

solino™

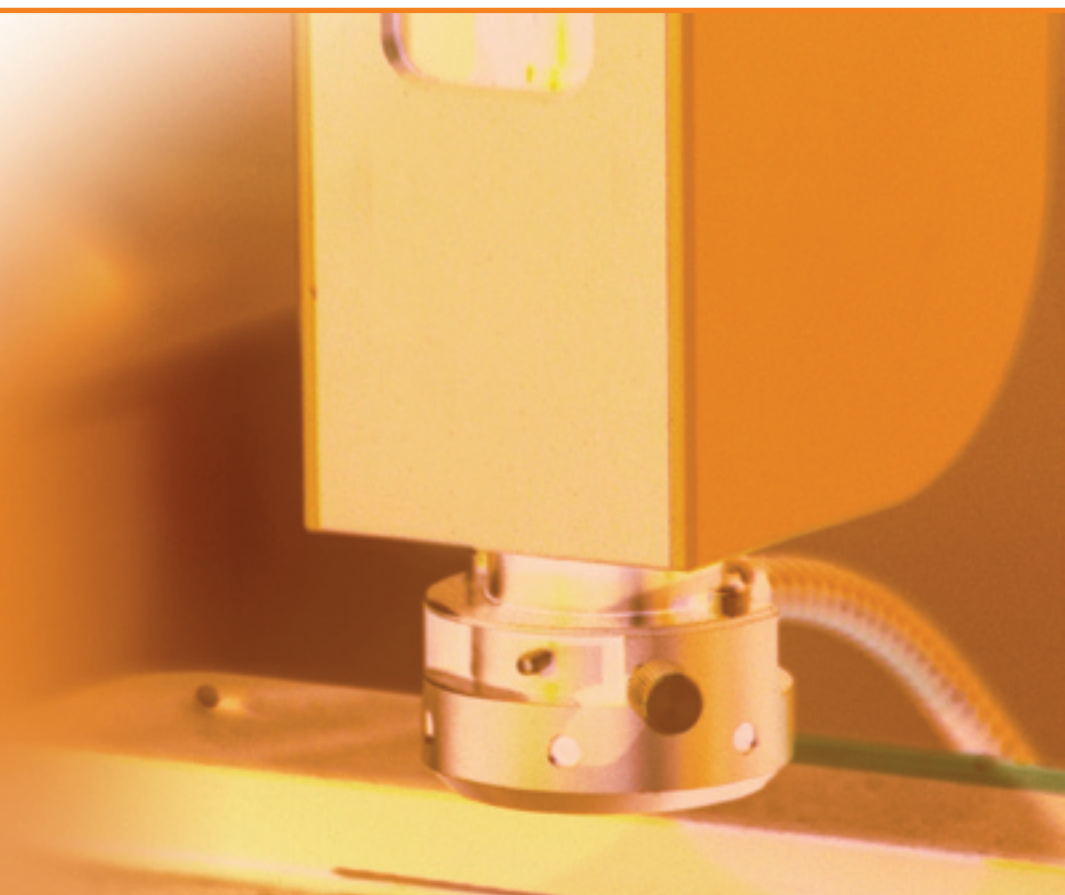
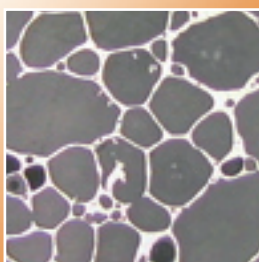
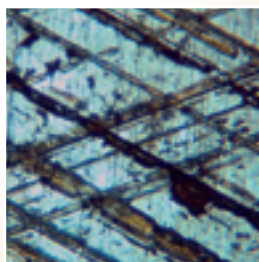


IMAGE ANALYSIS SYSTEMS

The 2011 Catalogue for Material Science

www.solino.com

Solutions in Optics

Welcome to the solino Orange Line Catalogue,

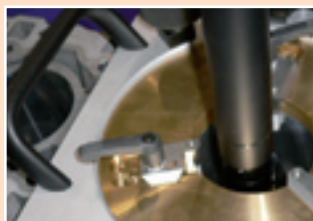
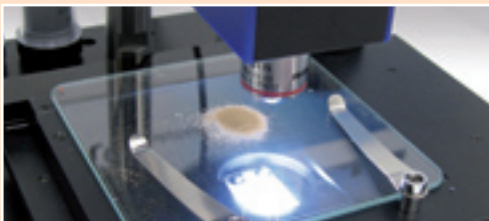
our range of specialised Image Analysis Systems. Opto Sonderbedarf, the company behind solino, was established in 1980 and is a leading supplier of optical inspection and machine vision systems specialised in stereo microscopy, zoom systems and custom optical solutions.

This catalogue contains analysis systems designed and manufactured by Opto, dedicated to solve specific tasks using advanced software. They can be easily adapted to almost any possible application. If you have any questions, just give us a call and we will be happy to assist.

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Quotation, Ordering & Terms

We are pleased to provide you with a solution specific to your need. Just call your local partner for a detailed and tailor made quotation.

Terms of business can be found on our webpage. Specifications in this catalogue are current at the time of publication but Opto reserves the right to change these specifications without prior notice. Pictures can show different or alternative specifications. Technical information and guidance provided in this catalogue is intended to be useful in the application of Opto products but we do not accept responsibility for its use.

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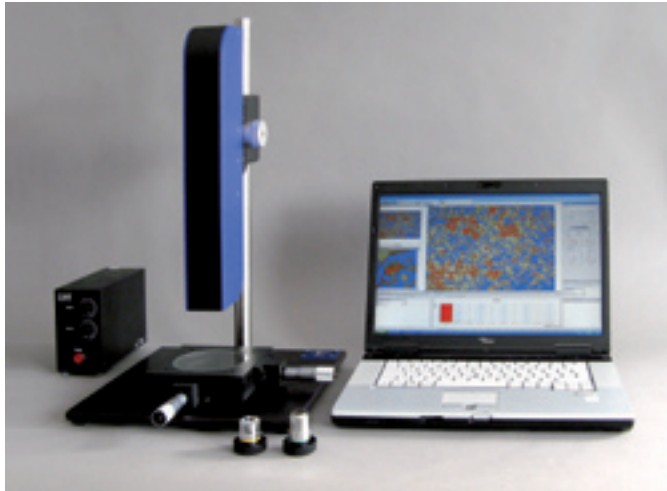
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New Products

MaSta material analysis station – a highly cost-effective, image-based optical material analysis solution for a wide variety of material examinations. Reduced to your needs.



Powder Analysis System – similar approach as the MaSta but dedicated to analyse powders, bulk, particles, pores or other objects with undefined size and shape.



TroubleBox – High speed video capturing solution to capture and analyse events in production lines or other high speed processes.

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MaterialAnalysis Station

Compact and affordable - MaSta offers a ready to use solution for your industrial routine work in quality control and material science to an all-inclusive price.

Pre configured software packages guide you from image acquisition through analysis and evaluation to report creation.

MaSta is the right tool form simple measurement tasks down to complex applications. Material Analysis reduced to your needs!

Your Benefit:

- Complete solution for material analysis
- As simple as one, two, three:
 - Image Acquisition
 - Analysis
 - Report
- Microscope with camera and illumination
- Professional image analysis software for tests according to internationalstandards
- Report generator
- All typical metallographic measurements included

Components and key features:

Video microscope

- High resolution optics
- Microscopic magnification can be changed to 4x, 10x, 20x, 40x
- Field of view's range from 2.13x1.71 mm with the 4x down to 0.24x0.19 mm using the 40x objective
- Coaxial LED illumination
- Focusing coarse/fine
- Manual X/Y stage

Software

- Professional image analysis software for material testing
- Module for Particle-, Phase- , grain-size analysis as well as manual measurements
- Report generator
- Compatible with Microsoft Windows XP / Vista / 7

