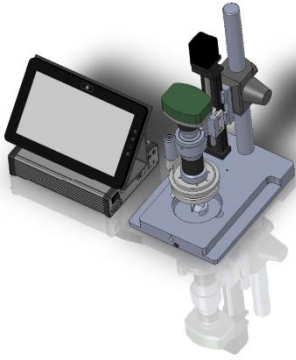


The art of innovation



3D rotation & 3D stacking

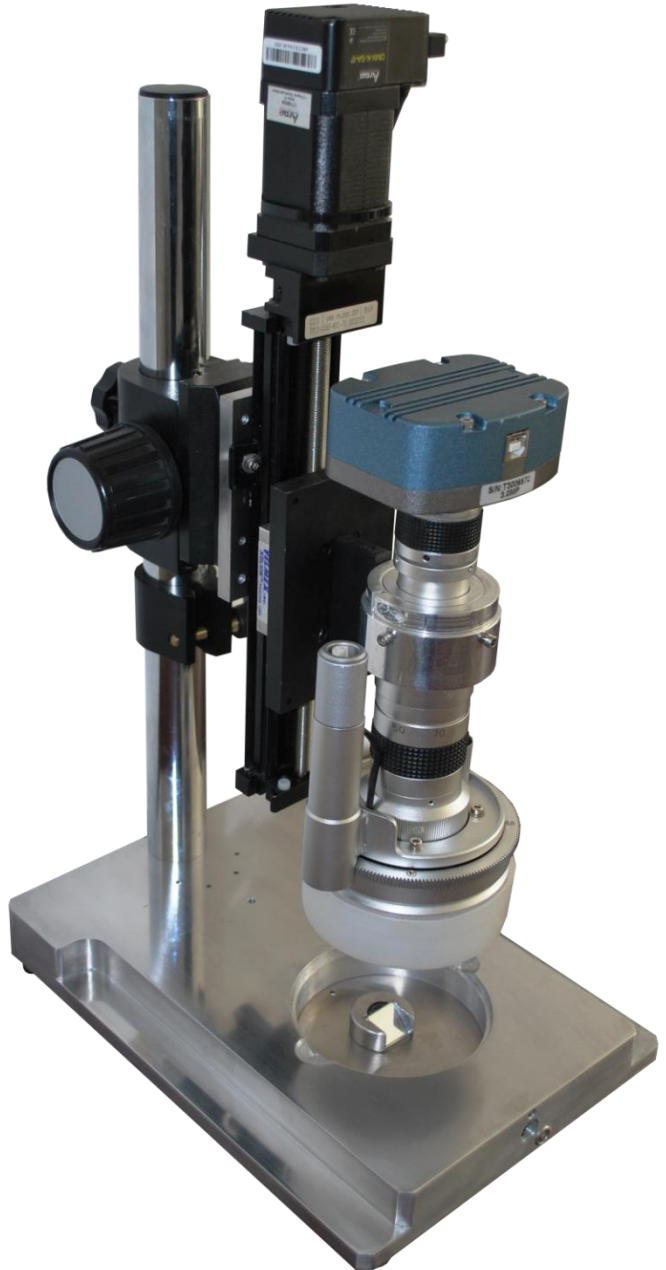
The Micro-Eye 15 a unique and versatile digital video microscopic system.



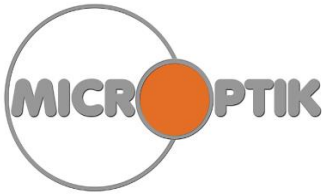
The illumination options are quite spectacular: Coaxial, ring light, bright light, dark field. The double functional baseplate allows illumination to be performed through multi fiber cords as well as through LED. MicroOptik can provide all possible features to obtain the best possible image for the clients applications.

Micro-Eye 15 A 3D Turbo Microscope!

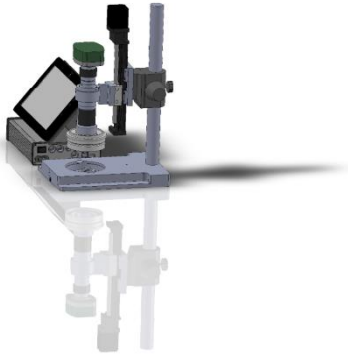
**A new look at samples!
360° (3D) inspection & 3D
Image stacking! All in one!**



More information! Ask our sales representatives. info@microptik.eu



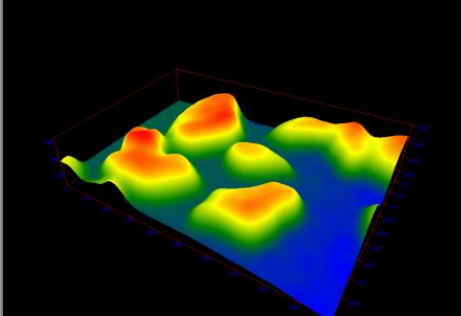
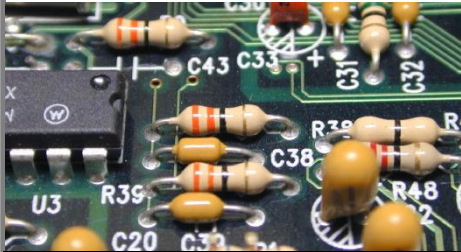
The art of innovation



3D rotation & 3D stacking
The Micro-Eye 15



Each Micro-Eye system is provided with a control box. This control box is the interface with all the functionalities of the system.

