AUTOMATED MICROSCOPY TESTING TAILORED TO YOUR INDIVIDUAL NEEDS

Inspection of test specimens using advanced microscopic imaging in temperature and climate control technology

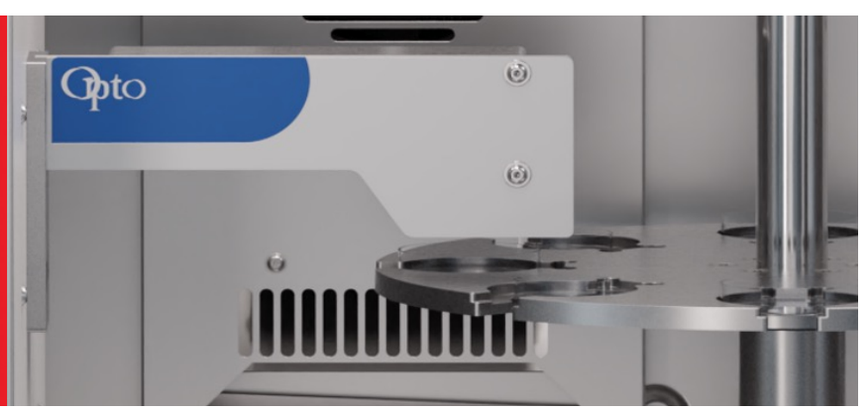
Welcome to the future of sample analysis!

The brand-new HPPCeco-AMI offers you a complete solution for a continuous monitoring of samples under controlled climatic conditions. What's more, it's done without the need to remove specimens from the device. The combination of intelligent imaging and ambient monitoring enables a precise automated evaluation of samples whilst minimising the risk of human error and providing reproducible results. With round-the-clock automation, controlled environmental conditions and availability of digital data, the system provides an efficient solution for long-term studies and quality assurance purposes.

Automated microscopic imaging – inside the climate chamber

The solution offered by m360 is based on an intelligent imaging module from the company Opto. This imaging module is capable of capturing high-resolution microscopic images of samples from within the Memmert climate chamber – even during ongoing tests. This seamless integration of imaging and precise climate control enables a continuous and reliable monitoring of your samples.

Imaging tool with rotating plate for samples within the climate chamber

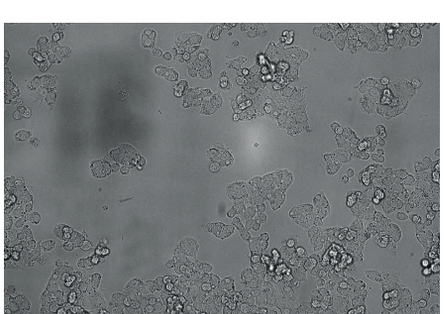


Advanced AI-supported image analysis

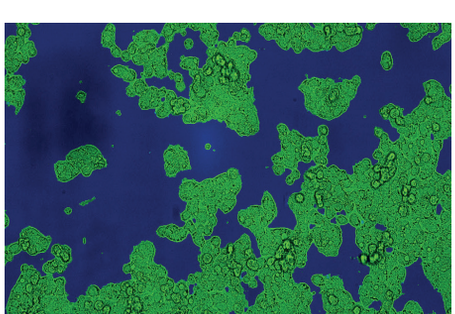
The generated images are automatically transferred to an advanced software developed by the company Opto. Using artificial intelligence, the system converts the raw data into false-colour images and analyses the development of the specimen. This, for example, makes it possible to document cell confluency – the seamless coverage of the surface of a culture dish by adherent cells – over a period of time with precise percentage values. The images are saved along with timestamp, details of ambient conditions and AI-supported software evaluation.

Particularly noteworthy: The door of the device does not need to be opened for microscopic examination during the ongoing test. This eliminates the risk of sample contamination and fluctuations in temperature.

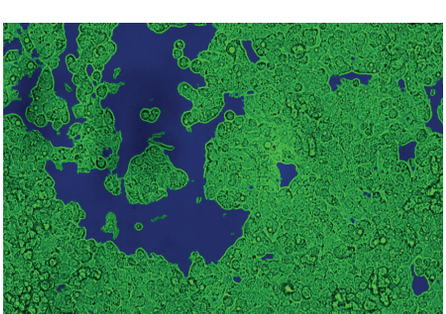
Raw material from the imaging module



AI-generated false-colour image (6 hours)

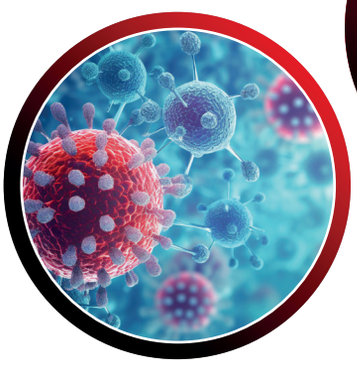


AI-generated false-colour image (12 hours)



The solution is ideal for a wide variety of applications including:

1
Research with cells
(temporal kinetics)



2
Pharmaceutical
screening
(drug testing)

3
Bacterial growth
(hospital routine)

4
Quality assurance
in many areas

The benefits of this integrated system are manifold:

- Round-the-clock automation; no manual handling required.
- Avoidance of ambient fluctuations during the monitoring process thereby ensuring a consistent and stable environment.
- Minimisation of the risk of contamination by eliminating the need for sample removal.
- Reduction in the level of human error resulting in improved quality assurance.
- Possibility for automatic sample evaluation thus saving time and increasing efficiency.
- Assurance of reproducible results, crucial for long-term studies and quality control processes.
- Digital availability of all data enables easy archiving, tracking and analysis for research and quality assurance purposes.