Camera

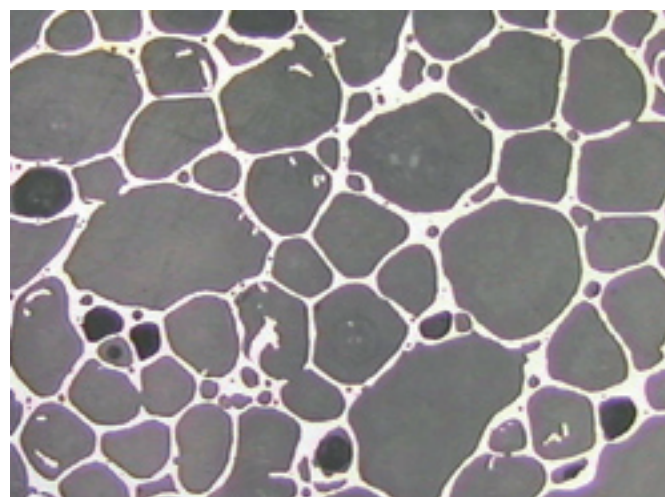
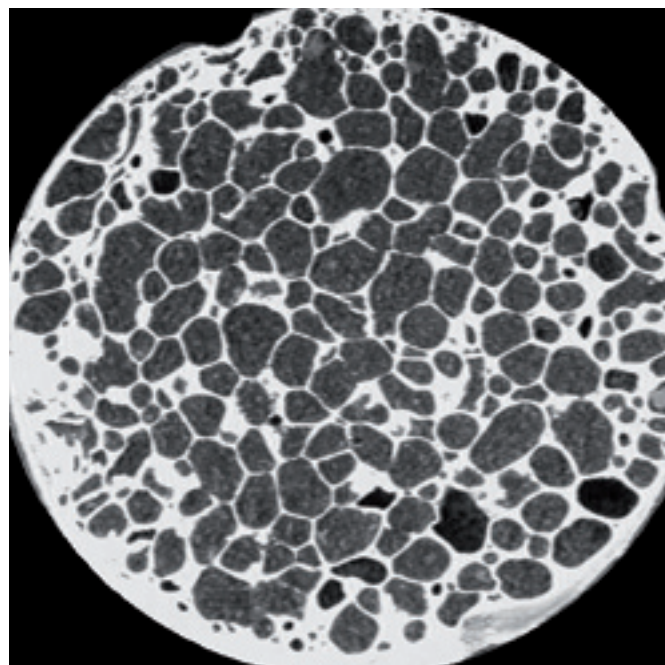
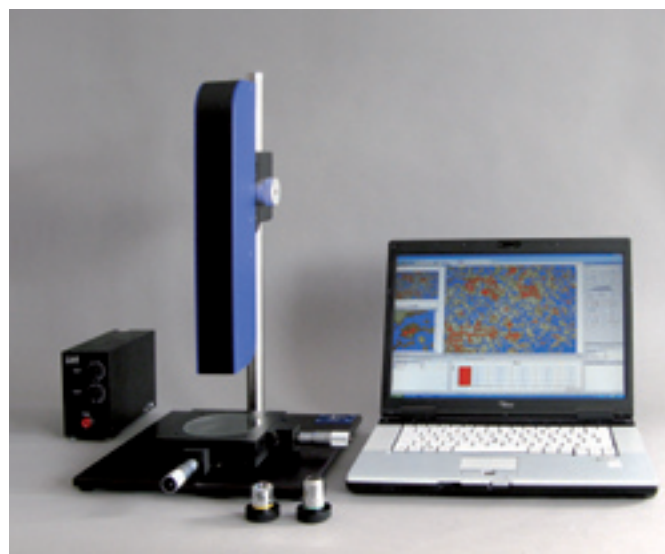
- Digital USB 2.0 microscopy camera
- Resolution 1280 x 1024 Pixel (1.3 MPix)
- High refresh rate for smooth focussing

MaterialAnalysis System MaSta

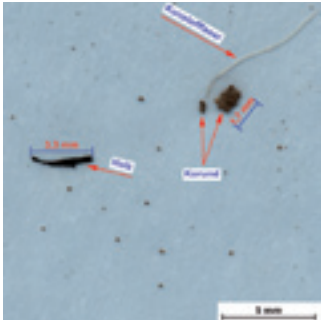
System containing of:

- Microscope with digital USB 2.0 camera and illumination
- Stand and manual stage
- Image analysis and report software

Order-Nr	045-100130
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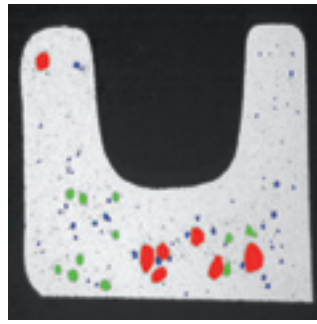


Software at a glance:



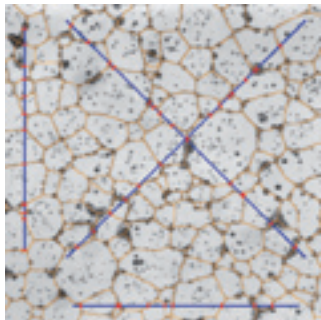
Manual Measurement

- Interactive measurement of Length / Angle / Area
- Tools for image documentation Scale / Arrow / Text



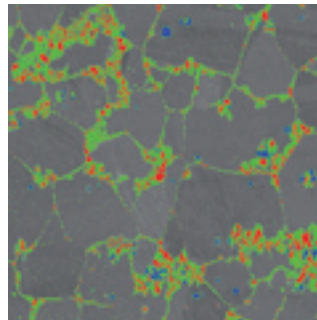
Pore & Particle Analysis

- Quantitative analysis of object population of any kind, segmentation, measurement and rating of single objects such as pores, phases, cast iron,...
- Identification of porosity conforming to standards:
 - VDG-Merkblatt P201
 - VW Konzernnorm VW 500 97 - PV6097



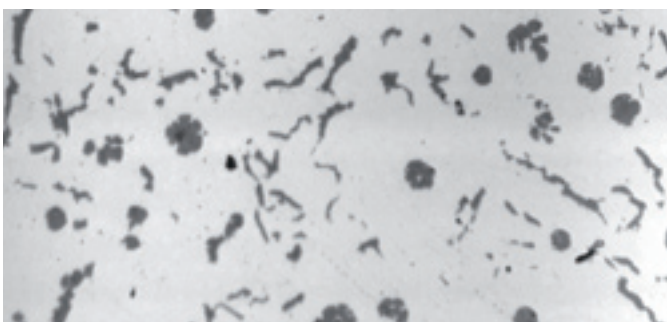
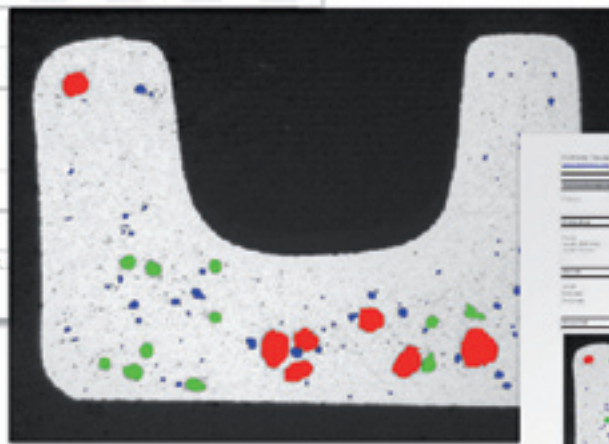
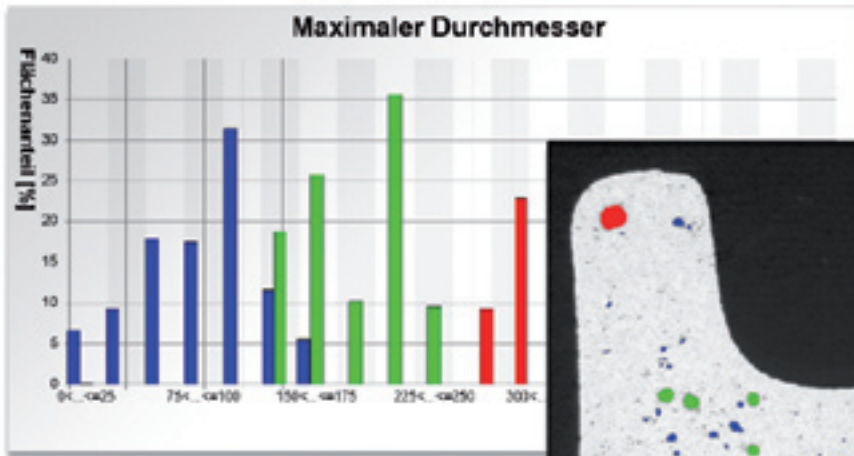
Grain Size

- Determination of grain size for single-phase, ferritic and multi-phase ferritic pearlitic grain structures according to DIN 50601 or ASTM E112
- Support of linear intercepts of grain boundaries and of area based counting



Phase Identification

- Determination of the rate of content of phases:
 - Method 1: Using thresholds in the intensity image
 - Method 2: Using the point count approach according to ASTM E 562-02



Cast Iron analysis

Powder Analysis System

Powerful yet affordable – this system was specially developed for quality control of powders. Compact design, ease of use and high productive features – to an all-inclusive price.

The pre configured software packages allows automatic measurements, analysis and evaluation of powders as well as creating reports with the push of a button.

Your Benefit:

- Complete solution for powder analysis
 - Image Acquisition
 - Analysis
 - Report
- Microscope with camera and illumination
- Professional image analysis software for automated tests
- Automatic report tool

Components and main features:

Video microscope

- High resolution optics
- Microscopic magnifications of 4x, 10x, 20x, 40x
- Transmitted light illumination
- Focusing coarse/fine
- Manual X/Y stage

Software

- Professional automated image analysis software
- Module for Particle and Powder analysis as well as manual measurements
- Report generator
- Compatible with Microsoft Windows XP / Vista / 7

Camera

- Ultra compact digital USB 2.0 microscopy colour camera
- Resolution 1280 x 1024 Pixel (1.3 MPix)
- High refresh rate for smooth focussing



Powder Analysis System

System containing of:

- Microscope with digital USB 2.0 camera and LED illumination
- Stand and manual stage
- Image analysis and report software

Order-Nr	045-100132
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Software at a glance:

Manual Measurement

- Interactive measurement of Length / Angle / Area
- Tools for image documentation Scale / Arrow / Text

Particle Analysis

- Quantitative analysis of object population of any kind, segmentation, measurement and rating of single objects
- Measurements in single or out of a series of images
- Analysis of shapes and sizes
- For any kind of powders, bulk, particles, pores or other objects with undefined size and shape

Statistical Processing

- Sorting, classification and typification of particles and powder grains with more than 50 object-parameters
- Display as table or chart
- Export of raw data for further statistical processing

Report Generator

- Automatic report generation
- Fully configurable
- Language tool for simultaneously creation of reports in different languages
- Direct export to MS-Excel



Cleanalyzer

The Cleanalyzer is a high-end analytical system designed to examine particles on filters – a key procedure in performing reliable and reproducible evaluation of component cleanliness.