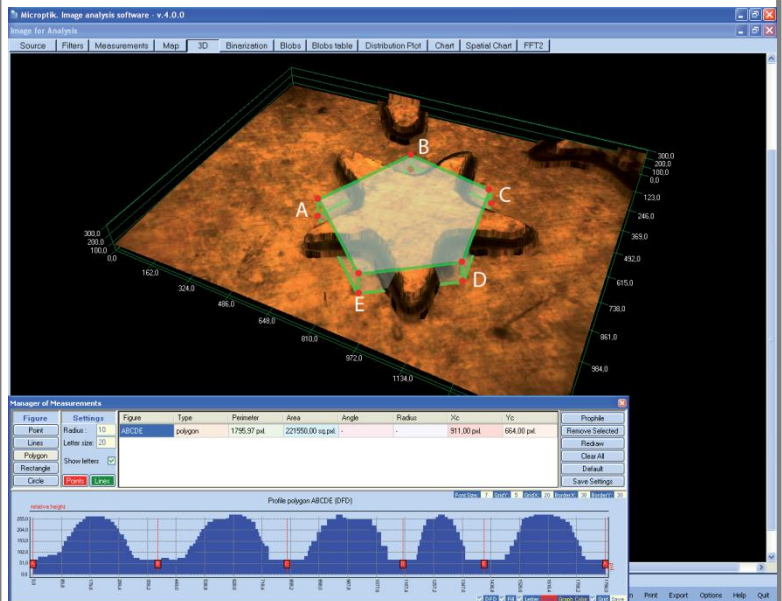


Micro-Eye 15 A 3D Turbo Microscope!

3D rotation head & 3D reconstruction of stacked images



The Micro-Eye System can be equipped with a 3CCD high end camera to generate true color images with superb quality. In the medical industry for quality control of devices this can become rather practically.

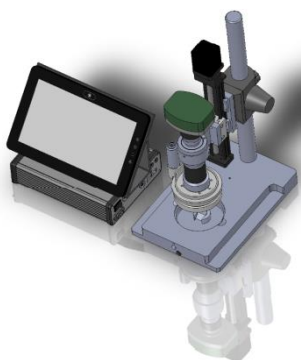


All modules are fully automatically controlled through software. Software can perform all sorts of geometrical analysis. The 3D data rendered can be visualized through various routines which are managed through MiVim (3D visualization). See further in this flyer.

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Micro-Eye 15

The Micro-Eye 15 is the newest generation digital video microscope out of the BYOS family. The BYOS digital video microscopy systems are modular and can be build in accordance to clients applications.



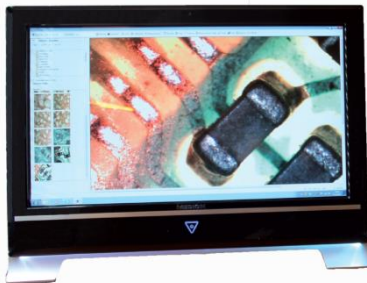
Looking at objects from a different angle!

The special high quality zoom lens with the add on 45° (or other) tilted rotation mirror allows the Micro-eye to look at angles which are impossible to do with ordinary microscopes. The quality of the components used (i.e. camera, lens, illumination and software) are such that unsurpassed high quality images or videos can be recorded with such details that it helps the user to obtain insight in the critical to quality parameter's of the respective product.



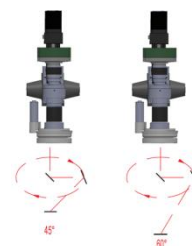
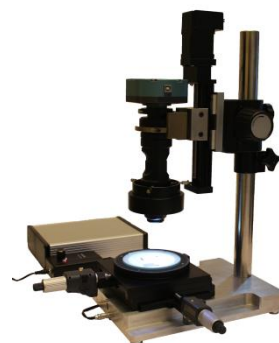
Micro-Eye 15 Two 3D Microscopes in one!

