

# TAN DELTA SYSTEMS LTD

REAL-TIME EQUIPMENT MONITORING

Company Presentation  
2021



# ABOUT TAN DELTA



OQSx-G2  
Real Time Oil Analysis Sensor

- UK based global company with over a decade of real time oil analysis technology development and equipment maintenance analytics expertise.
- Proprietary real time oil condition analysis and analytics technology (FSH™) that provides unmatched data and insight on equipment health, maintenance and operational status.
- Reduced equipment operating costs and carbon footprint through safely reduced maintenance costs, break downs, oil use and longer and more productive equipment life.
- Easy to implement and use on any active equipment, in any application using any oil type – gearboxes, engines, hydraulics, electrical-insulating

# PROVEN AROUND THE WORLD

“ We have grown to trust Tan Delta equipment to tell us what is really happening inside our equipment. ”

Reliability Engineer, Food Processing

“ Tan Delta enabled us to prevent a catastrophic failure which would have cost us hundreds of thousands of dollars. ”

Head of Engineering, Open Cast Mining

“ We were initially sceptical about whether we would actually realise the cost savings, but not anymore. ”

Operations Director, Power Generation



“ The data we are getting is incredible. We can push our gear much harder with complete confidence. ”

Maintenance Manager, Manufacturing

“ Detecting degradation early has allowed us to prevent damage, and ensure equipment is always good to go. ”

Plant Manager, Waste Treatment

“ Optimising our mobile plant maintenance across site allowed us to minimise downtime and increase productivity. ”

Mine Production Superintendent, Mining

**Leading equipment operators and manufacturers around the world rely on Tan Delta to minimise equipment operating costs, enhance competitiveness and meet ESG objectives.**

# FAQ's ANSWERED

## **Why oil condition analysis?**

The condition of oil is directly and accurately correlated to the maintenance and health status of equipment. Therefore if oil condition can be accurately analysed and interpreted in real time, equipment health status can be deeply and easily understood enabling appropriate maintenance decisions to be made based upon facts.

## **Is the technology and sensor proven?**

Yes. The accuracy and reliability of our sensor has been tested and approved by leading test laboratories. More importantly over many years by a growing portfolio of leading equipment operators around the world. Lower cost solutions now make our technology available to all.

## **What's different about Tan Delta?**

Our ability to tell you exactly when your equipment needs maintenance through advanced real time oil condition analysis and analytics. You can rely on Tan Delta to inform you when your equipment needs maintenance and when there is a problem and what that problem might be. No other technology or system provides such insight and clarity with such accuracy and reliability. Everything is detected – nothing missed.

## **How does it work?**

Our patented core FSH™ technology combines highly accurate (0.001%) electro-chemical oil analysis with intelligent data analytics that enables us to detect, measure and interpret real time changes in oil condition and the maintenance status and health of your equipment.

