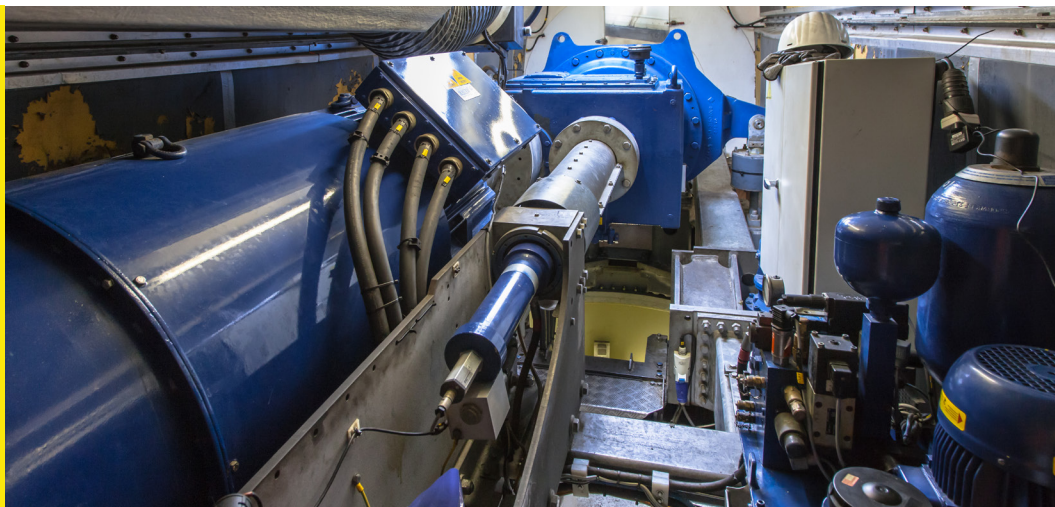


GEARBOX - WIND TURBINE



⇒ REALISATION OF SIGNIFICANT OPERATING COST REDUCTIONS AND RELIABILITY IMPROVEMENTS

Wind turbine operator reduced maintenance costs, & improved reliability and equipment life.

The Challenge

The Customer had identified the gearbox as the primary source of unscheduled maintenance, sub-optimal power productivity, and long term reliability issues. Extensive trials with Tan Delta confirmed that the accurate real-time monitoring of oil condition in the gear box would enable the earliest detection of potential issues such that remedial maintenance could be planned, equipment damage prevented. Analysis of the gear box during the trial confirmed that early detection of issues prevented damage which would cause a reduction in equipment life and power output efficiency. The sensor data was also used to identify and predict the optimal maintenance scheduling.

The Solution

A single sensor was installed in an oil sample inspection port on the oil return of the gear box. Where a turbine had an existing telematics system, the sensor was integrally connected and the data relayed back to the customers central operations centre. On older turbines where a telematics system was not present an OQGateway was installed to relay data back to the operations centre. Each installation was completed within 4 hours during normally scheduled maintenance, enabling the entire estate spread across Europe (land and sea based) to be fully equipped within one year.

Benefits

After over a year of operation, the customer has seen a significant improvement in maintenance efficiency and their ability to manage each turbine for maximum power output. They also expect that catastrophic failures will be prevented and the operational life extended.

⇒ RETURN ON INVESTMENT

The total investment per turbine was £2,500 inclusive of installation and integration.

The estimated payback period was under 6 months.

⇒ COMMERCIAL BENEFIT

The customer has reduced daily operating costs, increased power output and extended equipment life.

⇒ Prevent Catastrophic Gearbox Failures

Estimated to effect ~ 5% of turbines with a per failure cost of £300,000

⇒ Reduce Maintenance

Estimated annual reduction in per turbine of £3,000 due to optimised scheduling.

⇒ Increase Power output

0.5% increase in annual power output over the life of the turbine due to optimal gear box efficiency due to reduced wear.