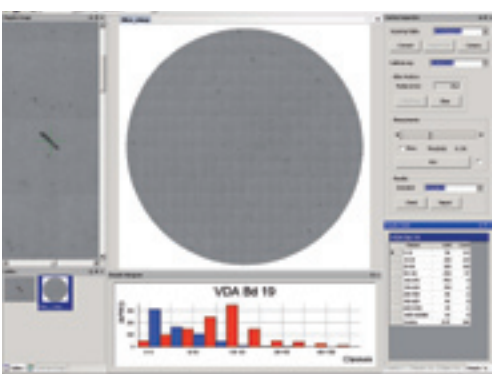
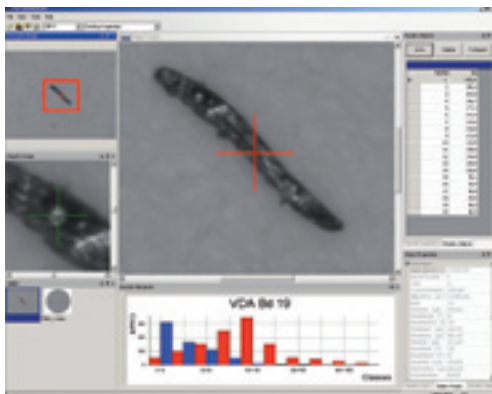
Precision mechanical parts machined to exact tolerances are susceptible to damage or malfunction caused by particulate contamination. To address this issue, component cleanliness must be measured, and quantified in order to guarantee full function and to avoid failures due to particulate damage. The Cleanalyzer system is a powerful, fully integrated test platform which enables precision measurement, analysis and documentation of this critical cleanliness indicator. Cleanalyzer is fully compliant with all current particulate standards.

Key Features

- High end optical system with perfectly matched illumination to ensure optimum image quality
- Powerful yet simple software interface for automatic measurement, analysis, separation and classification of particles
- ISO 16232 and VDA Bd. 19 standards included, easy creation of user standards
- Measurement of particles down to 50µm, 35µm, 11µm or 5µm (depending on version)

Your Benefit

- Precise and repeatable statements describing the cleanliness of an item
- Easy to use with super-fast processing times
- Ultimate reliability and repeatability
- Same sophisticated software for all systems providing analysis of single particles, particle classes and particle types
- Easy documentation with freely configurable autoreporting and simple export into excel or other databases
- Individual particle locations can be stored and accessed for closer inspection in live mode or anytime from the database
- Automatic detection of reflecting particles (e.g. metals)



Software

All systems ship with the powerful yet easy to use Cleanalyzers software suite:

→ Insert Filter

→ Start measurement

→ Image acquisition and display of intermediary results

- Analyzing of number, shape, size and classification of particles
- Standards ISO 16232 and VDA Bd. 19 are already included, easy user-creation of own standards
- Automatic detection of particle types (reflecting particle (e.g. metals), fibres)
- Evaluation of more than 50 particle parameters for each particle (Length, width [according VDA], area, length of fibre, width of fibre, brightness, reflection rate and many, many more)
- Configuration and storage of different system setups for various measuring tasks
- Easy export function for all analysed data into database and/or Excel (freely configurable; overview, single particles, particle categories, particle parameter)
- Calculation of Component-Cleanliness-Code (CCC) according ISO 16232
- Filtering of particle types and/or particle classes
- Efficient particle processing (e.g. separation of overlapping particles)
- Modern and fully customisable user interface for different measuring scenarios
- Compilation of overview image with particle coordinates for post processing tasks (e.g. material analysis via EDX)

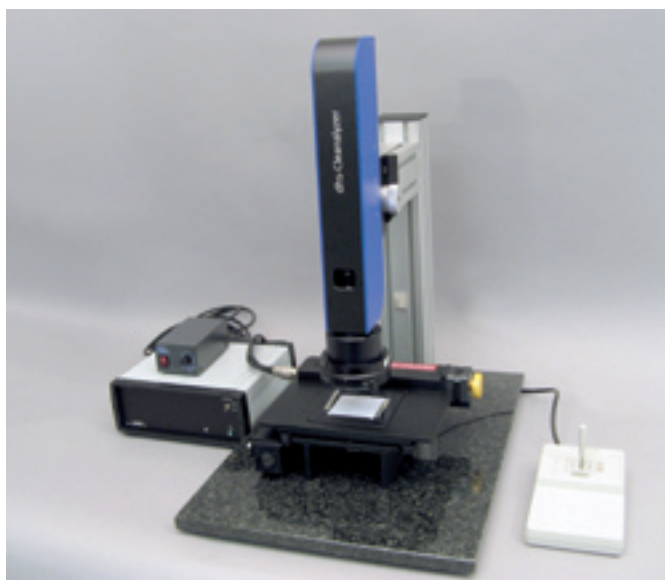
Cleanalyzer Advanced

- Perfect for small quantities of filters (5-10 / day)
- Semi-automatic table
- LED ring light
- High-resolution fixed optics
- Performance / price optimized
- Analysis of particles down to 50µm



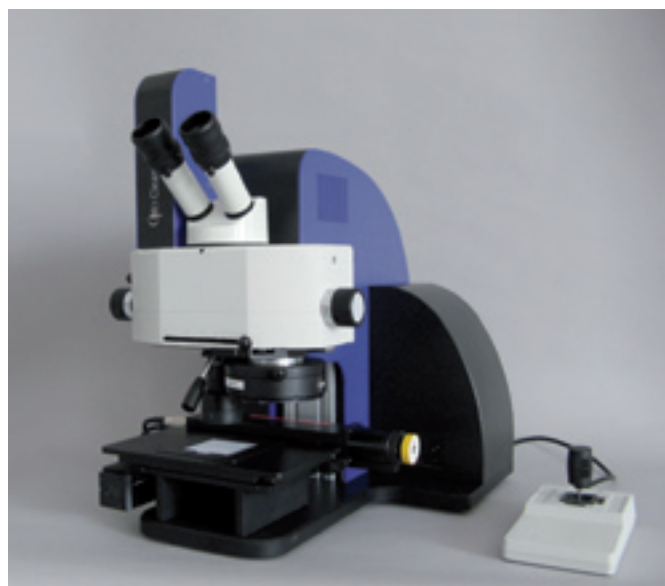
Cleanalyzer Pro

- Fully automated process runs
- High-resolution, optical zoom system (Pro 15 µm and 5 µm Versions only) or fixed magnification (50 µm Version) enables repeatable, ultra precise measurements
- PC controlled x/y stage with additional manual joystick
- Optimised LED ringlight illumination
- Available in three versions, measuring down to either 50 µm, 15 µm or 5 µm