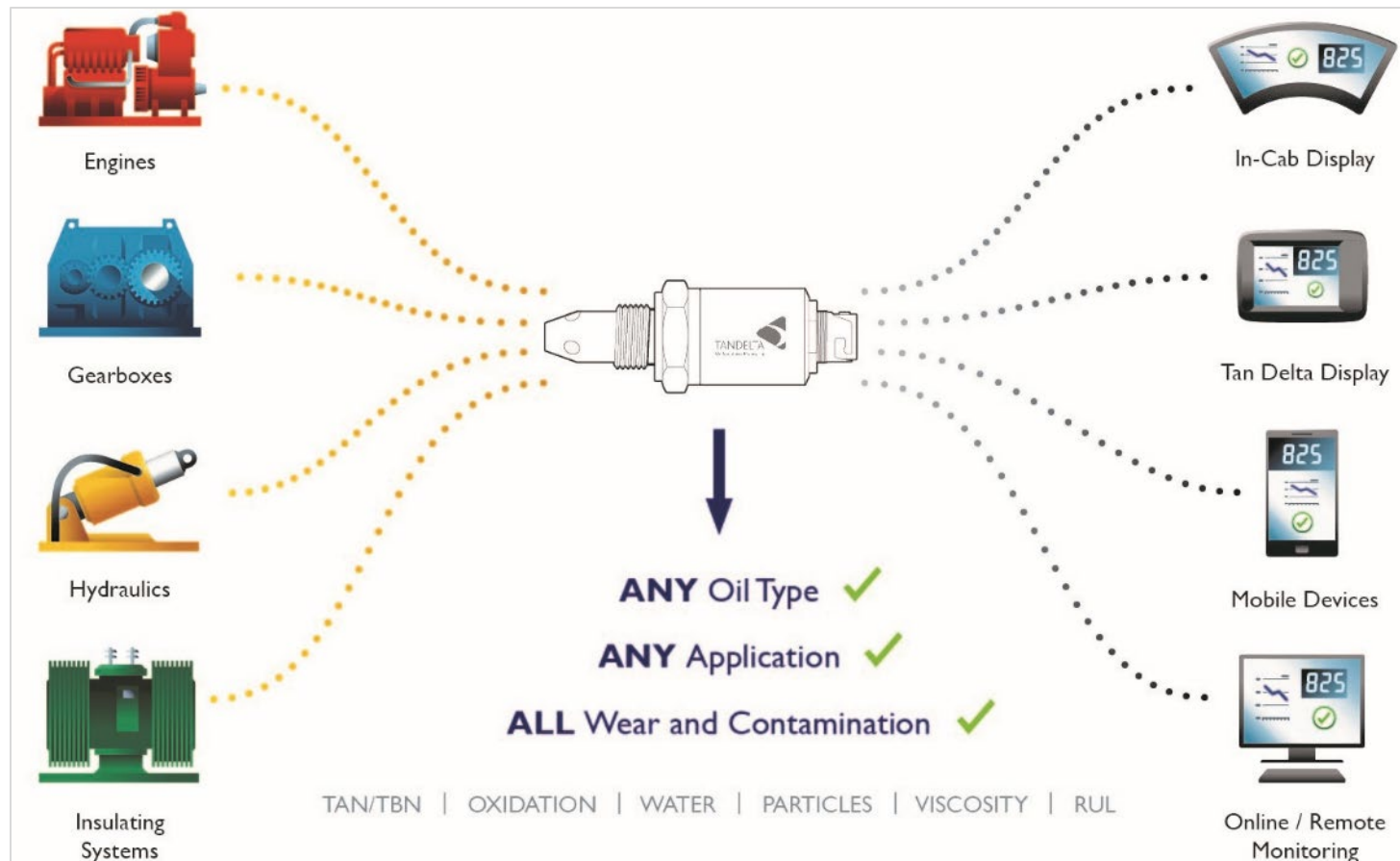
## **What benefits can I expect?**

We will tell you exactly when equipment needs to be maintained based on actual condition – the result is you can expect intervals between maintenance to increase substantially (typically up to 50%) and so immediately reduce your operating costs. And with our advanced fault detection reduced breakdowns. Other benefits include, reduced oil use, no more oil lab sampling.

## **Can I fit this to my equipment?**

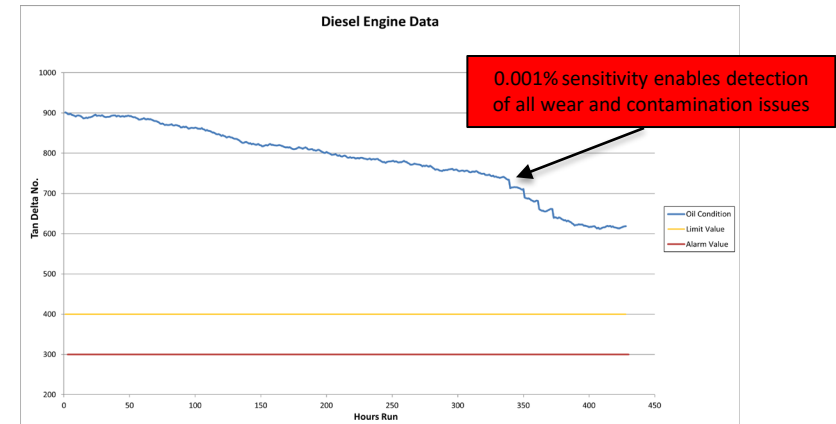
Yes. Our solutions are adaptable and configurable and can be fitted to any equipment using any oil type – engine, gearbox, hydraulics (mineral, synthetic, bio) etc. With multiple standard industrial and commercial data outputs it will seamlessly integrate and enhance existing monitoring and management systems and equipment panels, or operate as a standalone total over-watch monitoring solution. can integrate and enhance your existing monitoring or provide a complete umbrella 'safety-net' monitoring solution.

