilles Verify Category B2
- ✔ ISO 9001 : 2015
- ✔ ISO 14001 : 2015
- ✔ ISO 45001 : 2018
- ✔ ABB & ZURICH (for safety relief valve overhaul and testing)

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 760°C (1400°F).

MCE Group 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.



ValvPerformance Testing® builds a historical database of predictive replacement analysis based on safety, economics & reliability. Intrinsically safe & non-intrusive to plant operations.



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, UK



Testing 75-100
Valves per day

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.

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

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, UK

20

Top valves contributing leakage

£302,856

Annual cost of energy loss

£37,370

Full investment to replace

810%

Annual rate of return To replace 12 valves

With an expected annual energy loss of £302,856, the plant decided to replace all 20 valves resulting in over £1.1m in cost savings over the course of four years.

Return on investment case study

Problem

A UK 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 MCE Group to perform ValvPerformance Testing® as a means to accurately identify and quantify losses across isolation valve seating surfaces.

Solution

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 £50 GBP/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 20 globe valves ranging in size from 25mm to 40mm. These contributed to roughly 800kgs of lost steam per hour. MCE Group recommended completing an economic analysis to determine the feasibility of replacing these valves.

With an expected annual energy loss of £302,856, the plant decided to replace all 20 valves resulting in over £1.1m in cost savings over the course of four years.

**Backed by ValvTechnologies'
4 Year power products warranty**





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Valve Repair & Shutdown Services