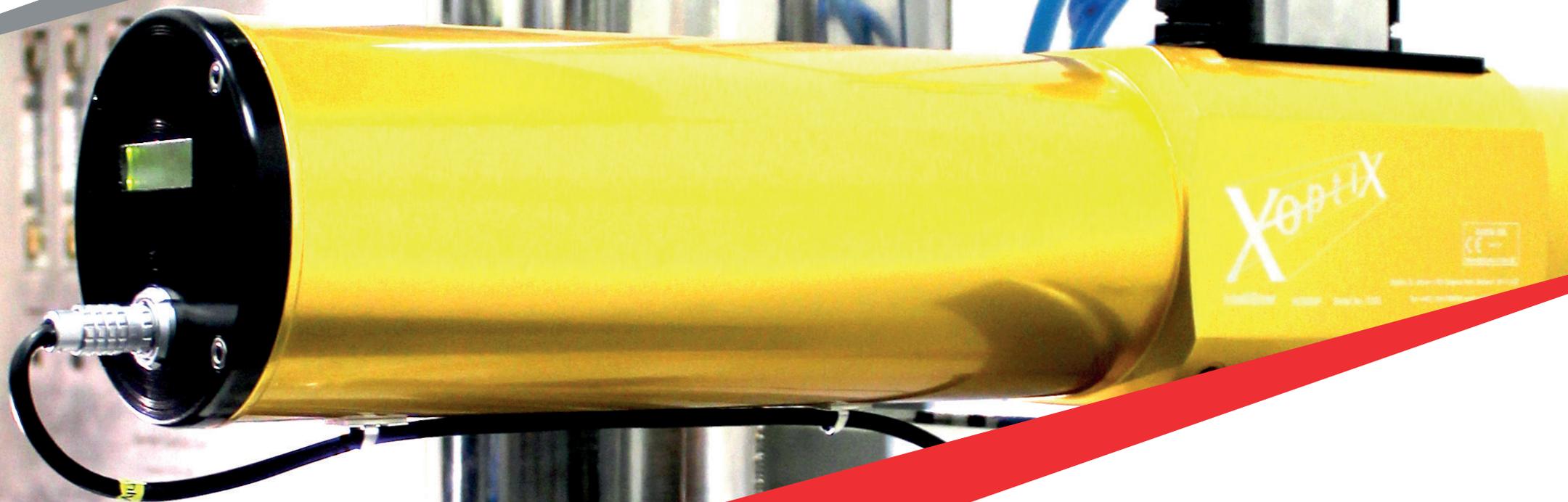


Xoptix



IntelliSizer

Bringing innovation to in-process



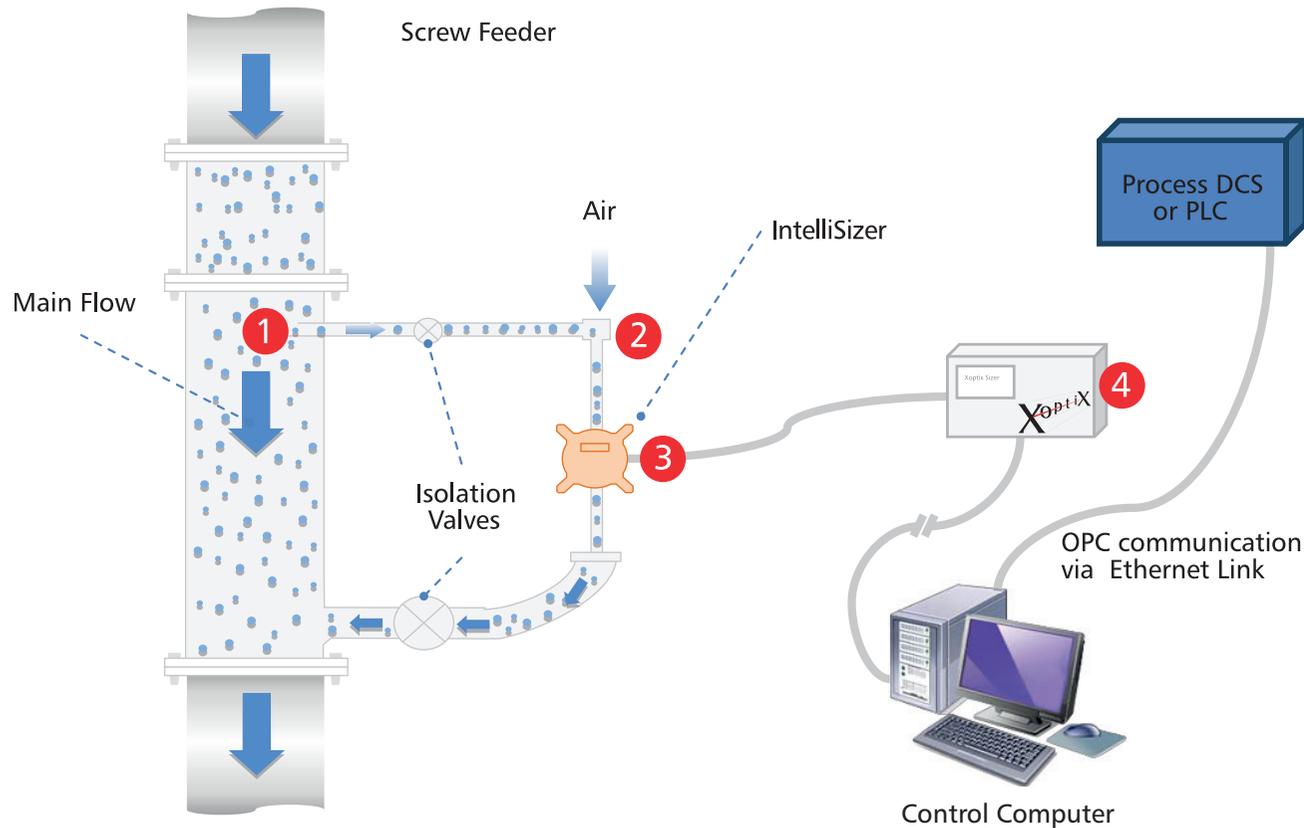
Xoptix

IntelliSizer: Designed to put you in control.

The new IntelliSizer from Xoptix redefines the quality, design and flexibility for In-process Particle sizing.

Quite simply, the best system available on the market at any price, the Xoptix IntelliSizer delivers.

- 24/7 Continuous monitoring of your production process
- Real time results allowing closed loop control.
- Unique patented self monitoring, self diagnosing and self cleaning technology, ensuring maximum uptime
- Wide range of sampling options, extending the capabilities to new applications.
- Built in functions allowing simple feedback of results to control PLC/DCS for closed loop control



The benefits of in-process particle sizing

- Consistency in end product
- Increased throughput
- Reduce over milling
- Reduce energy costs
- Rapid return on investment

Particles are extracted from the process via a sampling probe 1 using a venturi eductor 2. They are passed through the IntelliSizer 3 where they are analysed in real time before being returned to the process.

The particle size data is passed to the control computer via control box 4 where it can be transmitted to the process DCS/PLC.



Xoptix - a list of firsts

- First instrument to be built inside an optical bench – maximum stability.
- First instrument with automatic cell clean. Maximum uptime
- First instrument to offer modular service. Ease of maintenance
- First instrument to offer self diagnostic technology
- First instrument to offer fully automated systems as standard

Why measure in process

The Xoptix IntelliSizer can measure particles in dry or liquid suspension in real time with no measurement delay. Specialist sampling probes and dispersion tools have been developed to allow the widest possible applicability of this technology. Our systems work (and continue working) where others fail.

Particle size is a critical parameter in the production of particulates as it directly affects the performance of the final product in many ways, from the solubility, reactivity and flow properties of the powders being produced, to ultimately the finished product which the powders are being produced for.

The IntelliSizer gives significant advantages over traditional laboratory measurement.

