



New Application Solution for the Leica Q550MW Environment

Leica QClean is a Quality Assurance software programme running on the established Leica Q550MW image analysis workstation. Leica QClean has been closely developed with some of the industry leaders in the automotive field.

Leica QClean controls Leica microscope systems for the automated measurement and classification of particles on circular shaped samples, such as filters in Quality Assurance.

The key features of QClean are.

- Approved quality assurance system.
- Quickly measures circular filters.
- Complete solution including camera, microscope & an image analysis system.
- Highly reproducible results.
- Optimised for quality control purposes.
- Highly customisable to suit your specific application.
- Rapid measurement and classification of multiple particles simultaneously.
- Unique auto detection mode to remove user influence.
- Outstanding mosaic function to measure large and small particles at the same magnification.
- Direct access to all measured particle data with a relocation function for artefact removal.

Leica QClean

Analysis software for the measurement and classification of particles on filters

Leica

MICROSYSTEMS

The Leica Assurance of Quality

Measuring for Cleanliness

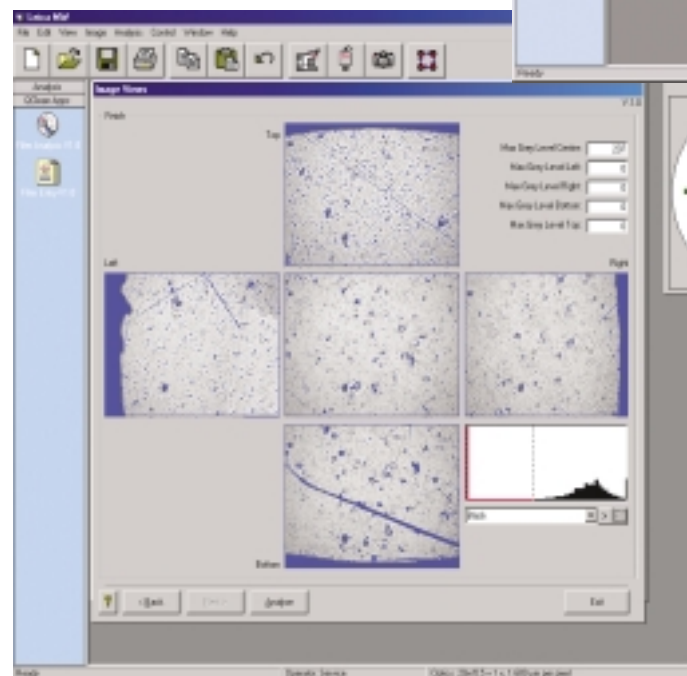
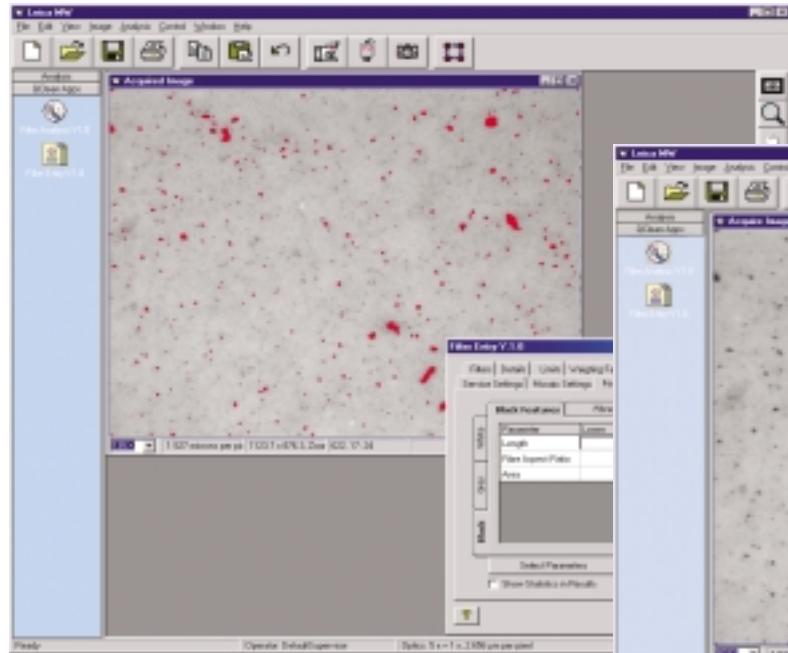
Designed to measure the contamination of cleaning fluids for micro mechanic and engine components during the production process, Leica QClean can be used in all applications where particle classification and characterisation on circular shaped substrates is undertaken. Examples include testing the cleanliness of lubricants, hydraulic fluids, fuels, measurements for environmental pollution, carbon black particles in diesel exhausts, and controlling the cleanliness of engine blocks, gear boxes, camshafts and crankshafts.

Critical Quality Factors

The lifetime and functionality of engineering components is often dependant on their cleanliness after the production process. The reliability and durability of components, especially those used in the automotive and aerospace industries, can be easily affected by tiny dirt particles. Using Leica QClean, for quantitative Quality Assurance, means that early component deterioration can be avoided. Furthermore, the automation with motorised scanning stage and auto focus, are optimised for the measurement of circular shaped samples, in an environment close to production and guarantee highly accurate results.

How does it work?

The system automatically measures filters where the cleaning fluid of micro mechanic and engines components has been poured through, and dried in an oven. The size and number of particles measured on this filter are used for characterising the cleanliness of the components to standard quality requirements defined by the customer.



Automated for Simplicity, Speed and Accuracy

Leica QClean is designed to automatically measure circular filters with arbitrary diameters, without having to specify a scanning pattern, using a motorised microscope stage.