Prevent the huge cost of unexpected equipment failure

Service and Support from Tan Delta

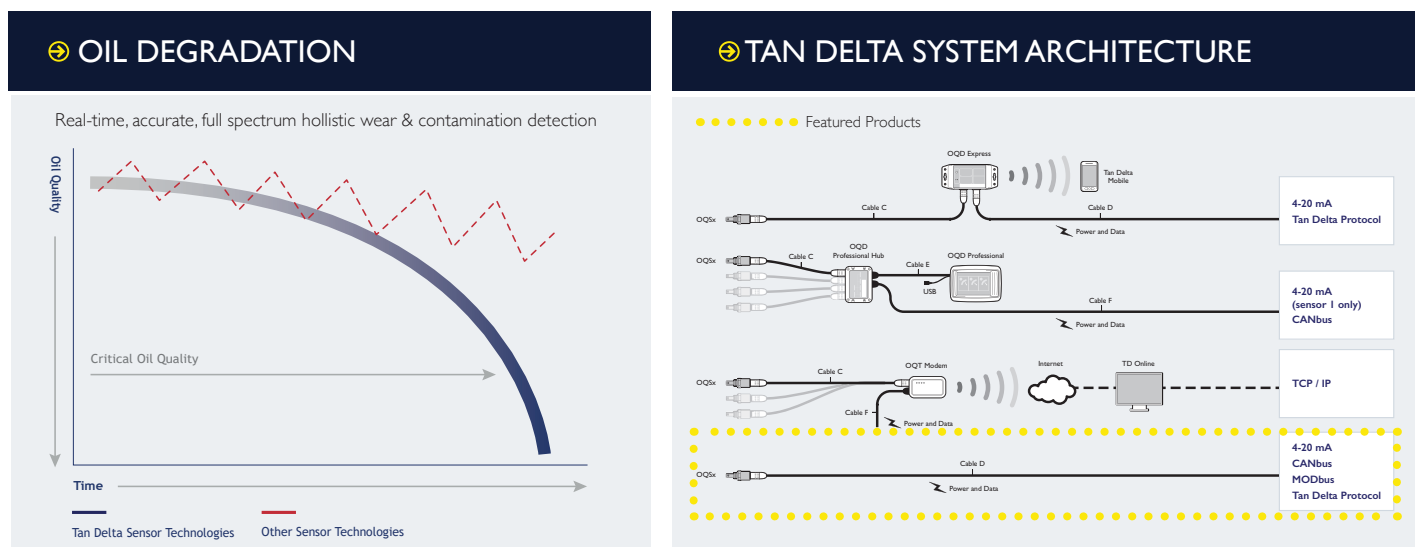
The Tan Delta Customer Support team partners with customers to implement highly effective and commercially beneficial projects. Our experience and expertise enable customers to quickly and smoothly implement successful oil condition monitoring.

- ➡ The evaluation and identification of the commercial benefits that will be derived from the implementation of Tan Delta Full Spectrum Holistic (FSH™) real time oil condition monitoring.
- ➡ Support for the planning and efficient implementation of systems across large estates of equipment, including the integration into existing monitoring systems and operational procedures.
- ➡ Ongoing 24/7 global warranty support, technical support, advice and consultancy to ensure customers maximise the long term benefits of their investment in oil condition monitoring.

Technology That Makes a Difference

Tan Delta core technologies deliver unique oil condition monitoring performance that directly translates into significantly enhanced commercial benefits.

Tan Delta technology uniquely offers FSH™ oil condition monitoring in real time to a very high degree of accuracy. This ensures that any contamination and or wear, no matter the cause, is detected, quantified and reported in real-time. Nothing is missed.



About Tan Delta Systems

Tan Delta Systems Limited is a global leader in the development and supply of advanced oil condition monitoring technologies, products and systems.

Its products are trusted by the world's leading industrial and commercial companies to monitor oil condition, helping to optimise equipment productivity, reduce operating costs, thereby remaining competitive in a global economy.

All Tan Delta products are engineered and quality manufactured for long term continuous operation in the harshest commercial and industrial environments. Each product is carefully engineered and tested to withstand the long term effects of extreme shock, vibration, heat, cold, thermal shock, electrical interference and many more factors.

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