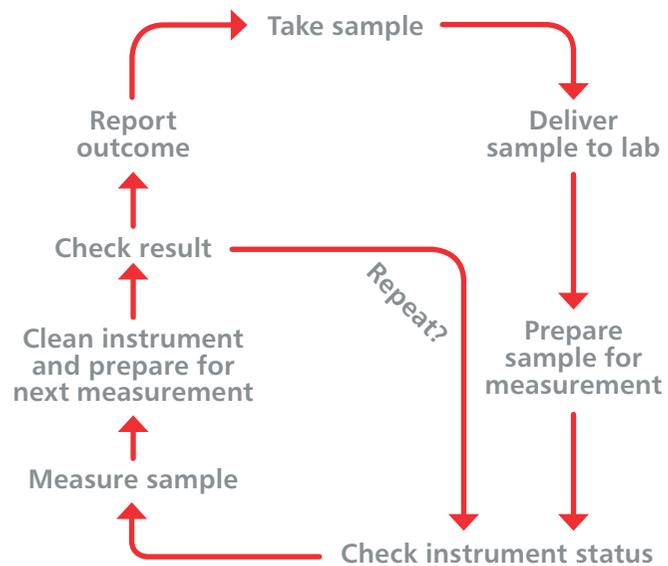
Laboratory Analysis vs Inline Monitoring

Laboratory based measurement, which is still widely used to control the quality of production processes has significant limitations.

- Infrequent measurements so changes in the process are often not discovered for several hours.
- Less precise than direct in process measurement. The biggest potential error in these measurements. Is the human factor. This is removed completely in in-process measurement
- Labour intensive in terms of sampling measurement and reporting.
- Closed loop control can never be possible.

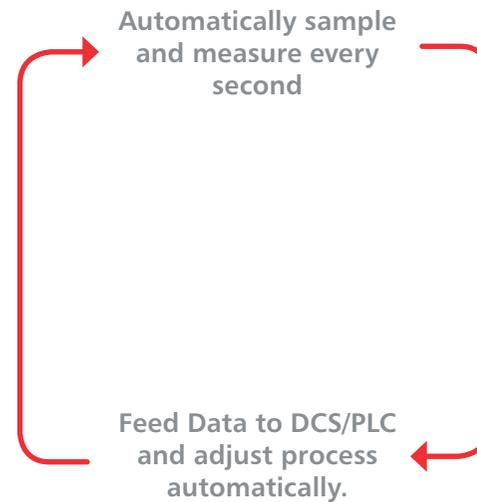
Why in process is essential for process optimisation