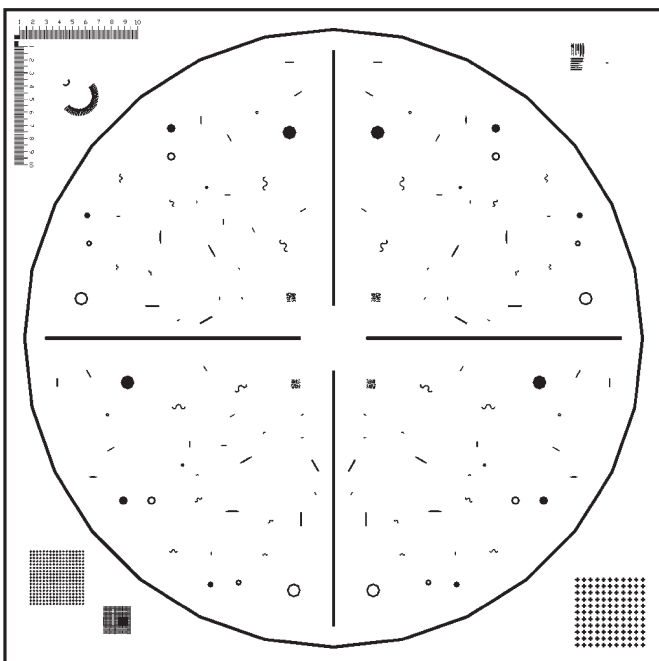
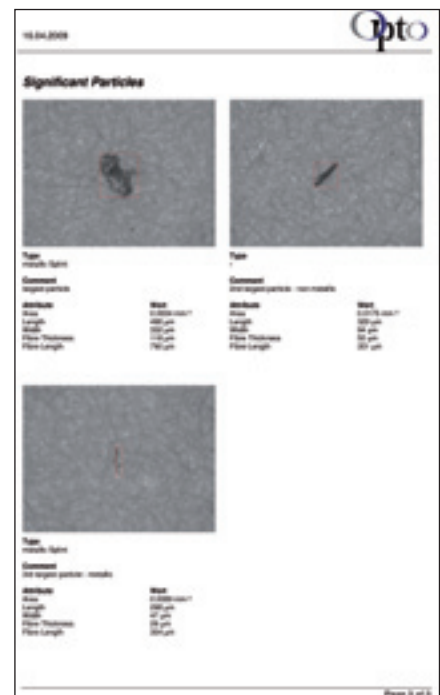
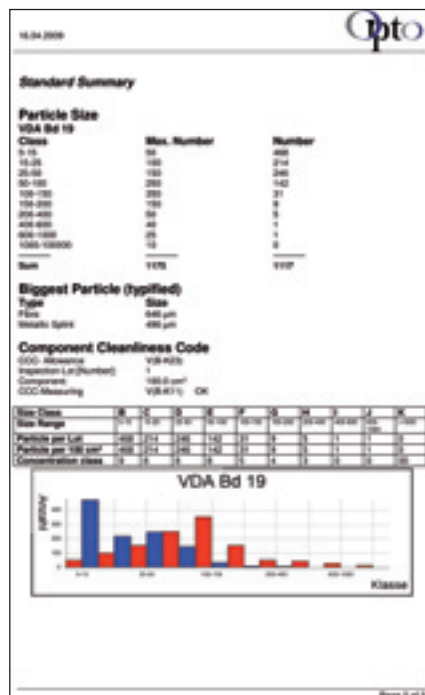
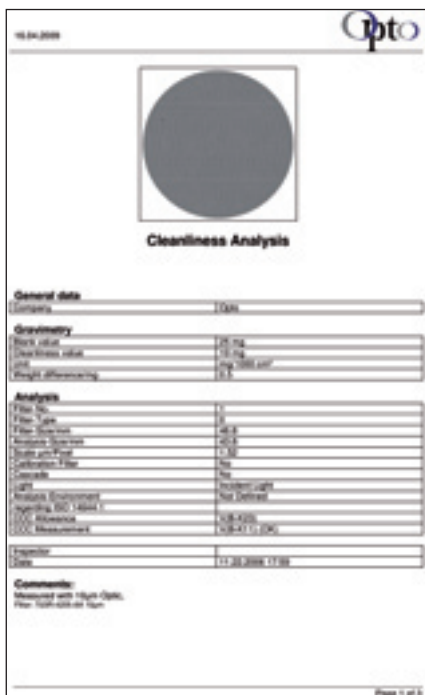


Cleanalyzer Stereo

- Unique design, combining the advantages of stereo- and TV-microscopy:
 - For measurements video microscopes offer high resolution and a completely perpendicular optical path
 - A Stereo Microscope provides the best impressions for visual inspection of particles, having different images projected to the left and right eye, resulting in a very real, natural 3D impression
- User can choose between 3 different positions:
 - High-resolution measurement with a micro objective (like a common TV-Microscope)
 - Low-resolution measurement with stereo objective (use of stereo objective moved into the optical path of the TV-Microscope)
 - Binocular visual inspection with stereo objective (3D visual inspection like a pure Stereo-Microscope: 3D Impression of particles)
- Fully automated process runs
- PC controlled x/y stage with additional manual joystick
- Optimised LED ringlight illumination
- Measuring particles down to 5 µm



	Cleanalyzer Advanced	Cleanalyzer Professional			Cleanalyzer Stereo
Maximum resolution (according to VDA Bd. 19, pixel size)	4.7 µm per pixel	3.5 µm per pixel	1.1 µm per pixel	0.5 µm per pixel	0.5 µm per pixel
Smallest measurable particle (according to VDA Bd. 19)	50 µm	35 µm	11 µm	5 µm	5 µm
Measuring speed per filter (pixel size 4.7 µm/Px / filter dia. 47 mm)	Depending on user 5-10 min	3 min	4 min	4 min	4 min
Object field [X]	6 mm	5.0 mm	1.0 mm-7 mm	0.6 mm-4.3 mm	0.6 mm - 8.5 mm
	Cleanalyzer Advanced	Cleanalyzer Professional 50 µm	Cleanalyzer Professional 15 µm	Cleanalyzer Professional 5 µm	Cleanalyzer Stereo
Order-Nr	043-102303	043-102307	043-102302	043-102305	043-102304



Particle Standard Target

The Target is a very powerful tool for adjustment and control of optics and image-analysis software. A micrometer enables perfect calibration of the measurement functions of a microscope. A field of objects in different forms and sizes allow the user to check rectangles, ellipses, circles, rings and even fibre-shaped objects. Our particle standard target also includes a range of fibre-shaped objects in different sizes. To determine optical distortion there are three different sized arrays of crosshairs. The smallest object on the target is 5µm.

Particle Standard Target

100-TA001	Particle Standard Target	70 x 70 x 2 mm
043-102302-73	DKD certificate for 100-TA001	

TroubleBox

TroubleBox is a high speed digital video recording system designed to significantly improve the accuracy of diagnostic analysis and maintenance operations in industrial applications. TroubleBox is designed to continuously film industrial processes as well as specific areas of a production line. TroubleBox optionally comes with a powerful software module which continuously and automatically process and analyze every image frame, seeking a predefined trigger in the image in order to raise an alarm and capture the process events.

Through the capture of high speed events, users are able to closely examine a sequence, either frame by frame, or by using the slow motion playback mode in order to fully understand their high speed processes. This vital information allows them to optimize machine settings or to perform the necessary adjustments to their production line. TroubleBox is simple to configure and can be seamlessly installed as a full time production line supervision system. A wide range of cameras and accessories enable TroubleBox to solve complex problems, whilst providing the versatility to operate in a wide field of applications.



Key Features

- Precision documentation of high speed events
- Compact video recording system for industrial maintenance, scientific applications and outdoor applications
- Up to 500 images per second at full resolution of 1280x1024 pixels
- Easy to use Software for simple definition of recording settings and comfortable analysis of the captured imagery
- Optional Auto-Trigger software module

Your Benefit

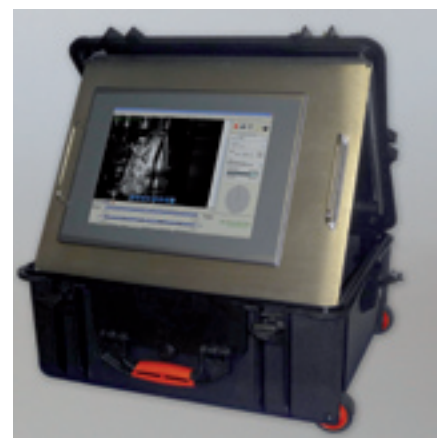
- Complete Trouble-Shooting solution – perfectly matched Optics, Camera and Illumination combined with a flexible stand
- Easy to use and quick to set up
- Integration into Production Lines for permanent manufacturing supervision
- Reduction and prevention of manufacturing line failures, thus leading to increased production quality and yield



100-TB200



100-TB200-PC



100-TB200-Panel

TROUBLEBOX Portable solution for high speed video recording

Advantages :

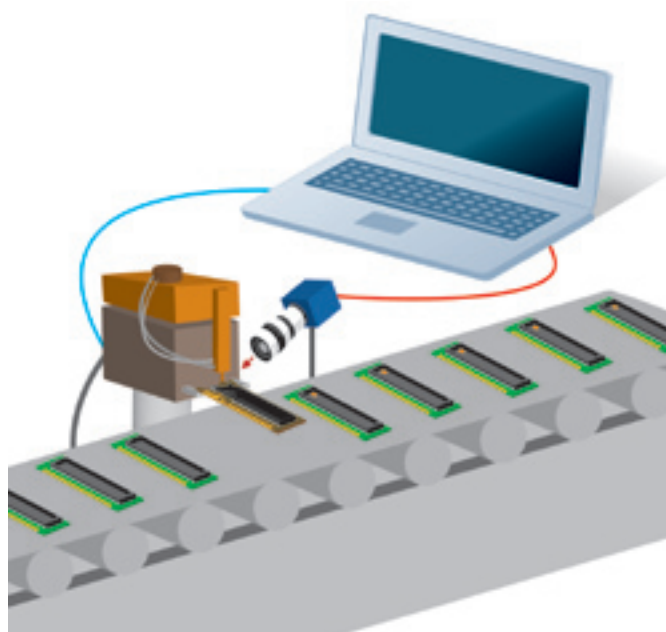
- Portable & rugged
- Comprehensive range of accessories
- Modular and extendible
- 100% production supervision watchdog

Triggering signal

- Automatic by electric signal
- Manual by user
- Automatic detection by software (optional)

Record, playback and review simultaneously, export into:

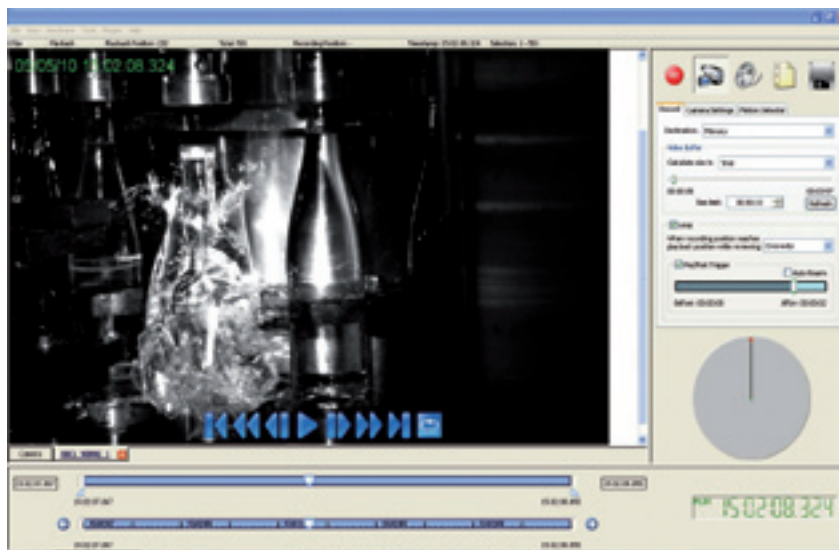
- Images: .bmp, .tif, .jpeg
- Video: .mov and .avi with adjustable playback speed