3D rotation head & 3D reconstruction of stacked images



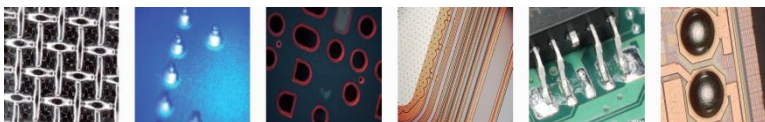
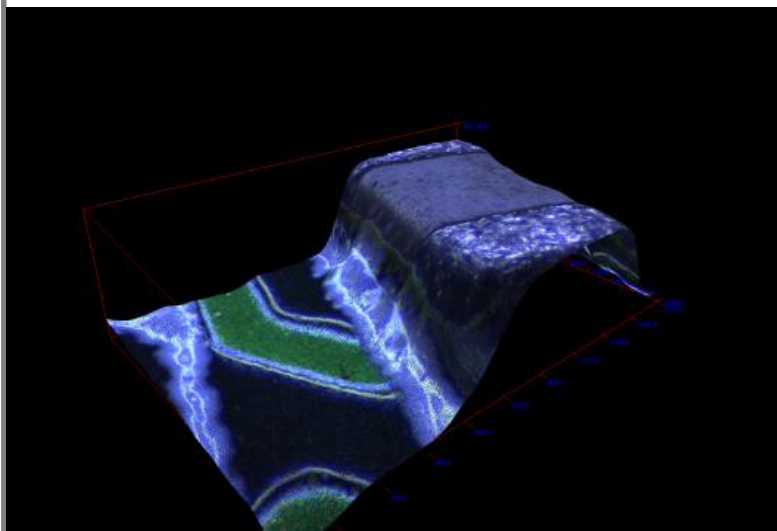
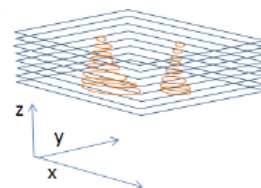
3D rotation head

The rotation head, which can be placed on the high quality zoom lens has two mirrors. One mirror has an angle of α with the object (see sketch) The other mirror has an angle of β with the longitudinal axis of the lens. Microptik provides rotation heads with $\alpha = 60^\circ$ or 45° and $\beta = 45^\circ$



3D stack & recombination

Once the 3D rotation head is removed, the system can use the zoom lens to inspect an object and acquire stacked images. The software can fully automatically carry out the z-stacking and 3D recombination rendering the system in a truly versatile digital microscope.



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The art of innovation



Digital Microscope Quality Inspection Platform

The Micro-Eye™ is a unique, powerful and versatile digital microscope system which can be used for a wide variety of applications. The instrument has all the features required for a modern high quality microscope, i.e. superb images, user friendly, highly functional and adaptable set-up, ingenious, practically and superb illumination, many add on accessories, comprehensive data management and sophisticated images analysis software. All of this comes at a reasonable and affordable price.



Microscope set-up

A typical configuration of a Micro-eye system is depicted in the image above. The central unit of the system is a 6X zoom lens with a rotary inspection head with built in LED illumination. On top of the lens a camera is mounted. A control box powers and controls the camera, rotary head and LED illumination. A notebook can be linked with the camera.



Lens with LED and rotation head

The Micro-Eye is equipped with a high quality 6X zoom lens, allowing magnifications from 50X till 300X. With the highest magnifications particles smaller than 10 micron can be detected. The unique tunable LED ring is integrated in the microscope head, allowing specimen to be inspected with best possible illumination.

Micro-Eye 15

Unique concept based on open technology.

Plug and Play system. Largest selection of high end optics and illumination. User friendly, powerful and highly adaptive software. Height measurements and 3D modeling. Windows™ based operating system.

360° Inspection

The Micro-Eye 360 is ideal for producing videos that can demonstrate detail of (micro) structures. The system consists of a heavy duty stand with a continuous zoom microscope (50X - 300X) including 360° rotation head. The rotation mechanism has a mirror system that allows an image to be formed from a 360° perspective of the specimen. This is particularly effective for electronic circuit boards and similar objects with depth.

Stand and Accessories

For the Micro-Eye, we provide high quality stand and accessories. When mounted on our motorized Z axis and using our XY table, the Micro-eye system can be used to inspect a complete sample at various positions and in different ways. In this way the 360° inspection gets a complete extra dimension! We offer also sophisticated robot configurations to inspect an object in any way the customer wants



Software

For the Micro-eye system we provide various software options enabling, real time video display, image data management, image analysis, geometric measurement, real time particle analysis, statistics, with related graphing and many more. Our standard Mishell™ (see further) software package is Windows based.



Benefits

The Micro-Eye platform has many strong features.

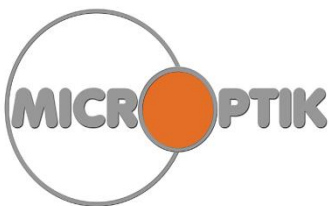
- Designed for quality inspection
- Plug & play system
- Immediate video recording
- Microscopic detail direct visible
- Flexible lens configuration
- Time & costs saving
- Integrated illumination
- User friendly software
- Runs under Windows

Examples of applications

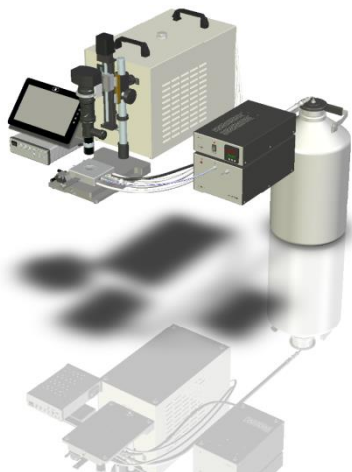
The range of inspection options is virtually unlimited. To name a view in:

- PCB soldering
- Plastic parts structure
- Bio specimen
- Authentication
- Jewelry
- Mold profile
- Micro-welding
- Fine mechanical parts

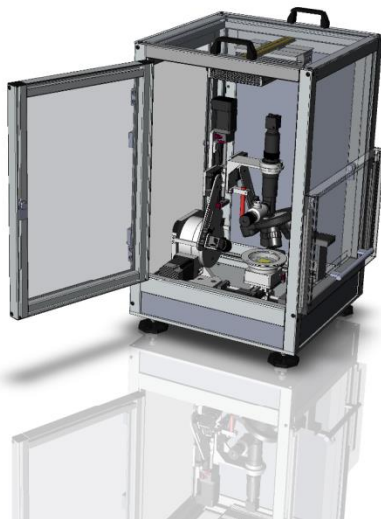
More information! Ask our sales representatives. info@microptik.eu



The art of innovation



We produce all possible **Heating and Cooling stages** for microscopy and spectroscopy



We produce **all possible microscopic systems**: 3D inspection, industrial quality control, material analysis, medical and pharmaceutical, forensic, high throughput screening, research and development and many more. We can build hybrid systems, combining Microscopy with Spectroscopy. Confocal and super resolution! We provide all sorts of motorized stands and robotics for all sorts of applications. If it does not exist, we build it!

New in our portfolio: The 3D Maker, turning any conventional microscope into a high end 3D system with superb images, for a very small investment. Come and check out! Visit our stand and win The 3D Maker! Visit us at Hall 4.2 **Stand A29**. www.microptik.eu

3D Digital Microscopy: Build Your Own System!

A vast field of applications

The field of applications in microscopy has become incredible vast. Ever since digital cameras, advanced optics, sensors, stepper motors and related software came into play, the field of applications has expanded to such an extent that it takes more than a full time job to cope with all the nuances of technologies which are now at hand for the user.

3D Digital Microscopy

The evolution of digital video microscopy has been very fast considering the amount of systems which are now available in the market. For a few hundred Euro's one can nowadays buy a hand held microscope with remarkable good quality. With the rise of microscopy building blocks, which can be bought off the shelf, one can build your own system (BYOS) for prices which are significantly less than some of the renowned brands. The quality of these BYOS systems are superb. Pricewise these BYOS systems are coming more and more in reach for any user. With the appropriate building blocks, one can even construct a high end 3D microscope with a quality which surpasses any other expensive system in the market.



An example of a BYOS 3D Digital video microscope.

The stand and accessories

One aspect in the choice of building your own 3D system is often neglected. This aspect is as important as all the other components needed to build a 3D microscope. The stand on



A motorized stand with accessories

which the microscope is constructed must be very rugged and must have a mechanism to lift the optics in precise steps in a vertical direction. For that purpose there are complete systems in the market which allow a lens to be lifted in steps less than .1 μm . Such a stand has a base plate with illumination (for bright field 3D, or if needed for 3D fluorescence analysis), with a vertical bar and a spindle motorized slide powered with a high quality stepper motor.

High quality lens

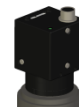
There are many suitable microscopy lenses in the market which are produced by popular lens manufacturers. Any quality lens in this respect can be used which has a certain depth of field and field of view needed for the 3D application. Typical depth of field varies between 2 mm to 10 μm . Typical field of view varies between 2 mm to 10 μm .



A typical high quality microscopic lens

Camera

A good quality digital camera with a suitable format fitting the lens, with appropriate software is required to make a 3D microscopic system. There are quite good camera's in the market which can be used for this purpose. Typical parameters are: USB2 or USB 3, 10 MP, pixel size 1.7 μm .



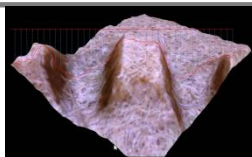
A digital camera

Illumination accessories

For applying 3D microscopy (i.e. dark field) additional illumination can be provided through ring or coaxial light. All of these accessories are available in the market.

Controller and PC

Once all the modules are assembled (motorized stand, lens, camera and illumination) the automation needed to generate 3D images is

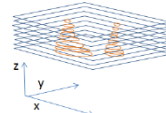


accomplished through a controller which can control the camera, stepper motor and illumination. Such controllers are available in the market



A controller and PC Software

Software which controls the whole system is the final module which is needed to generate the 3D consolidated images. The principles of the 3D reconstruction is based on so called DFD (Depth From Defocus) algorithms.



A 3D stack of images

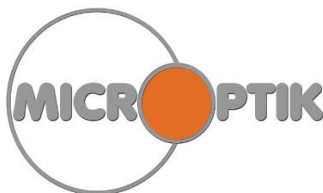
In this process images are acquired and stacked while lifting the lens in the z direction. For each image taken the sharp part is considered and the non sharp part is disregarded. After the acquisition process the z stack is reconstructed. As the steps of the z axis are known as well as the x and y dimensions of the images, a realistic 3D picture can be generated with realistic dimensions.