LAB MEASUREMENT



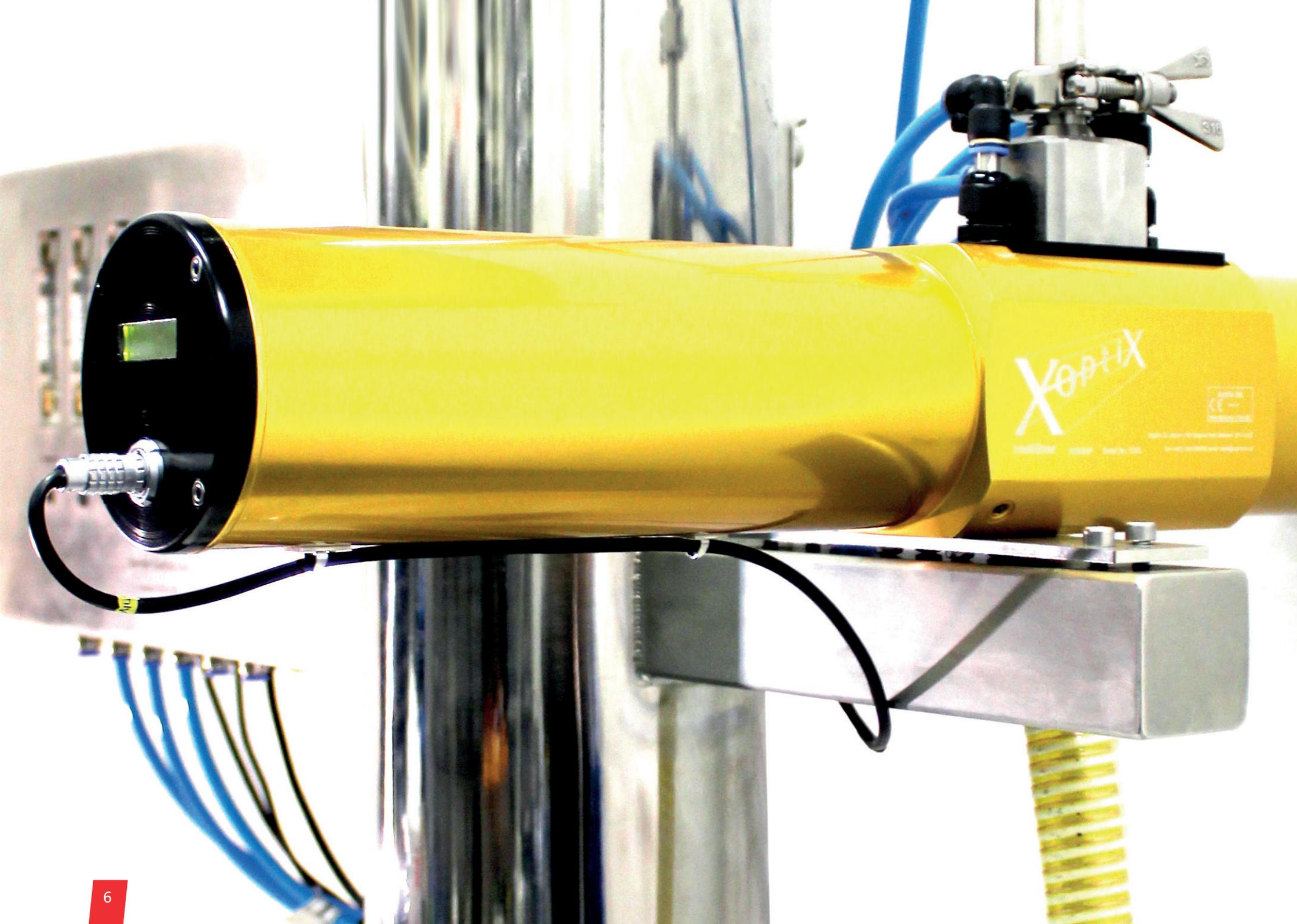
2 Hours 1 Measurement No Control

IN-PROCESS MEASUREMENT



1 second: 1 measurement: Full control

“In-process monitoring puts me in control”



IntelliSizer In-Process Particle Analyser

The IntelliSizer acts as the eyes of the milling process. At the core of the IntelliSizer, is a quality laser diffraction instrument, built to withstand the challenges of process environments. We use high stability lasers, the best optics, and the highest specification custom designed detectors and put it all inside a precision optical bench.

This simple step alone, has given us stability not possible with any other system on the market. Add to that, carefully designed kinematic optical mounts, the latest electronics, intelligent self maintaining software and an IP65 rated enclosure, and you have a genuine industrial first.

IntelliSizer gives you Process Control

When powders are milled to a specific fineness, a degree of insurance over-grinding usually takes place in order to be sure the product is within specification. This costs money, but is an insurance against under-grinding in a process which is only monitored by lab measurement every 2 hours.

2 hours is a long time in a production process, and if an event occurs, tens of thousands of pounds (or more) of product may be lost, or need re-working.

The IntelliSizer measures the complete particle size distribution 2000 times per second producing real time data of the state of the process. By feeding this data to the PLC or DCS and automating the control of the separator such that in-spec product is produced all the time, the energy expended in insurance over grinding is thus eliminated. An added advantage is that the residence time of the product in the mill is reduced, such that throughput can be significantly increased.

To summarise, the ways in which in process particle sizing can save money are:

- Maximise on spec throughput
- Improve tolerance of product
- Faster changeover between different grades
- Reduce waste
- Reduce energy costs
- Reduce personnel costs