# APPLICATIONS



**From shipping and mining to power generation or automotive, Tan Delta technologies and solutions are easily installed and integrated with existing systems and enable improved efficiency and lower operating costs for any equipment.**

- Our proprietary FSH™ (*Full Spectrum Holistic*) core technology powers Tan Delta sensor solutions with exceptional performance and analysis capabilities.
- FSH is a fusion of real time oil condition analysis and analytics that work together within a single sensor solution.
- The electro-chemical properties of oil is analysed in real time to an accuracy of 0.001%, producing a continuous stream of very high quality raw data.
- Intelligent analytics of raw analysis data provides deep insight on the real status of oil and equipment. All failure modes, wear and contamination are detected, measured and interpreted.
- FSH is configurable for any oil or heavy fuel type operating in any application and environment.
- Data can be used for further analytics to help optimise equipment operating parameters - for example to reduce fuel consumption and emissions.



**Tan Delta FSH™ technology delivers unmatched real time oil condition analysis data. This enables unmatched insight on equipment maintenance and operating status.**

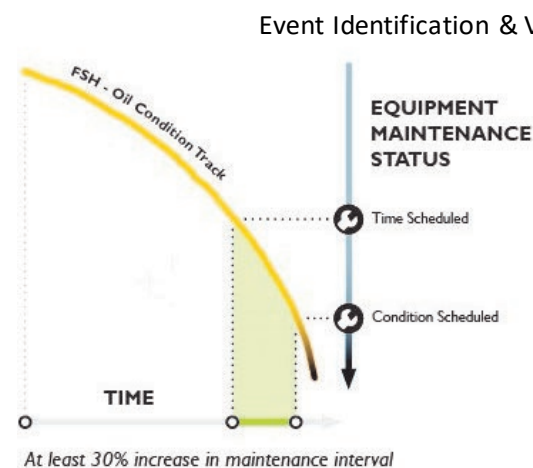


## Full Spectrum Holistic™ (FSH) Technology

Tan Delta's unique FSH™ technology enables the data produced from the G2 sensor to deliver the following three critical capabilities.

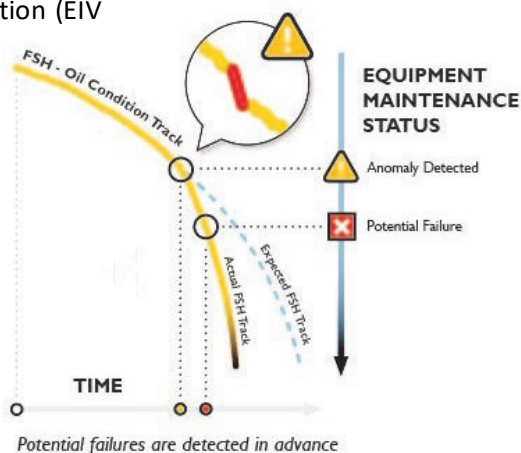
### Dynamic Maintenance Optimisation™ (DMO)

Optimize maintenance schedules according to equipment need. Accurately and safely identify optimal maintenance schedules for equipment enable more efficient advanced planning, increased intervals, reduced cost, and reduced equipment down time.



