

⇒ REALISATION OF SIGNIFICANT OPERATING COST REDUCTIONS AND RELIABILITY IMPROVEMENTS

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

A large European based operator of wind turbines engaged Tan Delta to integrate full spectrum oil condition monitoring into their existing monitoring and maintenance systems to reduce maintenance costs, extend equipment life and assist with maximizing power generation output.

Over many years of operational experience, the customer had identified the gear-box 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.

A single sensor was installed in an oil sample inspection port on the oil return out of the gear box (between the gear box and oil reservoir) where the sensor would be exposed to a continuous flow of oil. Where a turbine had an existing telematics system, the sensor was connected to the modem with the data relayed back to the customers central operations centre. On older turbines where a telematics system was not present a GPRS modem 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.

Each Tan Delta OQSx sensor continuously monitors the real time condition of the oil. Its unique full spectrum holistic monitoring capability coupled with extreme accuracy, enables any change to be detected and reported in real time - no matter the cause - wear and or contamination. The operations centre used its existing management software to manage and display the data with automatic alerts generated by any unexpected changes in oil condition and using simple trend prediction to pin point optimal maintenance schedules.

After over a year of operation, the customer believes they have 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. Such has been the success of full spectrum holistic oil condition monitoring the customer is now planning to implement a full roll out.

⇒ RETURN ON INVESTMENT

The total investment per turbine was Euro2,500 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.

⇒ - The ability to identify and prevent catastrophic gear box failures, estimated to effect ~ 5% of turbines with a per failure cost of Euro350,000

⇒ Estimated annual reduction in per turbine maintenance costs of Euro3,500 due to optimised scheduling.

⇒ 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

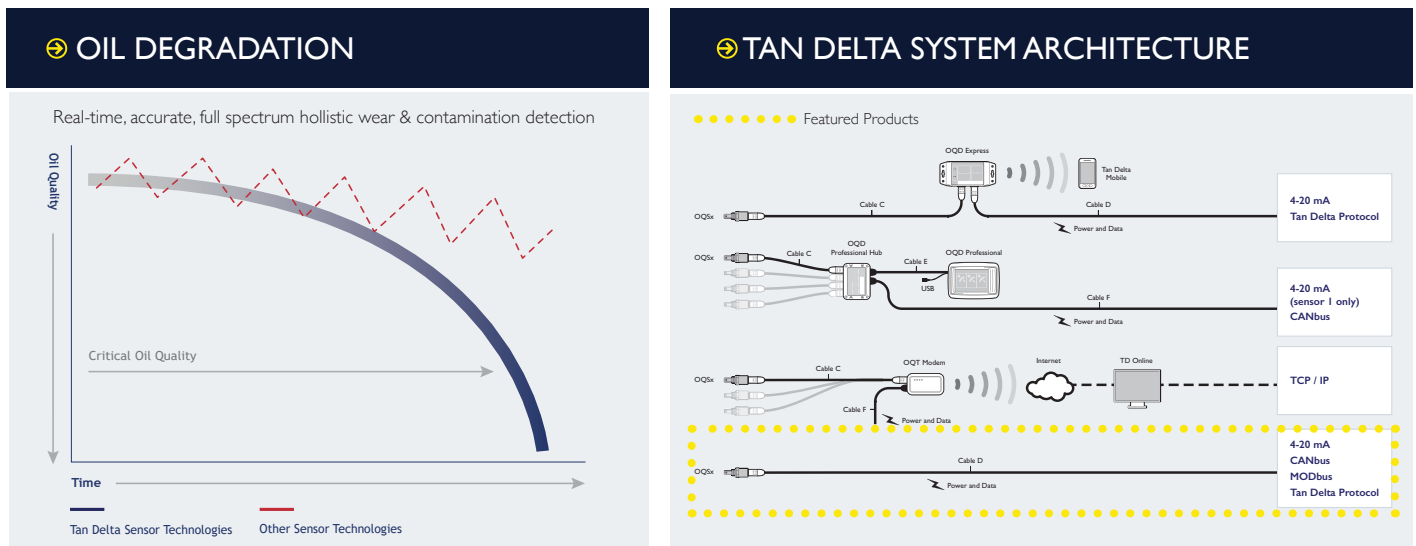
The Tan Delta Customer Support team partners with customers to implement highly effective and commercial beneficial oil conditioning. Our experience and expertise enable customers to quickly and smoothly implement successful condition monitoring.

- ➔ The evaluation and identification of the commercial benefits that will be derived from the implementation of Tan Delta full spectrum holistic 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

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 full spectrum holistic 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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