Patented Technology

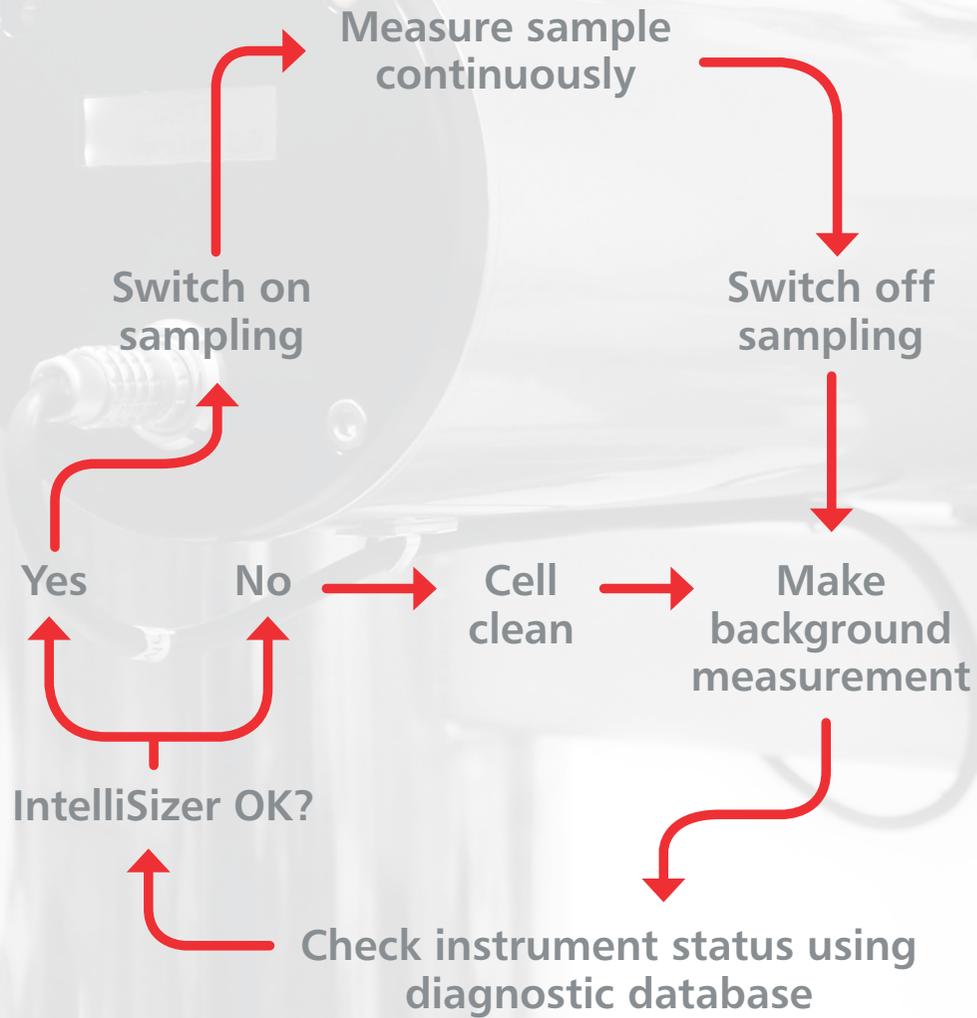
The unique automated cell clean technology in the Intellisizer is the heart of the patented self monitoring, self diagnosing and self cleaning technology which has been designed to keep the instrument operating at optimum performance when all other instruments would fail.

This ensures maximum uptime, and hence the most reliable control of your process. In the unlikely event that the instrument is no longer measuring correctly, it will tell you, thus taking the guesswork out of any diagnosis.

This technology is not available anywhere else and is unique in the Xoptix IntelliSizer range.

In addition, to maximise production uptime, the Intellisizer has ceramic components where required to increase durability and minimise long term maintenance. The lifetime of components exposed to abrasive particles is measured in years.