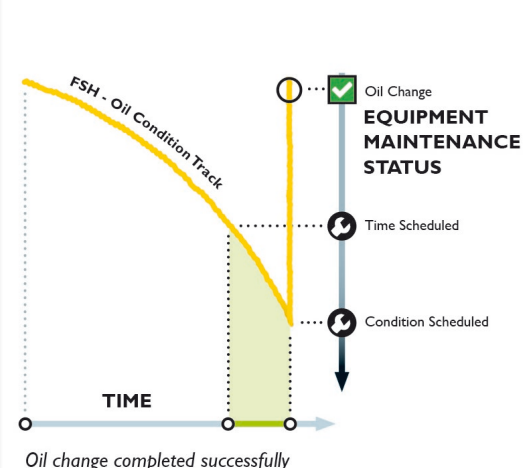
### Advanced Fault Detection™ (AFD)

Tan Delta will immediately detect and alert you to the first signs of a potential issue which could cause damage or catastrophic failure. This advanced fault detection capability enables targeted strategic intervention. AFD reduces breakdowns and increases equipment life.

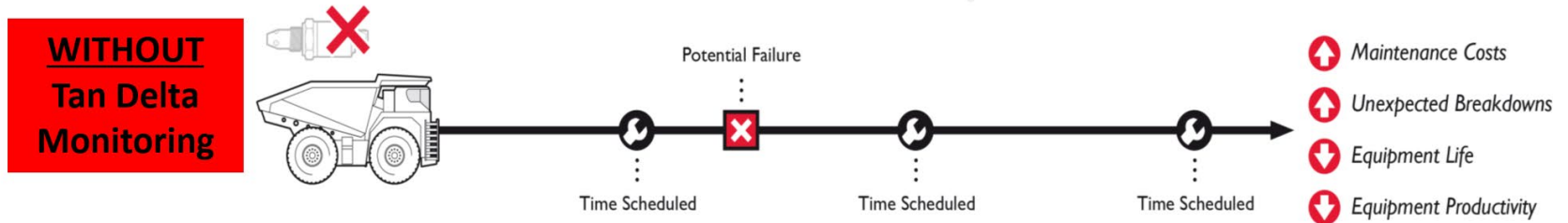
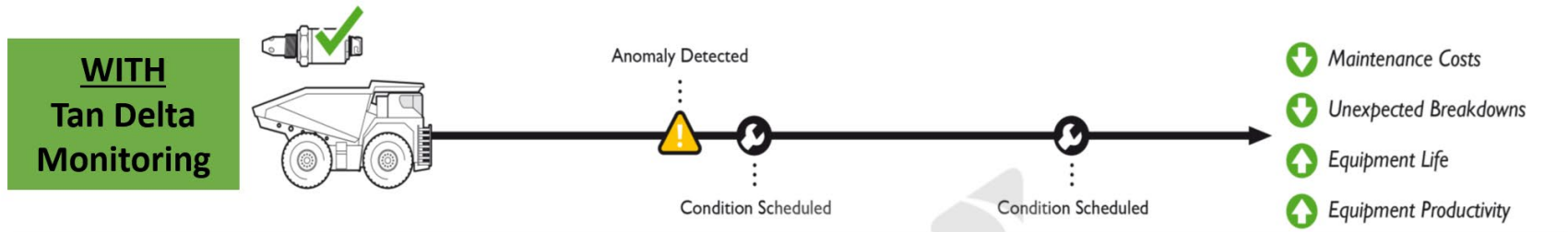


### Event Identification & Validation™ (EIV)

Accurately identify when an oil change was undertaken or when the oil was topped up, freshened or sweetened. Determine whether the oil change was done correctly and if the correct replacement oil was used.