3D acquisitions at tilted angles

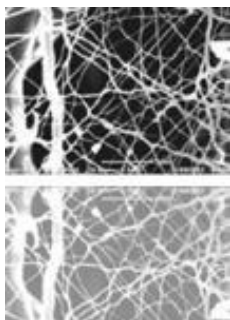
If only the z-axis is moved, details which are positioned perpendicular towards the z axis, can not be seen and hence not 3D reconstructed. The last couple of years technology has been developed using more sophisticated motorized stands which allow such lateral inspections. Appropriate software can be used to control the system and process the data.



An advanced motorized stand with 5 positioning vectors



The art of innovation



Mishell®

Is perhaps the most sophisticated Image analysis software package available on the market today. Simple to use and incredible sophisticated when it comes to the specific application. Mishell has originally been designed to control an Image analyzer system developed by MicroOptik in conjunction with an Image analysis task. Still as to day this conjunction is valid. The software is delivered with all machine vision systems our company provides. However, as more and more clients became to realize the capabilities of the software we have offered our clients and others the software as a stand alone product. Therefore all the beautiful image analysis tools are not available and in one package.

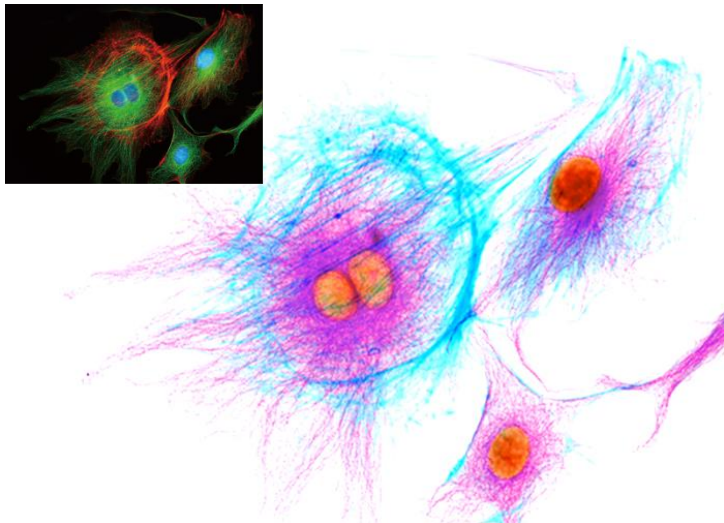
The complete Mishell package consists of the following building blocks: **MiCam** (camera interfacing), **MiMea** (2D measurements, size and shape parameters, profiling), **MiDab** (database), **MiMap** (contour plots), **MiReg** (reporting), **MiVim** (3D visualization), **MiPis** (particle size analysis), **MiFis** (fiber inspection), **MiMis** (morphology) **MiPor** (pore size analysis). Further in this flyer we will elaborate further on these building blocks. Each of these blocks have unique features which the user can choose. **MiAp** (Image Analysis Applications). With respect to the last: Mishell can interact with many devices MicroOptik provides which relates with images analysis. For a start, through Micam, Mishell can interact with practically any camera system on the market. Beyond that it can also be used to integrate all sorts of instrumental control features, like stepper motor -, heating & cooling-, illumination-, temperature, IO- boards and many more. This is convenient for clients who want to set up a machine vision project. All has been programmed and the client simply has to connect all the devices with the wizard which comes with the package.:



Mishell links all hardware components together and makes it working as one analyzer system

Mishell Image analysis Software package a sophisticated Tool for infinite applications

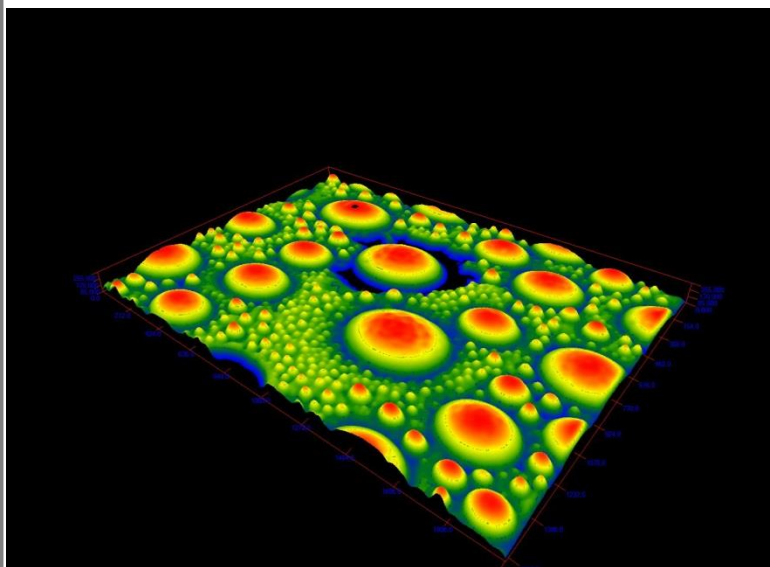
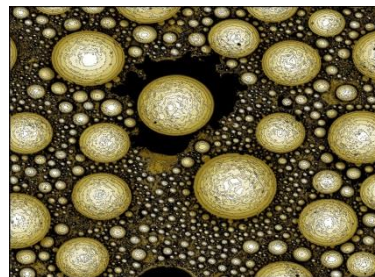
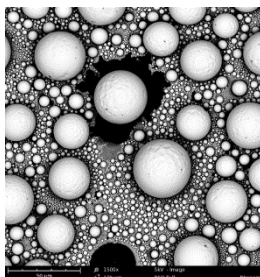
The MicroOptik Mishell Image analysis software package is the most sophisticated software of its kind available in the market.