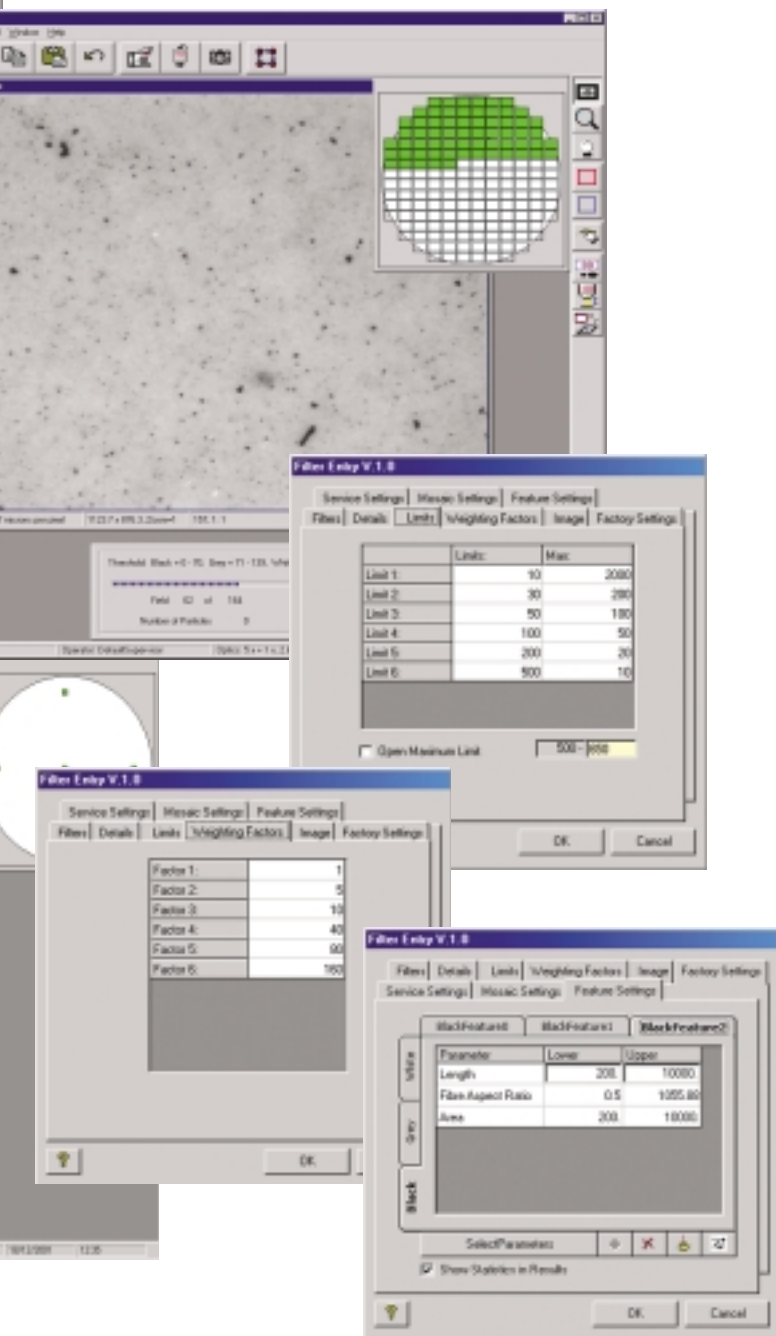
It is easy to detect three types of features (based on the grey shade) by simply adjusting the threshold. Furthermore, Leica QClean provides a unique auto detection mode for measuring black features on a bright background.

Arbitrary settings of parameter limits for the selection of specific particle types make it easy to adapt the system to special requirements, for example, particle characterisation and classification in Quality Assurance close to the production line. The intuitive prompt screens, guide users through each function, making it significantly quicker and easier to use.

For each of the three types of particles detected (darker than, whiter than and grey depending on the application) three subclasses can be defined referring to geometric parameters like size, roundness or elongation. The results for all these (max. 9) different types of features can be classified in up to 16 bin classes with selectable bin limits. Selectable limits for the number of particles allowed for each class can be defined and end up in OK/not OK for each class or the whole sample respectively. If required, a final contamination number can be obtained, by adapting the weighting factors for each class, describing the contamination of a filter in just one figure.

Data can be stored in a database or printed out in easy to customise MS® Word™ format using the bookmark technology.

An arbitrary number of different settings for specific filters or samples can be stored in a filter database to easily optimise and adapt the systems settings to changing requirements.



System Specification

Options

We are able to offer system options that not only depend on the filter size or particle size to be measured but also on your budget and requirements with automated microscopes or macroscopes.

Hardware

- Leica DM RE HC microscope with incident optics, 5×, 10× and 20× lenses, polarising filter, with Merzhaeuser scanning stage 4×4.
- Or Leica DM LM with Prior stage and z-drive
- Or macroscope Leica M420/Stereomicroscope with motorised stage
- Stage – XYZ control with joystick or trackerball
- Leica Q550 MW with special filter software (Leica QClean)
- Sony XC-75E b/w camera
- Calibration slides for grey and length calibration

Software

The software is usable in three different modes with different authorisations referring to the special requirements in Quality Assurance:

1. Service Engineer (Basic systems settings and calibrations) plus all functions of 2 and 3.
2. Supervisor (Data base handling, definition of analysis settings and evaluation detail) plus all functions of 3.
3. Standard user (Changing the filters, input of measurement specific data, set up the image, focus, starting the measurement, store and print data).

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