The HPPCeco-AMI by m360 and Opto offers a groundbreaking solution for research and industrial applications by integrating two products into one comprehensive system. This innovative device enables the monitoring and analysis of optical structures in precisely defined atmospheres. The ability to capture high-resolution microscopic images of samples directly in the climate chamber during ongoing tests ensures an automated and traceable monitoring of batches – real added value for our customers!

Simon Messthaler, Head of Construction at m360

Technical details of the climate chamber

The Memmert climate chamber HPPCeco-AMI offers temperature settings from +0 °C to +70 °C and a humidity range from 10 % rh to 90 % rh making it ideally suited for stability tests in the pharmaceutical industry, e.g. ICH guideline Q1A. Further
typical areas of application include shelf-life tests in the pharmaceutical, food and cosmetic sectors and quality control testing for different kinds of components.

What's more, the HPPCeco-AMI offers active CO_2 control from 0% to 20% thus expanding the range of applications to include the cultivation of living cultures such as bacteria and fungal strains in the pharmaceutical and biochemistry sectors.

Key advantages:

- Absolutely homogeneous distribution of temperature and humidity.
- Reliable and fail-safe – even after years of continuous operation.
- Always a good climate: quiet, compact, low-maintenance.

Model sizes		110	260	750
Temperature setting range	°C		0 to +70	
Humidity setting range	% rh		10 to 90	
CO_2 setting range	% CO_2		0 to 20	
Number of microscope systems		1	2	4
Number of rotation axes		1	1	2
Number of rotating plates		1	2	4
Total number of samples		8	16	32
Petri dish diameter 40mm			•	
Petri dish diameter 60mm			•	
Transmitted light plate 25mm x 75mm x 1mm			•	

About Memmert

Memmert is one of the world's leading manufacturers of climate and temperature control devices for laboratories and industrial applications. The product range comprises constant climate chambers, heating and drying ovens, incubators, medical devices and water baths.

Devices are used for applications

- in the pharmaceutical industry and medical sector.
- for research in the biological, chemical and food sectors.
- for industrial material and component testing.
- for different quality tests in demanding manufacturing processes.

With a firm commitment to achieving the highest possible standards of innovation, reliability and sustainability, Memmert manufactures its quality products at its plant in Buechenbach in the south of Germany. With over 90 years of experience and an international network spanning the globe, Memmert is synonymous with top-quality 'Made in Germany'.

Technical details of the digital microscopes

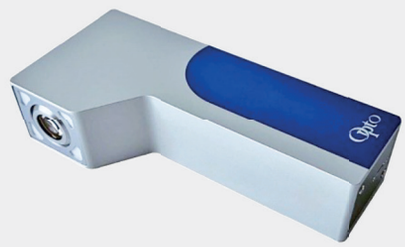
Opto digital microscopes (imaging modules) bring an unprecedented level of user-friendly and easy-to-integrate imaging performance to any production environment – from measuring machines and inspection systems to bio-imaging instruments.

Each module comes complete with its own SDK and comprehensive free image capture software, so it can be easily integrated into any existing network or system.

- High-resolution, perfectly matched optical designs with latest image sensors and high-performance LEDs in a compact aluminium housing.
- USB3 or GigE interface with compatibility to most image processing libraries.
- Ultimate image quality, easy integration, guaranteed performance in any application.

Imaging module profile M

Imaging module compact M



- Powerful imaging with simple plug-and-play functionality.
- Enhanced image quality thanks to perfectly matched component selection.
- Robust aluminium block design with different mounting options.
- Includes OptoViewer and various application plug-ins.
- Software integration tools: C/C++ OptoSDK, NI LabVIEW Toolkit, NI Vision Builder Plugin.

		compact M	profile M
FoV	mm	1.9 x 1.4 - 28.6 x 24	0.42 x 0.35 - 1.7 x 1.4
WD	mm	17.5 - 202	3.6. - 31
Resolution	LP/mm	20 - 500	250 - 900
System Magnification		0.3 - 7.5	5 - 20

Integrated transmitted light (for colour modules = white 4000K); for monochrome modules = red (632 nm))
Interface: USB 3.1 Gen.1, Type C
Weight (g): 700 - 1400 / CE / RoHS / WEEE-Reg.-No. DE 68564667 / OptoViewer software included

About Opto

Opto, based in Munich/Germany, is one of the leading manufacturers of digital microscopes for both standard and customised series production. These imaging modules are specifically designed for machine integration in medical technology and industrial applications. They provide image data that can be reproduced anytime and anywhere, making them ideal for any automation task.

Imaging modules are robust vision sensors with integrated camera, optics, lighting and electronics. Over the past 40 years, Opto has succeeded in establishing itself as an international OEM supplier focusing on microscopy and industrial image processing.

CONTACT US!

Further information can be found on our product page
or in a personal conversation with the experts at m360.
We look forward to hearing from you.

E-Mail: m360@memmert.com
Phone: +49 9122/925 - 0