Example of filter manager options to enhance Low Light Fluorescence images

All sorts of image analysis







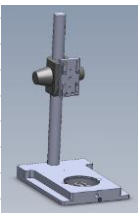
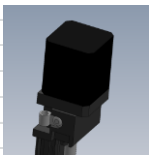
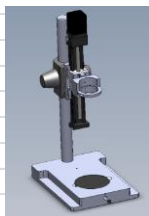
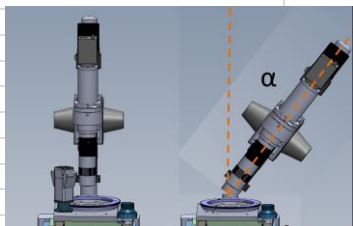
One of the many functions MiVim has to offer (SEM Stereopair 3D visualization)



More information! Ask our sales representatives. info@microptik.eu |
MicroOptik BV 2015

Micro-Eye 15 System specification

The Micro-Eye 15 system consists of the following building blocks

Item	Name & code	Impression	Description
Baseplate plus stand			
1	Baseplate BPLED001		Rugged professional base plate designed for all kinds of experiments. Back light, Top light or combination Base plate is bases for all kind of experiments. The base plate is used to mount a strong vertical bar. The Base plate is holding a sophisticated all purpose LED module in the circular base below the lens objective The LED module has unique features with a 3200 Lumens @2400mA powerful module which allows Tough applications to handle and most important to allow uniform light especially useful for particle counting
2	LED001		
3	Mirror Seat and opticle coupler for multifiber cord		On top of the LED light one can place a Mirror seat This mirror seat is used to allow light coming from a multifiber cord inlet through the front part of the baseplate to be focussed Top plate to cover LED and to use mirror for multifiber illumination through a glass plate directly to the objective
4	Glass for base plate transparent BPBglassT		For generation of homogenous diffuse light.
5	Diffuse BPNglassD		In conjunction with LED unique background light can be generated
6	Teflon coated BPTC		All purpose Black and white teflon 95mm diameter plate
7A	BPVBMM vertical bar for Base plate and precision adapter		Request details for using multifiber cable with illumination source Vertical bar to be positioned in the base plate with fine adjustment mounting of all optical devices. Rough adjustemt and fine adjustment all in one mounting is the essential module to add all other peripherals to it (i.e.spindel slide, stepper motor and lenses) Length 42 cm from top Base palte to end. Diam = 32mm
7B	Extension bar Motorized axis (motor and slide) + lens holder		For Far-eye lens (l=x diam=32mm) For all BYOS systems the motorized axis and slide and mounting are stanc
8	MM17		Nema 17 stepper motor attached to 4*1mm/rev spindle slide. accuracy of step is < 1um Automatic control of motor through software (Mimas or Smart-eye) Control box required
9	Mslide10*1mm/rev		
10	MME2Xholder Micro-eye lens holder		We provide standard holders for all sorts of BYIOS lenses.
11	Owl-eye Configuration	Tilt Z-angle (α) Motorized! 	Additional to moving z axis, the z axis can be tilted to any angle α Even more the z axis can be tilete to any angle fully automatically using a powerful stepper motor The stepper motor is a nema 23 motor with. extreme accurate control using the all purpose Dimic controller DIMICTRSTD The Owl-eye can be equipped with any lens typical experiments are experiments where the topography has to be studied under angles, or to use the Owl-eye in combination with Laser topography (LT) or even to use it in combination with 3D DFD (depth from defocus routines incorporated into the software. Owl-eye configuration is optional

More information! Ask our sales representatives for more information. info@microptik.eu

Micro-Eye 15 System specification






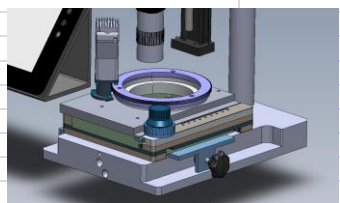
The Micro-Eye 15 system consists of the following building blocks

