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Application Note

Particle counting in hydraulic and lubricating oils

Hydraulic and lubrication oil systems

Continuous monitoring of hydraulic and lubrication systems is needed to help prevent the damage caused by particulate contamination. Contamination of the fluid can be caused by:

- Dirt and dust entering the system
- Component wear or failure
- Ageing, oxidation and breakdown of the oil

Particulates can be highly abrasive and shorten the life of mechanical parts.

Monitoring the particle content of hydraulic and lubricating oils helps reduce machinery downtime and repair costs. Preventative maintenance can be accurately targeted based on particulate contamination so that contaminated fluids can be changed before they cause irreversible system damage. By basing maintenance on a condition rather than a fixed schedule, significant cost savings can be achieved. Monitoring the particle content of hydraulic and lubricating oils also gives an insight into the condition of the system as a whole.

AvCount Lube

Whether checking in-service lubricants, hydraulic fluids or insulating oils, AvCount Lube provides a flexible and cost effective solution for testing oils with a viscosity up to 200 mm^2/s. The instrument is fitted with FFKM seals throughout for resistance to synthenic oils. Higher viscosity, darker, or more opaque oils can be tested by pre-treating using dilution techniques.

When connected to a personal computer, AvCount Lube can be operated via the supplied ProTrend software. ProTrend is programmed with a number of standard test methods for oils and lubricants, including SAE 4059, NAS 1638 and a basic ISO 11171/ ISO 4406 method, each measuring up to 16 size bands and giving results in terms of particle counts and cleanliness/contamination codes. It allows the user to control the instrument, create and edit test methods, and analyse and save test results.

AvCount Lube comprises two modules; the Sample Delivery System (SDS) and the Particle Counter Module (PCM). The PCM can be used independently from the SDS and computer as a compact portable instrument for testing light lubricants and oils with a viscosity up to 64 mm^2/s. Up to 600 measurements can be saved in the PCM memory ready for downloading via ProTrend. The PCM has three embedded test methods;

- ASTM D7647 (lubricants)
- ISO 60970 (insulating oils)
- ISO 4406 (hydraulic oils)

Operation is via a single turn and push control with a high visibility display. PCM test methods can each measure up to 6 size bands, reporting in particles/ml and ISO 4406 Cleanliness Codes.

Further information about Particle Counting and the AvCount Lite can be found at

www.stanhope-seta.co.uk/AvCount_Particle_Counting.asp

or by scanning the QR code

Stanhope-Seta, London Street, Chertsey, Surrey, KT16 8AP, UK
t: +44 (0) 1932 564391 | e: sales@stanhope-seta.co.uk | www.seta-analytics.com