# BENEFITS



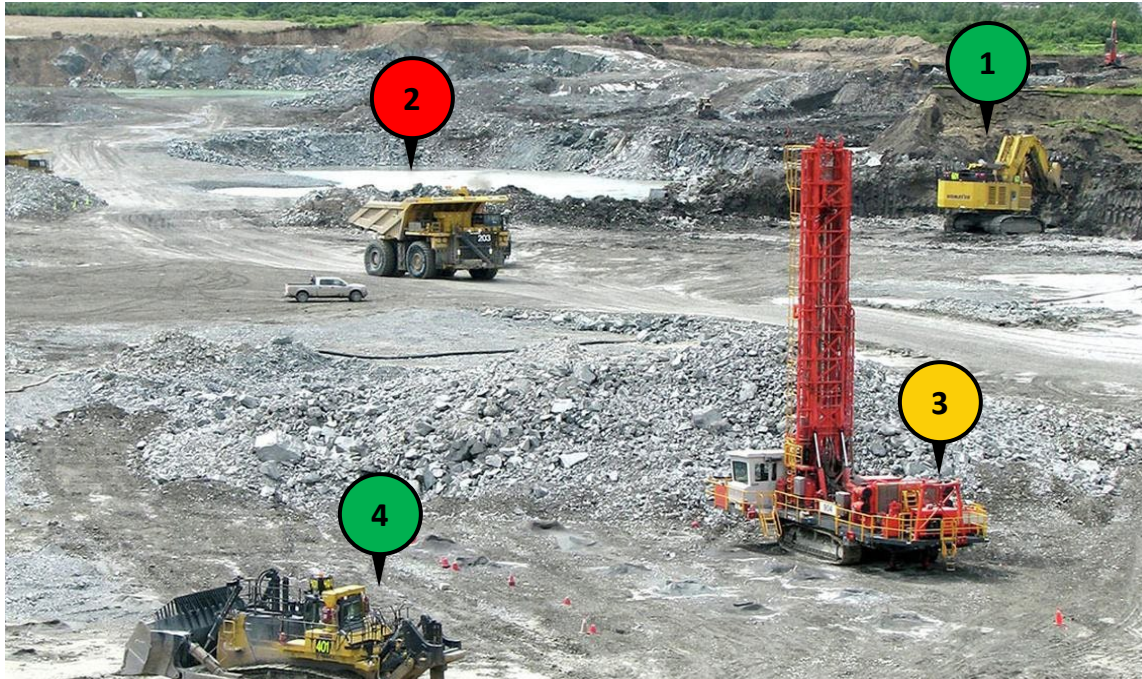
Tan Delta FSH™ core technology delivers unmatched ability to dynamically and efficiently manage equipment and therefore reduce operating costs, increase productivity and reduced carbon foot-print.



Tan Delta enables significant and verifiable reduction in carbon footprint through waste reduction and efficiency improvements.




# SIMPLE, RELIABLE, ACTIONABLE



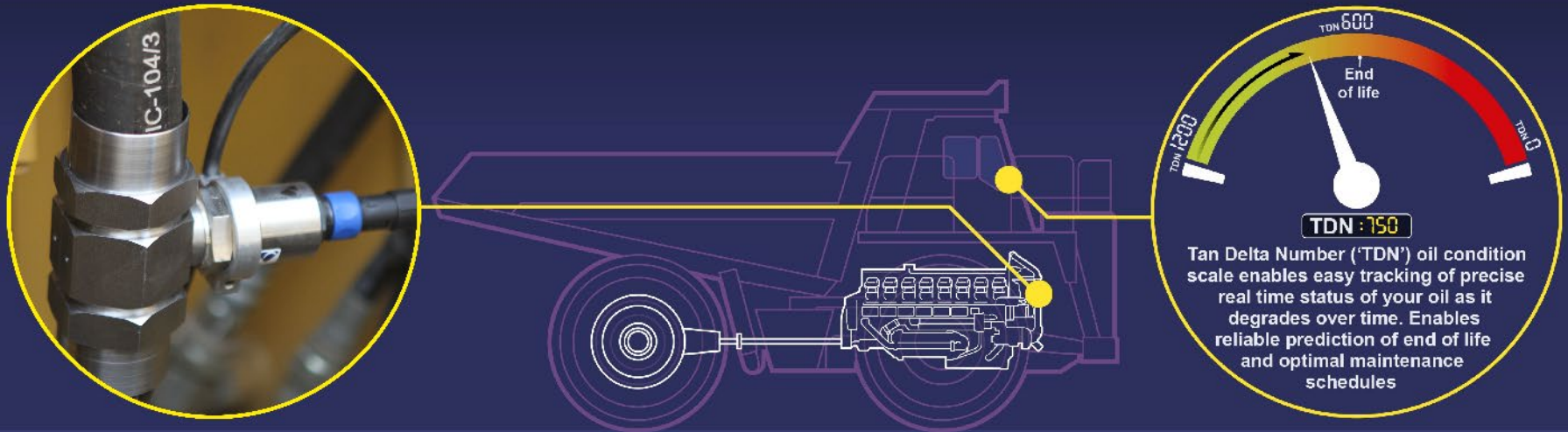
Tan Delta real time oil analysis tells you when your equipment **NEEDS** attention.