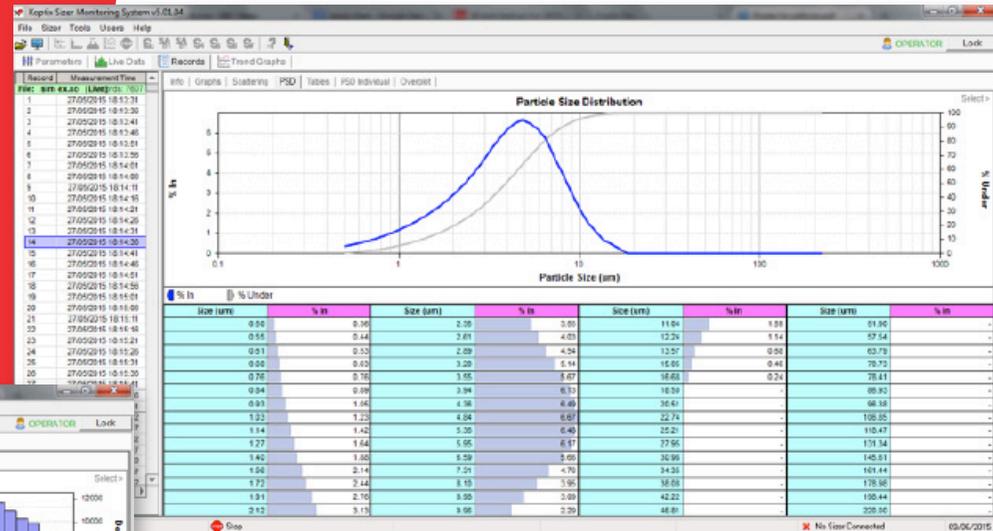
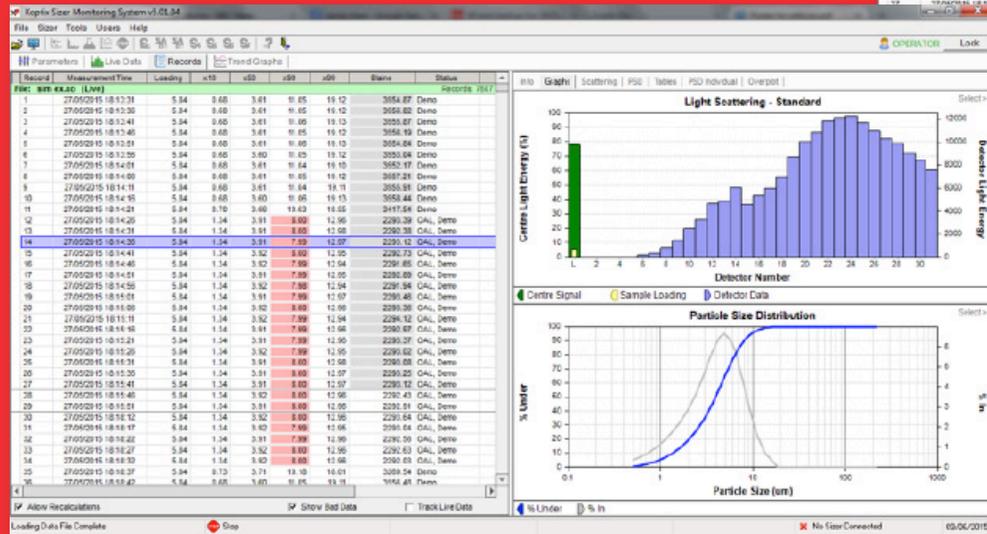
Output is available to the users requirements, from 4-20ma current loop outputs to ethernet communication with the control DCS or PLC using industry standard OPC UA protocol.



One example of IntelliSizer auto diagnostic operation

Detailed Data At Your Fingertips

Very often, 'ruggedised transducers' have limited data output yet at the heart of the Xoptix IntelliSizer is a laser diffraction instrument that can give the very best detailed reporting and data output. Data output exceeds that of traditional laboratory instrumentation with our intuitive Xoptix application suite.



- At a glance easy to interpret information
- Time trend data shows product consistency
- Detailed data on any time point
- Compatibility with lab data
- Output to external control via OPC Ua



Every aspect of particle size distribution data is available from instantaneous per second information, to averaging over a complete process cycle, recorded in either minutes, hours or months. Any or all of this data can be output to the control PLC/DCS for fully automated closed loop control.



Automatic Cell Clean
minimises maintenance

Specification

Size range:	0.1-3000 microns
Sampling rate/resolution:	2000/second/16 bit
Analogue output:	2 opto isolated 16 bit 4-20mA
Digital inputs:	3 general purpose opto isolated inputs
Digital outputs:	8 general purpose digital outputs
Industrial protection:	IP65
Supply voltage	24V dc

Xoptix – A Trusted Partnership

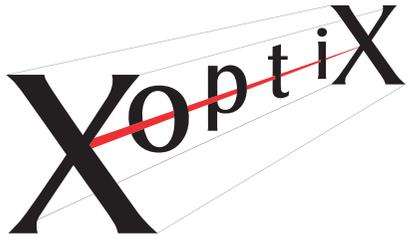
In 2005 the Xoptix Team, with their years of knowledge and experience in laser diffraction technology, developed the XO in-process particle sizer which has evolved into the best system in the world today.

The XO particle sizer is capable of measuring particles from 0.1 to 3000 microns, is robust and monitors in real-time. The benefits to a milling process of installing an XO particle sizer is that post-event analysis is eliminated. The ability to optimise the process can show an immediate financial benefit.

“Xoptix have installations all over the world, testament to their innovative technology and quality service”



Ceramic lined components for durability



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