AccuSizer A2000 Oil Contamination Monitor

Real time large particle contamination monitor

Most heavy industrial machinery failures are caused by large particle contaminates (LPC) in the hydraulic oil that cause damage to the internal workings of the engines and gear boxes. The AccuSizer A2000 Oil Contamination Monitoring System has been designed to count and size contaminates in hydraulic oils and lubricating fluids. The A2000 has a patented sensor that allows for monitoring of particles from 0.5 – 400 microns in a single pass. This enables the system to detect and count the presence of submicron particles. These counts can be a precursor to an increase in levels of larger particles that could cause damage.

The A2000 is a uni-box design that combines a high resolution counter (512 channels), a patented external sensor module (0.5 – 400 microns), a high precision micro-liter fluid metering pump, and a flexible computer controlled user interface. This is an extremely flexible system that meets the requirements of the cleanliness classifications for Nav-Air, ISO, MIL-STD, NAS, and SAE, etc.

High resolution particle size and count information can be used to identify the source of contaminate particles. A single keystroke can convert a few (up to 32) user defined or industrial classification channels into a high resolution particle size distribution. This allows customers to pinpoint the size of the contaminate particles and can provide insight to their source. In many cases the particle size distribution of the contaminates produces a finger print that can be used to identify the root cause of failure in the mechanical system that produces them.

The open architecture design accommodates everything from small to large volume samples up to 1.5 liters. It also provides access to the sensor for easy cleaning and system maintenance.

The system also allows for onsite calibration from a certified PSS representative or a properly trained customer. The software provides an easy interface for both the IS04406 and IS011171 calibration procedures. PSS offers a training course, for a minimal fee, for calibration as part of the in stallation and familiarization service with the sale of every system. Save time and money by being able to calibrate the system in your facility and on your timetable.

BENEFITS

- Early warning detection of wear particles
- Proactive maintenance eliminates catastrophic failures
- Extend system component life span
- Detect and count submicron particles before they cause damage
- Increase ROI
- Reduce machinery downtime

FEATURES

- Fast easy to use integrated system
- Accurate oil contamination monitoring
- High resolution sizing of contaminates
- Measure and count particles from 0.5 – 400 microns
- High concentration monitoring
- Open architecture for easy maintenance
- Accomodates large volume samples – 1 liter
- Flexible field calibration for IS04406, IS011171, ACFTD, MTD, and PSL
- Customizable reports
- Unlimited analysis recipes

The A2000 has a very flexible user interface/software platform. The system has built in Analysis Recipes for all of the most popular industrial cleanliness classification standards. The A2000 can accommodate an almost infinite set of user defined Analysis Recipes for custom cleanliness classifications. The system has up to 32 user defined channels and 512 channels of resolution which makes it a perfect research tool.

Following is a series of data tables produced by the software for some of the more popular classification standards. Note that the coefficients of variation for the Nav Air Specifications are approximately 5% for the series of samples that were analyzed. This is the level of reproducibility we have come to expect from the A2000 when analyzing a series of samples. The A2000 has the ability of analyzing large volumes of sample, counting large numbers of particles in a short period of time. This analysis produces results with high statistical accuracy which is required when trying to identify low levels of particle counts in contamination monitoring applications.

The A2000 also has a flexible report generator that allows for a series of customizable reports. They can be set up for standard industry classifications or customized to meet the internal needs of an application. Data can be converted from a cleanliness contamination output to a high resolution particle sizing report with just a single mouse click. The A2000 provides the ultimate flexibility bridging the gap between a classical contamination monitoring device and a high resolution particle sizer. It is the best of both worlds in one easy to use package.

Sample	Run Date/Time	>4 um (#/mL)	>6 um (#/mL)	>14 um (#/mL)
Sample 1	8/31/2013 2:48 PM	50.5	25.7	8.0
Sample 2	8/31/2013 2:48 PM	48.0	25.2	6.5
Sample 3	8/31/2013 2:48 PM	45.3	22.2	4.5
Sample 4	8/31/2013 2:48 PM	41.5	19.2	3.2

Mean (#/mL)	46.33	23.08	5.55
Standard Deviation (#/mL)	3.34	2.61	1.84

Classification
13/12/10

ISO 4406-1999

Sample	Run Date/Time	5-15 um (#/100mL)	15-25 um (#/100mL)	25-50 um (#/100mL)	50-100 um (#/100mL)	>100 um (#/100mL)
Sample 1	8/31/2013 2:48 PM	2793.3	403.3	313.3	33.3	0.0
Sample 2	8/31/2013 2:48 PM	2810.0	373.3	173.3	53.3	6.7
Sample 3	8/31/2013 2:48 PM	2703.3	316.7	66.7	13.3	0.0

Mean (#/100mL)	2768.87	364.43	184.43	33.3	2.23
Standard Deviation (#/100mL)	46.86	35.91	100.98	16.33	3.16

Classification
5

NAS 1638

Sample	Run Date/Time	5-10 um (#/100mL)	10-25 um (#/100mL)	25-50 um (#/100mL)	50-100 um (#/100mL)	>100 um (#/100mL)
Sample 1	8/31/2013 2:48 PM	2360.0	836.7	313.3	33.3	0.0
Sample 2	8/31/2013 2:48 PM	2360.0	823.3	173.3	53.3	6.7
Sample 3	8/31/2013 2:48 PM	2270.0	750.0	66.7	13.3	0.0
Sample 4	8/31/2013 2:48 PM	2113.3	576.7	66.7	10.0	10.0

Mean (#/100mL)	2275.82	746.68	155	27.48	4.18
Standard Deviation (#/100mL)	100.77	103.54	101.23	17.37	4.33

Classification
2

NAV AIR 01

APPLICATIONS

- Hydraulic fluids
- Parts washing
- Transformer oils
- Filter testing
- Volatile fuel analysis

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