

3-Phase Induction Motor Dynamic Testing

Quartzelec conducted static and dynamic testing on a NEW 6.6kV, 3.6MW induction motor which was experiencing high vibration from startup. Revalidating the motor's performance through static tests, a light run, and Forward Short Circuit (FSC) heat testing to ensure future reliability.

SPALDING POWER STATION | MACHINE TESTING | LINCOLNSHIRE, UK

Our Customer's Challenge

Spalding Power Station purchased a 6.6kV, 3.6MW spare motor for a critical plant application, which had been stored until required. After a routine maintenance swap, the motor exhibited high vibration from startup, even when decoupled from the pump. Onsite diagnostics confirmed the issue lay with the motor.

Due to its size and the need to replicate site conditions, the client sought independent testing. With OEM support unavailable, Quartzelec Rugby was chosen for its ability to test motors up to 13.8kV and to simulate the full load conditions for this motor, ensuring accurate fault diagnosis and future reliability.

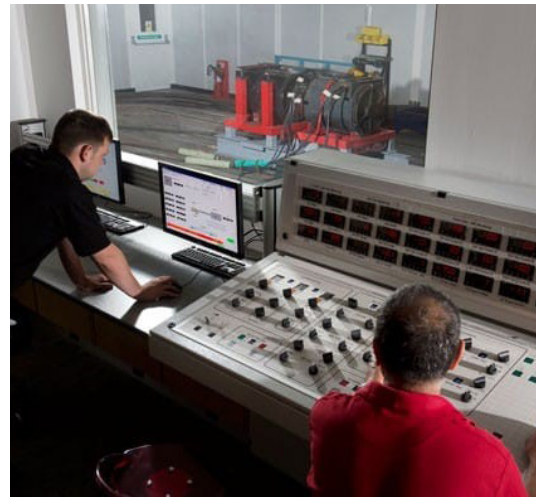
The Quartzelec Solution

Initial static electrical tests, performed in the motor's 'as received' condition, confirmed suitability for further testing. Insulation Resistance (IR) values exceeded minimum criteria, and stator winding resistances were balanced across phases.

The motor then underwent revalidation as a precaution, including a light run and a FSC heat run, to ensure that it could operate safely at its rated output for future operation. Dynamic testing was also conducted - following in-house procedures - for motors of this size and voltage.

A light run verified mechanical stability, with bearing temperatures recorded and phase rotation and magnetic centre confirmed satisfactory. A FSC heat run at nominal stator current ensured stator winding temperatures stabilised, with cooling water temperatures monitored.

Vibration measurements were then taken on all bearing housing planes which allowed the customer to pinpoint the root cause of the problem experienced at site. Then with final static electrical tests providing good results, the motor was deemed fit for continued operation and ready for return to service.





Key Benefits

- Comprehensive Testing and Validation: Ensures motors are thoroughly assessed for safe and reliable operation under realistic conditions
- Specialised High-Voltage Capability: The ability to test motors up to 13.8kV and conduct FSC testing for motors above 1MW allows replication of demanding site applications
- Detailed pre- and post-testing procedures, for both electrical and mechanical parameters provide a clear and reliable diagnosis of any motor issues, leading to targeted solutions
- Enhanced Reliability and Operational Safety: Rigorous revalidation processes ensure motors meet all performance standards

“Quartzelec’s expert testing and revalidation gave us complete confidence in our motor’s performance. Their thorough diagnostics and FSC heat testing ensured its reliability, allowing us to safely return it to service.”

Rory Gresty, Intergen

Replication
Of Site
Applications

Thorough
Revalidation
Process

Reliable
Diagnosis
Resolution

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