	Controller (for all hardware components)		
12	DIMICCTRSTD		<p>All purpose DiMiC controller for all kind of Microscopic applications i.e. ME2X, Top-eye, micro-eye, LT, LT2 CB4, Gel etc.</p> <p>with connectors for 2 laser modules</p> <p>Power supply of all DiMiC motors (i.e MM17 and MM23 etc.</p> <p>Control for all motors</p> <p>Power supply and control of LED light (backlight)</p> <p>Power supply and control of LED Light (Coaxial)</p> <p>Power supply and control of rotation head for Micro-eye</p> <p>Connection for safety interlock for advanced (Lab-robot) systems</p>
15	Micro-eye lens		<p>See flyer for details</p> <p>Rotation head with mirrors for 45deg angle</p> <p>Rotation head fully controlled by (Smart-Eye software)</p> <p>Integrated LED ring light</p> <p>The Micro-Eye is equipped with a high quality 6X zoom lens, allowing magnifications from 50X till 300X. With the highest magnifications particles smaller than 10 micron can be detected. The unique tunable LED ring is integrated in the microscope head, allowing specimen to be inspected with best possible illumination.</p>
18b			<p>1/3" CMOS, CS-Mount [CE]</p> <p>3 METER USB3.0 CABLE, TYPE-A to MICRO-B (LOCKING)</p> <p>Sony IMX036 CMOS, 1/2.8", 2.5 µm</p> <p>Rolling Shutter with Global Reset</p> <p>2080x1552 at 60 FPS</p> <p>More details available through product flyer</p>
25	Mishell		<p>Mishell * (all purpose software for hardware control and professional imae analysis)</p> <p>Is perhaps the most sophisticated Image analysis software package available on the market today. Simple to use and incredible sophisticated when it comes to the specific application. Mishell has originally been designed to control an Image analyzer system developed by MicrOptik in conjunction with an Image analysis task. Still as to day this conjunction is valid. The software is delivered with all machine vision systems our company provides. However, as more and more clients became to realize the capabilities of the software we have offered our clients and others the software as a stand alone product. Therefore all the beautiful image analysis tools are not available and in one package.</p> <p>The complete Mishell package consists of the following building blocks: MiCam (camera interfacing), MiMea (2D measurements, size and shape parameters, profiling), MiDab (database), MiMap (contour plots), MiReg (reporting), MiVim (3D visualization), MiPis (particle size analysis), MiFis (fiber inspection), MiMis (morphology) MiPor (pore size analysis). Further in this flyer we will elaborate further on these building blocks. Each of these blocks have unique features which the user can choose. MiAp (Image Analysis Applications). With respect to the last: Mishell can interact with many devices MicrOptik provides which relates with images analysis. For a start, through MiCam, Mishell can interact with practically any camera system on the market. Beyond that it can also be used to integrate all sorts of instrumental control features, like stepper motor -, heating & cooling-, illumination-, temperature, IO- boards and many more. This is convenient for clients who want to set up a machine vision project. All has been programmed and the client simply has to connect all the devices with the wizard which comes with the package.</p>

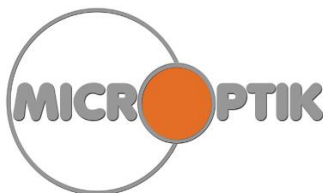
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Micro-Eye 15 System specification

Accessories (optional)

	Accessories		
19	MBYOSCOAXIALLED		Power Supply: AC90-240V ,50/60Hz Output voltage DC 12V Current 0.5A Max Power consumption 3W Max Brightness Adjustable
20	MBYOS LED ring light		Microscope LED ring light Standard configuration: 72LED Lamp, Light control Box, DC12V Power Supply and Frosted Soft-filter Attachment Ø 95mm
21	MBYOS Manual stage		Type: ball bearing rack Stage size 180x155x26 Travel: Horizontal 75mm Longitudinal: 55mm Reading precision 0.1 mm Joint Dimensions Ø95(option 4pcs rubber foot pads)
22	MBYOS Rotation manual stage		Stage size: 180x155x26mm Moving range: 75x55mm Round Glass Stage Diameter Ø95(360 rotation) four rubber foot pads
23	MBYOS Measuring XY Moving stage		Dimension: 140x140x36 Connection size: Ø95mm Glass Size of working stage: Ø95mm Moving range: 75x55mm Protection Range: 75x55mm Protection level of double-sided electronical digital Outside Micrometers (Anti-splash Water and Dust prevention) Double-sided Displays are convenient for both hands and the reading of any measurement Measurement in Imperial/Metric Adjustment Direction is Showed on Displays RS232C Output Mmicrometer Heads Moving Range 10mm Precision Resolution: 0.001mm/0.00005inch Live up to DIN863/1, DIN40050/IEC52
24	MBYOS Motorized rotation and motorized X&Y		Motorized X,Y table with motorized Rotation table. All functions can be controlled through the DIMICCTRSTD Folly automated software control