TROUBLEBOX 200			TROUBLEBOX 500
100-TB200	100-TB200-PC	100-TB200-PANEL	100-TB500
PC Not included	incl. Laptop	incl. Panel PC with touch screen	incl. Transportable PC
Camera monochrome (optional colour)			Camera monochrome
Full resolution of 640 x 480 pixels at 264 im./s			Full resolution: 1280 x 1024 px at 500 im./s
From 260 images per second up to 1000 images per second depending on resolution			up to 120 000 im./s depending on resolution
depend on PC configuration	Recording: 50 sec. in RAM	Recording: 21 sec. in RAM	Recording: 18 sec. in RAM
Special high speed LED illumination with 1400 lumen			
Delivered with accessories: photo support, fixation arm, I/O module, flight case			

Software Features:

- Continuously recording loops
- Optional autotriggering on event
- Record, playback and review simultaneously
- Bayer conversion and LUT
- Sequence deconstruction: frame by frame
- Export in BMP, TIFF, multi TIFF, JPEG, PNG, FITS, AVI or MOV



CylinderInspector

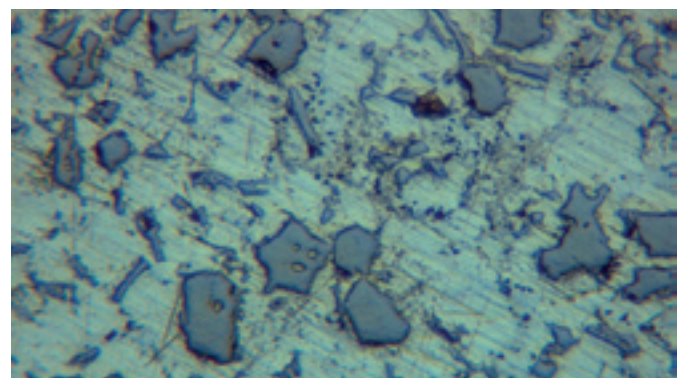
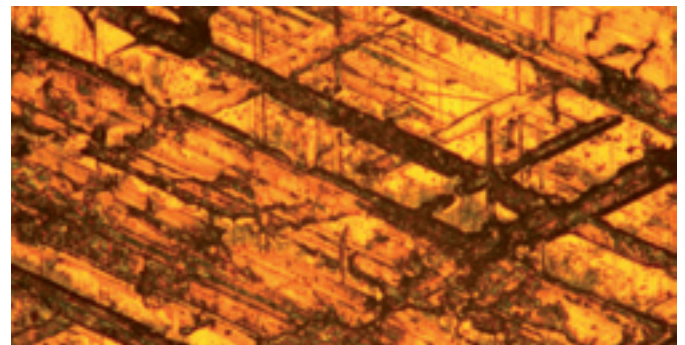
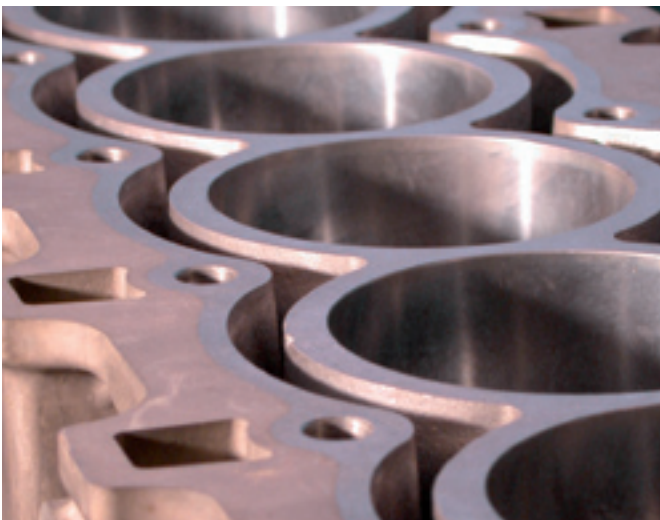
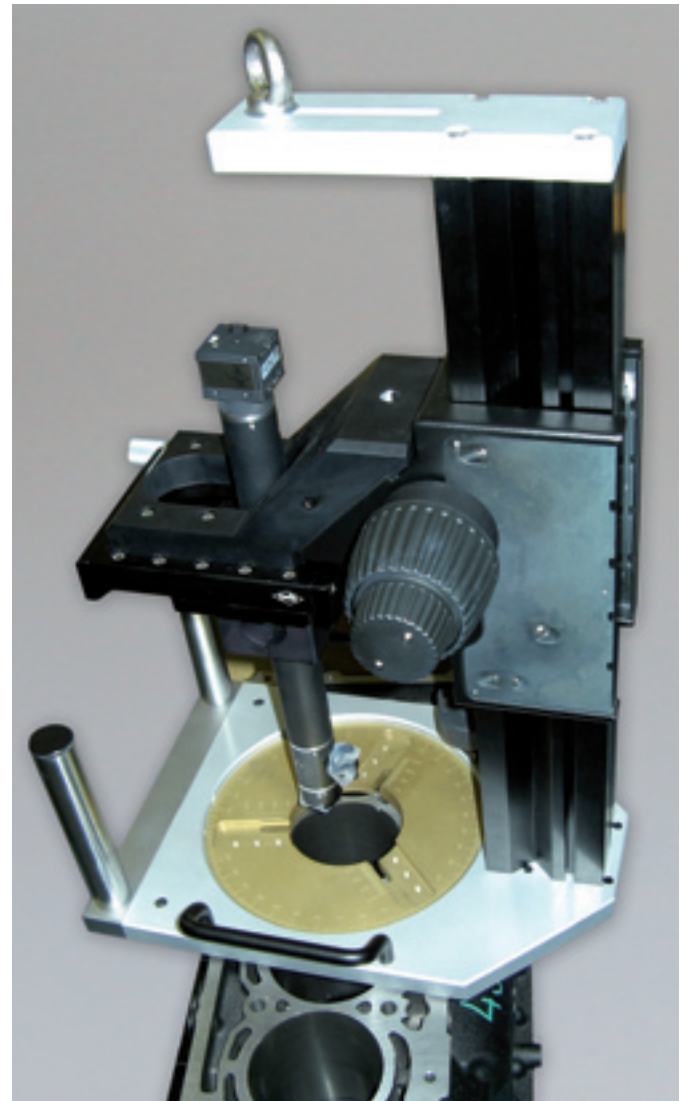
CylinderInspector is an all-optical, non-contact inspection and measurement tool to inspect cylinder walls. It is able to provide perfect optical inspection of honed surfaces in cast iron and aluminium, as well as the detailed analysis of composition and distribution of silicon crystals in aluminium. CylinderInspector has already gained its heritage as the inspection instrument of choice amongst many automobile and engine manufactures internationally.

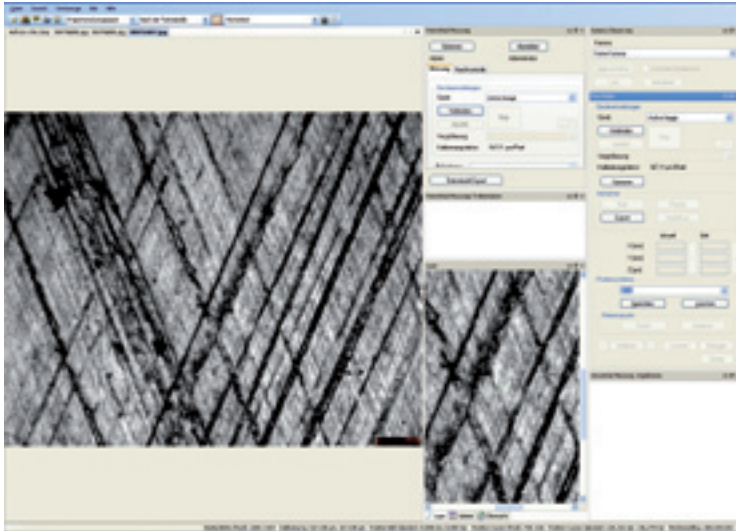
Key Features

- High end optical system with perfectly matched illumination to ensure optimum 'in-cylinder' image quality
- Powerful yet easy to use CylinderInspector software suite for measurement and analysis of key parameters including automated hone angle measurement, and crystal distribution
- Available in eyepiece, video, or fully automated versions
- Non contact, self centering mechanisms for easy insertion and removal
- Full 360° rotational view with variable insertion adjustment
- Able to fit wide variety of cylinders ranging from 60mm to 130mm in diameter (dependend on model and configuration)
- Optical zoom and remote focus system allows the user to inspect the surface at different variable magnifications