ASSET	STATUS	MAINTENANCE STATUS
1 – Excavator	●	DMO - Next optimised maintenance due in 34 days.
2 – Truck	●	AFD ALERT - Potential significant engine fault detected - immediate investigation to prevent damage/failure.
3 – Drill Rig	●	DMO ALERT - Next optimised maintenance due in 5 days - time to plan/schedule maintenance.
4 – Dozer	●	DMO - Next optimised maintenance in 29 days.

 Optimising maintenance will significantly reduce your oil consumption, reduce wasteful unnecessary maintenance, reduce consumption of spare parts, and extend equipment life. Tan Delta helps you meet your corporate ESG objectives.

# IMPLEMENTATION



- **INSTALLATION:** Easily and quickly installed on any equipment using existing inspection ports or Tan Delta manifolds.
- **INTEGRATION:** Sensor connects to existing equipment displays and monitoring systems which will then display and have access to all sensor data. Or Tan Delta simple dedicated display & logging devices may be used.
- **ANALYSIS:** Oil is continuously analyzed with precise real time oil condition indicator provided as a TDN number on a scale of 1 – 1,200.
- **DMO / AFD** – time to next optimal maintenance (DMO) and advanced fault detection alerts (AFD) displayed on your selected display / logging device for simple action and integration into your existing maintenance structure.

## Sensor Solutions

Integrated FSH™ Technology



**OQSx-G2**

Real time continuous oil condition analysis with integrated intelligent equipment maintenance optimisation analytics. Detects and measures all and any wear and contamination. Any industrial or commercial application – any oil type.



**OQSx-G2 ATEX**

ATEX certified oil condition analysis with integrated intelligent equipment maintenance optimisation analytics. Detects and measures all and any wear and contamination. Any industrial or commercial application – any oil type.



**OQSx-G2 IM**

Real time FSH™ technology license oil condition analysis and analytics monitoring solution designed for embedded integration in higher volume cost sensitive applications. Ideal for automotive and other high volume applications.

## Accessories



*Express Display & Data Logger*

Range of complementary accessories that support the implementation and use of Tan Delta sensor products; intelligent data displays, loggers, modems, apps, online, cables, manifolds.

**OEM:** Tan Delta works with original equipment manufacturers seeking their own unique oil / equipment analysis solutions. Our products can be extensively customized to suit most requirements – from simple branding, retro-fit kits, to fully custom products which integrate within existing products.



# SUMMARY



- Equipment condition monitoring that is highly effective and easy to implement on any equipment operating in any application and environment.
- FSH™ real time oil condition analysis technology that delivers unrivalled data quality, coupled with intelligent analytic insight.
- Reliable prediction of optimal maintenance schedules, reduces unnecessary and costly maintenance.
- Detection of issues prior to damage reduces equipment breakdowns and long-term wear.

**Reliable technology that reduces your operating costs by accurately informing you when equipment needs maintenance.**