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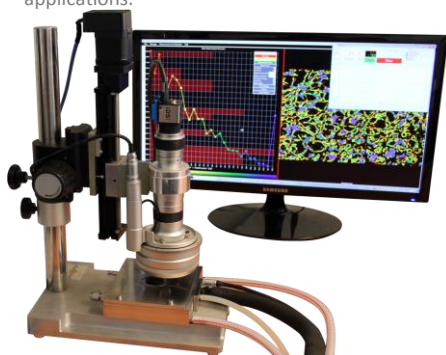


The art of innovation



MicOptik's Heating and Cooling Stage
Model: MHCS622-V/G

MicOptik's MHCS622-V/G series are temperature controlled heating/cooling and vacuum/gas tight stages. MHCS622-V/G stages are ideal instruments for optical thermal microscopy and spectroscopy applications as well as for other general applications where a broad temperature range is required. MHCS622-V/G can be incorporated easily in any complex high-tech setup. The MHCS622-V/G stages offer the best solution for Geological, Fluid Inclusion, Semiconductor, Photovoltaic, or other Materials Science applications.



MicOptik's Thermoptometry System:
MHCS622-V/G with Top-Eye™ microscope

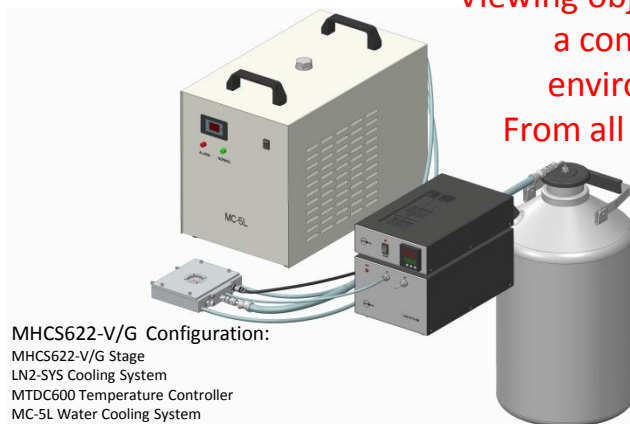
MicOptik's MHCS622-V/G stages are developed for vacuum or/and gas tight applications with temperature range -190°C to 600°C . MHCS622-V/G stages are supplied with a high precision MTDC600 programmable temperature controller. MTDC600 temperature controller can be operated by Software or Manually. It makes the system more adaptive and flexible. For applications below ambient temperature Liquid Nitrogen Cooling System LN2-SYS is provided.

Top-eye + MHCS622-V/G Vacuum/Gas-Tight Heating and Cooling stages. Analyzing objects in controlled environment!

MicOptik has developed a new MHCS622-V/G series of Heating and Cooling Stage with a wide temperature range to operate under vacuum and gas tight Environments. This series has many features:

- Vacuum or Gas Tight Environments
- Wide temperature range
- Programmable temperature controller
- High precision and high resolution temperature measurement and control
- Software or Manual control
- Wide range of viewing apertures
- Removable cover for easy sample access
- Horizontal and vertical mounting
- Vacuum port, gas port, vacuumed 4/6 or 8 pins electrical feedthrough
- Water cooling frame

Viewing objects in
a controlled
environment
From all angles!



MHCS622-V/G Configuration:

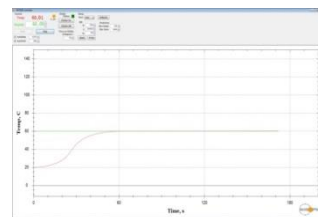
MHCS622-V/G Stage
LN2-SYS Cooling System
MTDC600 Temperature Controller
MC-5L Water Cooling System

MHCS622-V/G Technical Specification:

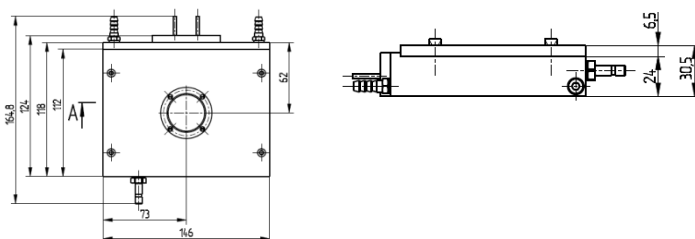
Temperature range	-190°C to 600°C (Below ambient requires cooling accessories)
Temperature resolution	0.1°C
Temperature control method	Switching PID-PID
Temperature control sensor	RTD
Sample area	40mm x 40mm (other sample area optional)
Chamber height	Standard 4mm (other up to 20mm per request)
Sample viewing aperture	32mm (other per request)
Objective working distance	6mm (shorter working distance optional)
Electrical feedthrough	4 electrical feedthrough (other per request)

MTDC600 Temperature Controller and Software

The MTDC600 is a high performance temperature controller with resolution and accuracy 0.10°C . The controller MTDC600 has a built-in power supply and can be controlled manually or through a USB2.0 communication port. Software provides a convenient platform for all possible experiments. PID parameters, temperature limits and control essentials can be easily selected through the relevant menus.



MHCS622-V/G Overall Dimensions



More information! Please contact us info@microptik.eu