Your Benefit

- Perfect manual or automated optical inspection of internal cylinder bore walls, honing angle measurement and crystal distribution.
- Standardised inspection process between supplier and customer
- Enables precise and repeatable measurement of pre-defined parameters – significantly enhancing control over cylinder production processes and ensuring far higher levels of product quality control.
- Totally customisable programming interface
- Report Tool





Features of the CylinderInspector software

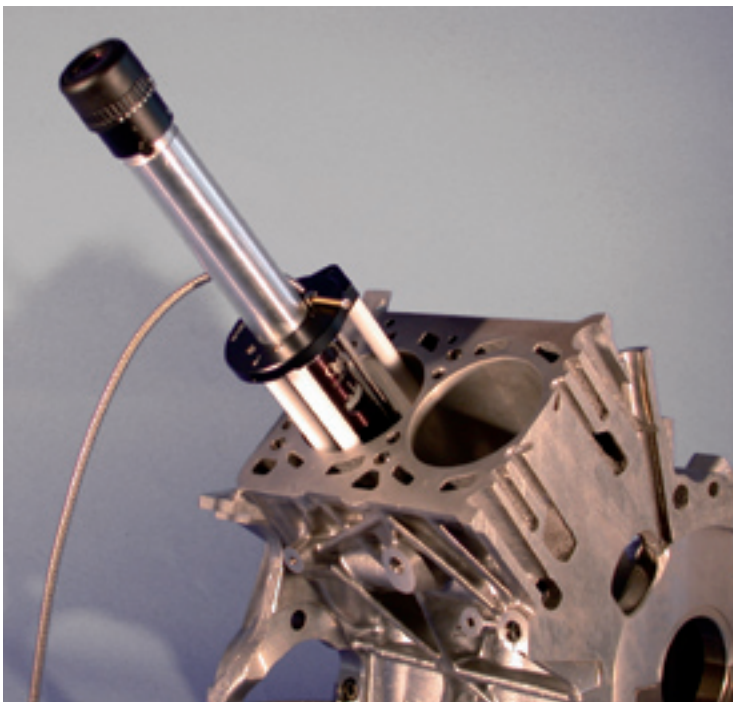
CylinderInspector's software is a powerful suite of tools designed specifically to measure different parameters of the cylinder wall. It is fully configurable to customer specifications and can significantly enhance quality control of engine bores manufacturing processes.

Features:

- Automated measuring of honing angles
- 'one-click' reporting with customizable report masters
- Semi- automated analysis of silicon distribution and silicon destruction, measured against specification criterias
- User accounts with configurable user rights
- Storage of measurement data
- Automatic calibration
- Manual measurements

Optional

- Image stitching
- Automatic analysis of area, size and distribution of pores or graphite flakes



CylinderInspector QuickTest

CylinderInspector QuickTest is designed for fast visual inspection of cylinders. Available with eyepiece or with a digital USB video camera, our QuickTest is perfect for rapid inspections in production or quality testing environments where a checking view of the sample is required. Designed to offer maximum functionality and portability at a very attractive price, our CylinderInspector QuickTest is ideal for manufacturers wishing to equip multiple manufacturing centers or smaller organisations wanting to move into more advanced optical inspection.

Specifications:

- Centering unit for cylinder bores and variable adjustment for diameters from 70-89 mm
- Insertion length 100 mm
- Contact surfaces coated with Teflon for sample protection
- 7:1 zoom with indexed click-stops for continuously zooming and repeatable measurements
- Mount for C-Mount cameras
- Focus adjustment
- Illumination by external cold light source and a 3m fibre optic

CylinderInspector Quick Test

FOV	1.3 - 8.7mm diameter
Magnification	27x - 183x
Order-Nr	043-102113

Manual CylinderInspector

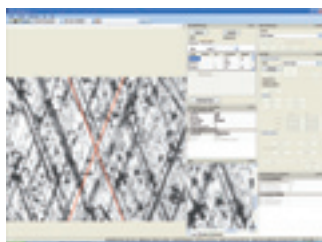
The Manual CylinderInspector is perfect for use in advanced quality control, laboratory and development environments where medium sample quantities are processed. With its high precision positioning mechanism, the field-of-view of the system can be very precisely moved along the cylinder axis. The insertion depth of the microscope is displayed on a digital micrometer.

- Microscope 360° manually rotatable, fine rotation over the field of view, position of rotation can be read by engraved marks every 2° over 360°
- Quick adjustment and centering to different diameters by means of insertion marks
- Focussing by fine spindle
- All parts contacting the engine are Teflon coated to eliminate contamination and damage
- Coaxial illumination with flexible 1600mm optical fibre and continuously adjustable 150W cold light source
- C-Mount connection for digital camera

Manual CylinderInspector	
Zoom	12.5x with click-stops
Magnification	20x – 200x
Max. depth of inspection	150 mm
Diameter range	60-120 mm
Order-Nr	043-102104



Accessories and Options



CylinderInspector Software

- See page 13 for details

Order Nr.: 050-911103



Adapter with second objective for magnifications up to 500x
By means of an adapter, the user may change the objective for higher magnification up to 500x.

Only for
Manual CylinderInspector
Order-Nr: 043-102104-30



Stand with turning table

For small and single cylinders which can be mounted centrally on a rotateable turntable. By rotating the table, the microscope scans the surface of the bore and remains in focus. Suitable for cylinder bores from 34 mm to 120 mm. Insertion length 180 mm. CylinderInspector, camera and software not included.

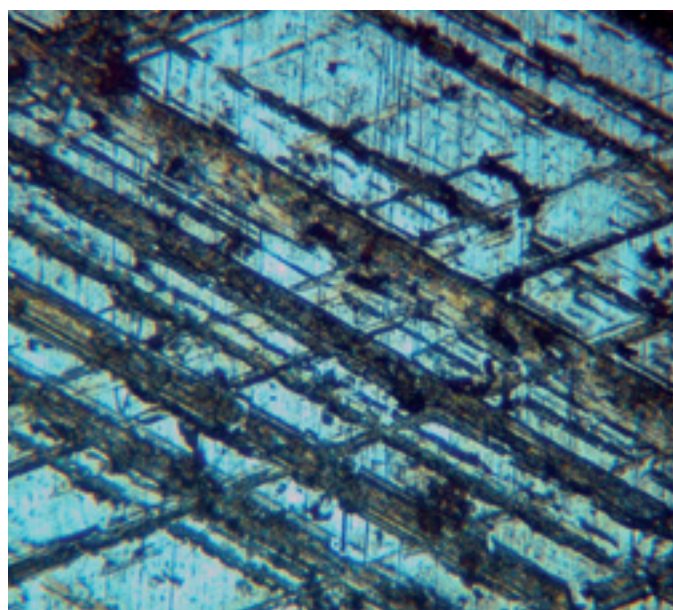
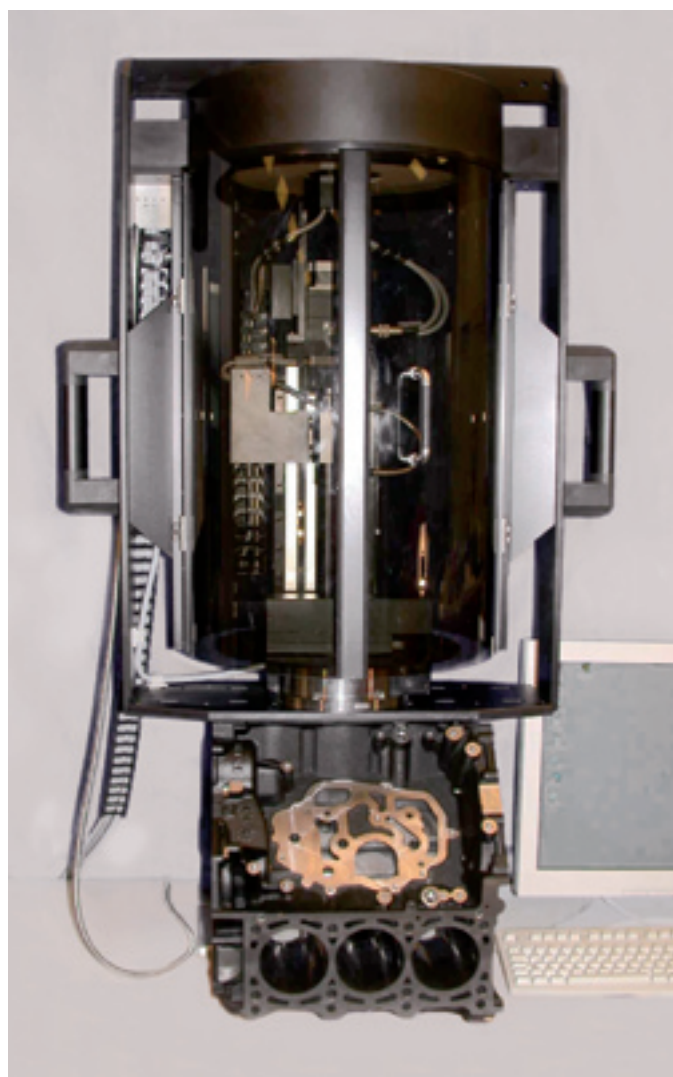
Only for
Manual CylinderInspector
Order-Nr: 045-600128



Eyepiece

- Eyepiece 10x with c-mount
- distortion-free, dioptic correction
- replaceable eyecups

Only for
CylinderInspector QuickTest
Order Nr: 045-200145



CylinderInspector Pro

Designed for use in quality control and full production environments, CylinderInspector Pro is the most advanced model in the range. For protection and security the system is fully enclosed during inspection. Electronic components are housed in a separate electronic control cabinet which can be easily installed to a production line or lab environment.

