

AccuSizer® A2000 CMS Automated Liquid Particle Counter for Hydraulic Fluids and Oils

*Particle counter and autosampler
integrated for high sample throughput*

Particulate contamination can cause serious problems in hydraulic fluid power systems and be used as an indicator of wear and maintenance requirements in lubricating oils. Reporting of contamination has been simplified in ISO 4406¹ by providing concentration (particles/mL) in range codes at three sizes; 4, 6, and 14 μm . The measurement is performed using an optical particle counter such as the AccuSizer®, calibrated per ISO 11171.²

These measurements can be performed manually when analyzing a handful of samples daily, but many labs require high sample throughput in excess of 200/day. The new AccuSizer A2000 CMS is designed to meet the requirements of ISO 4406 and ISO 11171 while processing samples in under 2 minutes to meet requirements.

The system consists of the following components:

- Autosampler with one or two sample trays (Figure 1)
- LE400-05 light extinction sensor (Figure 2)
- Pulse height analyzer/counter
- Software

The sensor is calibrated using conostan oil analysis standards. The counter generates results in 64 channels (upgrade to 1024 channels is available). The autosampler can hold up to two trays with as many as 90 samples/tray, depending on volume and number of replicates. The AccuSizer software controls the entire measurement procedure and generates reports in ISO 4406 format. Custom reports are easily created for specific application/customer requirements.



Figure 1



Figure 2

Detailed protocols allow users the control to create methods according to their specific needs. Data is accurate and repeatable, and cleanliness is easily achieved through a two-stage rinsing station between samples. Rigorous testing has proven the system is reliable and low maintenance even in high throughput laboratory conditions.

SPECIFICATIONS

LE400-05 sensor	1 – 400 μm using ISO 11171 0.5 – 400 μm using PSL standards
Autosampler	Automated batch sample analysis 3x8, 4x10, 5x12, 6x9, 6x15 racks Dual racks available
Software	Complete control of measurement (Figure 3) Complete control of autosampler (Figure 4) Custom tray definitions Automatic calibration function ISO 4406 reporting (Figure 5) Custom report generator

Sample	Run date/time	>4 μm	>6 μm	>14 μm
Tube 20 Rep. 1	12/13/2016 17:03	671/mL	294/mL	39/mL
Tube 20 Rep. 2	12/13/2016 17:04	764/mL	325/mL	39/mL
Tube 20 Rep. 3	12/13/2016 17:05	750/mL	308/mL	38/mL
Mean		728/mL	309/mL	39/mL
Standard deviation		40.942/mL	12.675/mL	0.471/mL

Classification: 17/15/12

Figure 5

References

- ISO 4406:1999, hydraulic fluid power – fluids – method for coding the level of contamination by solid particles
- ISO 11171:2010, hydraulic fluid power – calibration of automatic particle counters for liquids

FOR MORE INFORMATION

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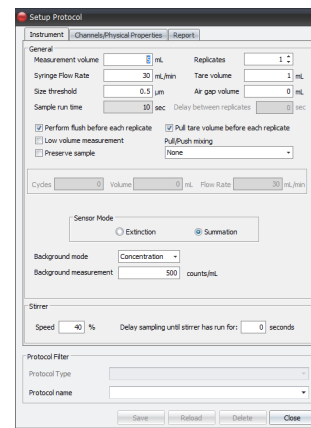


Figure 3

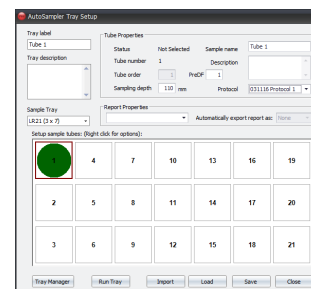


Figure 4



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