



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 4406 (1) 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 PSS 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 PSS 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 512 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.

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 proved the system is reliable and low-maintenance even in high throughput laboratory conditions.



Figure 1



Figure 2

Particle Sizing Systems

Building solutions one particle at a time.



AccuSizer A2000 CMS Technical Specifications

LE 400-05 Sensor	1-400 μm using ISO 11171 0.5-400 μm using PSL standards
Counter	64 channel default 512 channel option 1024 channels for calibration
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

References

1. ISO 4406:1999, Hydraulic fluid power — Fluids — Method for coding the level of contamination by solid particles
2. ISO 11171:2010, Hydraulic fluid power — Calibration of automatic particle counters for liquids

Figures 3

Figures 4

Sample	Run Date/Time	> 4 μm (//mL)	> 6 μm (//mL)	> 14 μm (//mL)
Tube 20 Rep. 1	12/13/2016 17:03	671	294	39
Tube 20 Rep. 2	12/13/2016 17:04	764	325	39
Tube 20 Rep. 3	12/13/2016 17:05	750	308	38

Mean (//mL)	728	309	39
Standard Deviation (//mL)	40.942	12.675	0.471

Classification
17/15/12

Figure 5

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