CylinderInspector microscope

- Motorized moving axially and in 360° rotation
- Digital USB 2.0 camera
- Coaxial illumination by fibre optics with cold light source 150W
- FOV 1.2 x 1.0 mm (100x magnification; magnification may be adjusted to specific needs)

Special stand for attachment in vertical bores

- Accommodates bores from 75 mm to 120 mm in diameter
- Maximum insertion length of 150 mm
- Stored positions can be repeatably accessed with an accuracy of 10µm
- data and coordinate matrices can be stored according to each engine type

PC-system and CylinderInspector Software

- Standard industry PC, Operating System, 19" LCD-Screen, Standard Voltage 230V
- User accounts with configurable user rights (User, Administrator)
- Support for determining Si-crystal destruction rates
- Automated hone-angle measurement
- Export of results to Excel or database
- Different escalation and turning-point scenarios to be identified for different grades of faults
- Programmable inspection presets for regions of interest for different engine types, e.g. lower and upper points of piston travel

CylinderInspector Pro

Containing:

- Microscope with digital C-Mount USB 2.0 camera
- Stand and housing
- PC-System with CylinderInspector – Software
- Preinstalled image database

Order-Nr	043-102111
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SectorInspector

The SectorInspector enables flexible, high resolution variable magnification inspection of microscopic features on large, planar samples. Manufacturers of flat, large area, high technology products such as photovoltaic, LCD & plasma panels, are faced with a series of increasingly challenging tasks when performing detailed inspection of their products. Often, system-critical features such as micro circuits, interconnects, pixels, micro defects and other microscopic features, present a number of unique inspection challenges, requiring well optimised illumination, flexible magnification, as well as precision positioning control of the object itself.

Key Features

- Unique twin video microscope imaging head offering two different range sets of magnification
- 'Go anywhere' gantry mounted precision stereo microscope with video
- Advanced illumination systems for the most challenging features on the largest samples, including LED based bright field and dark field, and a transmitted large area backlight
- Joystick and PC controlled high-precision motorised positioning system for manual and automatic steering
- Powerful software for full control of positioning, illumination, magnification and imaging, as well as measuring and documentation
- Option to programme fully automated test runs
- Customisable to any size or microscope configuration

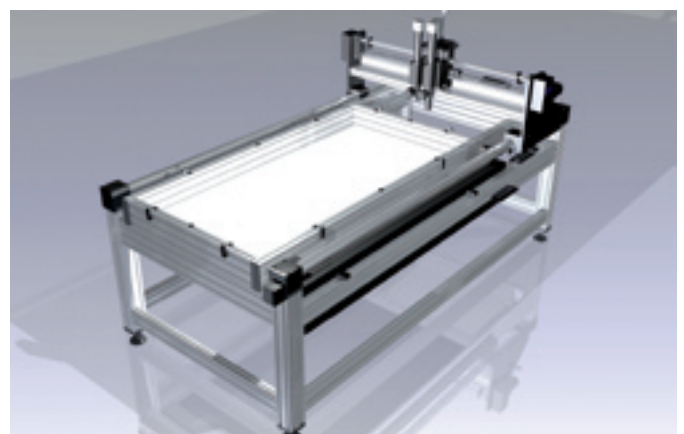
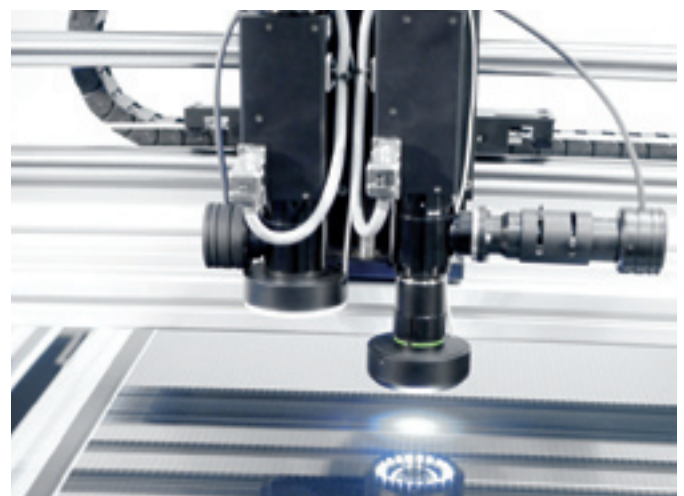
Your Benefit

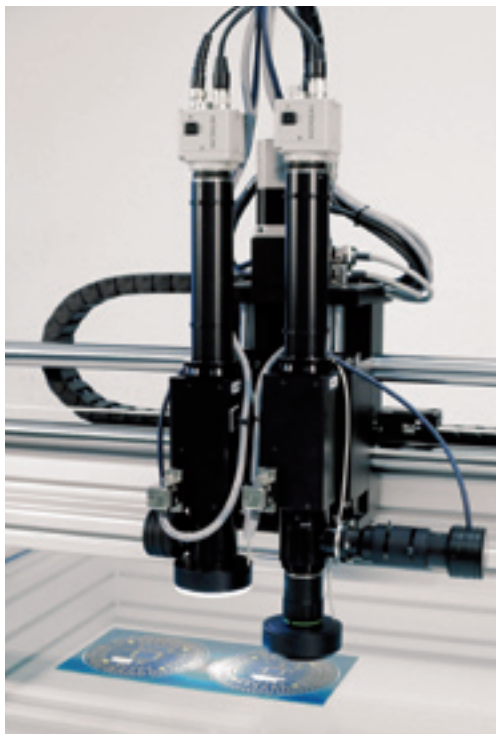
- SectorInspector is designed for maximum imaging flexibility, handling large size samples
- One system which seamlessly integrates highly advanced optomechanics to obtain perfect images
- Capability to capture, analyse, and quantify the highest quality images of your most challenging microscopic features over large areas
- Metrology function which is easy to use and provides an invaluable tool to measure and document
- Stereo microscope gives a 3D impression of regions of interest for manual inspection
- Easily customisable to any hardware or software configuration required

SectorInspector Solar

- Sample size up to 1200 x 640 mm (custom sizing on request)
- Joystick and PC controlled high-precision motorised positioning system
- Bright field, dark field as well as transmitted backlight and Köhler illumination
- Low and high magnification 12.5:1 zoom microscopes (18x – 228x and 248x-2480x)
- Hand operated 'go anywhere' stereo microscope
- Powerful image capture, measuring and hardware control software

Order-Nr:	045-100102
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Positioning System

- Standard configuration accommodates samples with dimensions up to 1200mm x 640mm x 35mm. Custom sizing available on request
- Twin microscope imaging head with two video-zoom microscopes offering 2 different sets of magnification range, for close up and super close up magnification
- Automatically position offset adjustment when switching microscopes
- Joystick & PC controlled precision motorised X/Y mechanism

Zoom Microscope 1 (Low Magnification Range)

- Fields of view from 12.2 x 9.1 mm to 0.98 x 0.74 mm, 18x–228x Zoom
- Motorised with stepper motors (PC & joystick controlled)
- Programmable LED ring light
- 89 mm working distance (auto finding when microscope is selected)
- Video camera

Zoom Microscope 2 (High Magnification Range)

- Fields of view from Ø0.9 mm to 0.09 x 0.07 mm, 248x–2480x Zoom
- Motorised with stepper motors (PC & joystick controlled)
- Coaxial LED Köhler illumination
- 31 mm working distance (auto finding when microscope is selected)
- Video camera

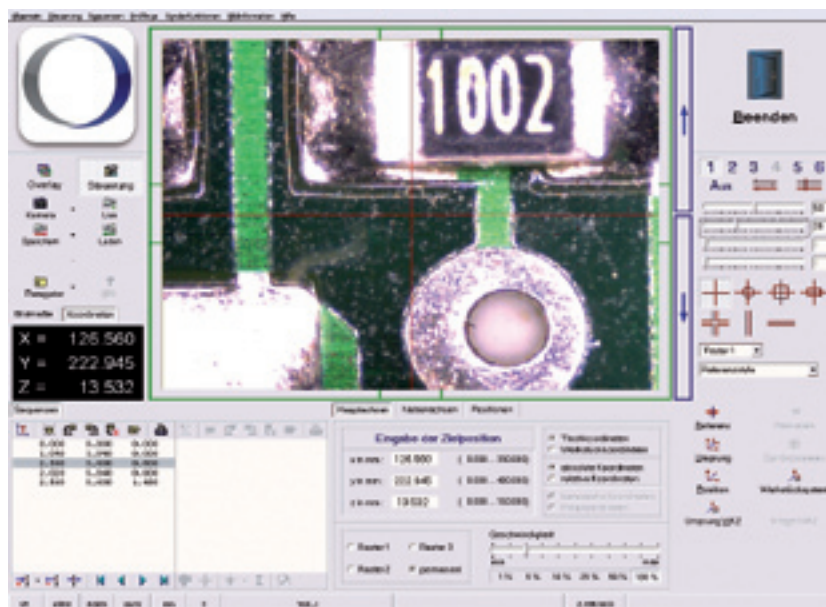
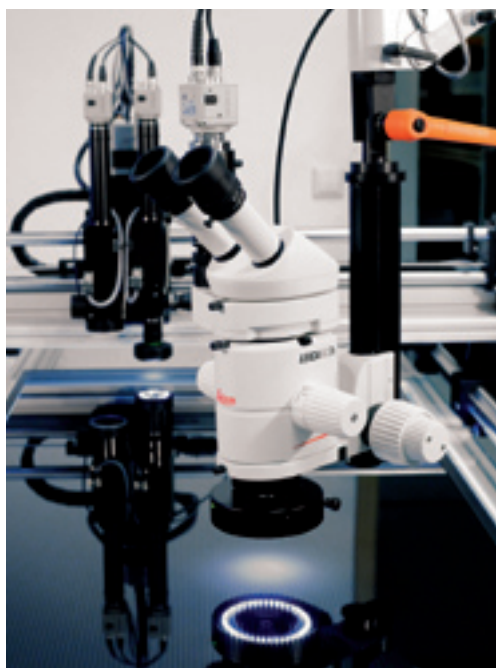


"Go Anywhere" Stereo Microscope

- Floor and gantry mounted Leica high end stereo microscope with video camera
- Field of View Ø 33 mm to Ø 4.2 mm
- 81 mm working distance
- LED ring light
- Fine & coarse focus
- Positionable to any orientation or position over sample area

User Interface

- Programming and control of illumination, camera and positioning of the twin microscopes
- Measurement and documentation
- Programming of automatic test runs covering the whole sample area



Our Custom Solutions and Standard Products are integrated innovatively in medical, industrial and scientific vision applications

Opto develops and manufactures client driven optomechatronic Modules, Components and Systems in quantities ranging from one-off prototypes to full scale production. Our vision is to be a leading supplier of the most innovative vision solutions to the most demanding inspection applications.

Components

for Machine Vision and Microscopy



Inspection Systems

for Quality Control and Measurement

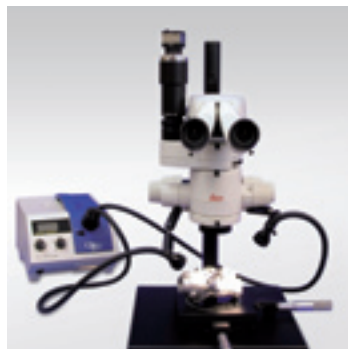
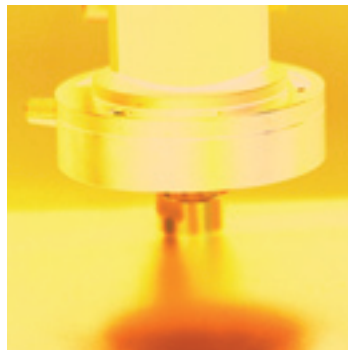
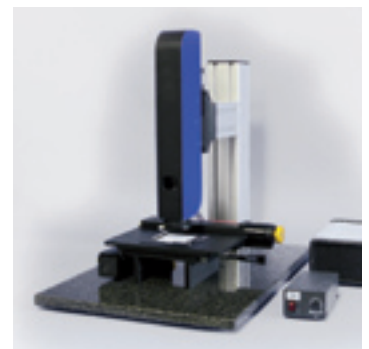
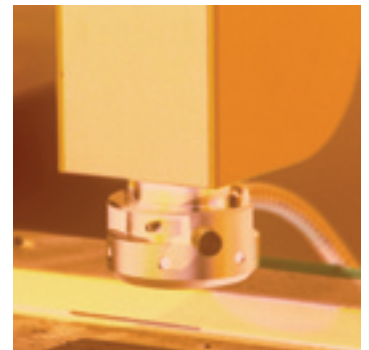


Image Analysis Systems

for Industrial Material Science



Custom Solutions



Opto develops and manufactures in quantities ranging from one-off prototypes to full scale production.



OEM Modules

Plug and Play Imaging Modules for Machine Builders consisting of Optics, Mechanics, Illumination and Sensors.



Customised Machines

Development and Production of complete Inspection / Vision Systems in partnership with Customer



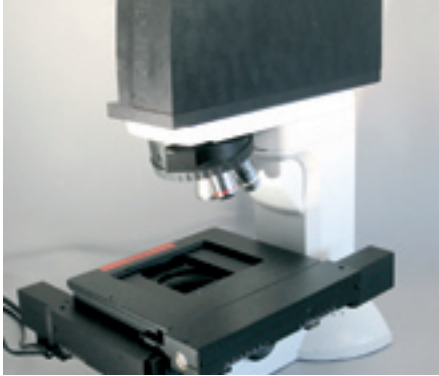
Custom Production

Design and Build to print of Mechanics and Optics

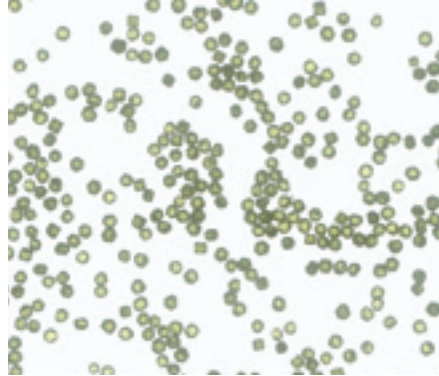
Opto develops and produces customised optomechatronic Modules, Components and Systems.

The solutions we develop are as diverse as the markets we serve. Laser Eye Surgery OEM's rely on us to deliver to them custom imaging modules combining the surgeons main stereo view with on-axis laser beam delivery. Painting restorers utilise our multi-angle tripod floor mount to position a stereo microscope in front of priceless works of art in order to make microscopic repairs to them.

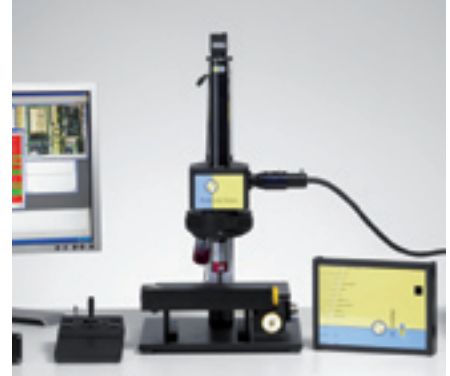
Next generation solar panel manufacturers rely on our SectorInspector system to position and optically inspect their products down to micron accuracy. Leading Nanotechnology developers commissioned us to develop a coaxial laser based microscope for dual viewing and simultaneous laser micromachining. This is just a glimpse of the many solutions we have created with our know-how.



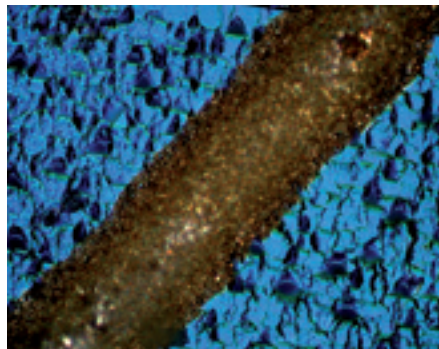
Complete metrology tool for thin film coatings using Beam Profile Reflectometry technology



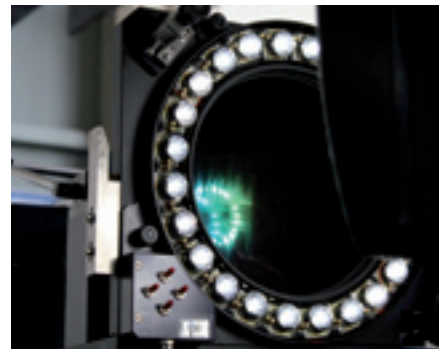
Industry diamonds to be analysed regarding quantity, size and shape



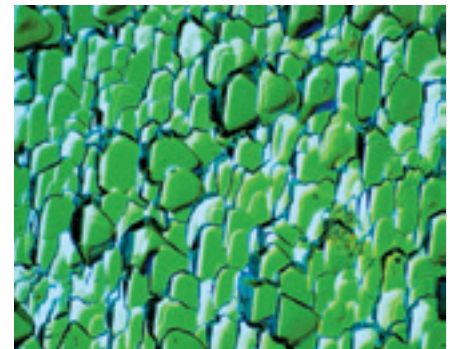
NIR multi wavelength laser probing system for smart card testing with adjustable 5 µm laser spot



Automated size and shape analysis of Laser lines on Solar cells with DIC on a Sector Inspector



Automated optical inspection of metal tearing and fatigue testing system with very large telecentric lens and reflection free high power illumination



Analysis and automatic comparison of silica surfaces on wafers to define similar crystalline structures



High resolution multi contrast microscope with large manual rolling table for overview and detailed inspection of large glass substrates

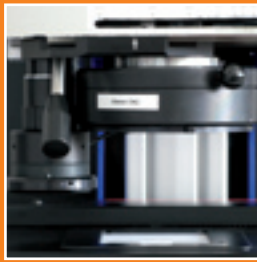


Automated microscopic cell research and screening with Hoffman or Phase Contrast and fluorescence techniques



3D- Laser measurement sensor to add depth information into a 2D analysis system

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