



# Leica DM8000 M & DM12000 M

**See More, Detect Faster –**  
High-throughput Inspection Systems

Living up to Life

**Leica**  
MICROSYSTEMS

# The New Class of Inspection Systems

Inspection, process control and defect analysis of wafers or LCDs and TFTs has to be fast, accurate and ergonomic. Leica Microsystems has many years of experience in developing inspection systems for the semiconductor industry. Using this expertise, we have developed a totally new line of products for the inspection of 8 and 12 inch wafers.

The Leica DM8000 M and Leica DM12000 M optical inspection systems provide an **innovative yet cost-effective system solution** for mastering present and future inspection challenges with confidence.



**More image information in less time**  
New optical features offered by the Leica DM8000 M such as the macro mode or the oblique UV illumination (OUV) not only improve resolving power but also speed up sample throughput.



## Larger field for faster inspection

The Leica DM8000 M and the Leica DM12000 M feature an integrated macro mode, giving you four times the field of view of conventional scanning objectives. Seeing more means faster throughput.



## Top resolution from every angle

The new Oblique UV (OUV) mode combines oblique illumination with UV light, which enables you to view a sample in top resolution from any angle – and enhances the accuracy of the inspection results.



## Higher quality due to ergonomic design

An ergonomic design enables users to work in comfort, enhancing their performance and ultimately improving the quality of their work. The Leica DM8000 M/DM12000 M is specifically designed to provide comfort for long hours at the microscope, and is intuitively operated and easy to adapt to different users' microscopy skill levels.



## LED illumination for a cleaner environment

The LED illumination integrated in the Leica DM8000 M/DM12000 M optimizes the airflow and creates a cleaner cleanroom. With their long lifetimes and low power consumption, LEDs also have a lower cost of ownership.

# From Macro to Micro – Defects Don't Stand a Chance



## See four times more

To detect macro defects, the Leica DM8000 M and DM12000 M have a micro/macro mode for rapid scanning of large components. The macro magnification captures an object field of approximately 40 mm – that's almost four times more than with conventional scanning objectives. **The entire scan area can be accurately scanned for possible defects in a fraction of the time.**

## Change your perspective by keystroke

If you want to take a closer look, just press a single key to switch from macro to micro mode and inspect the defect in darkfield, brightfield or DIC. Press another key to switch to UV mode for even higher resolution or the OUV mode for a completely new visual experience. **Save valuable time.**

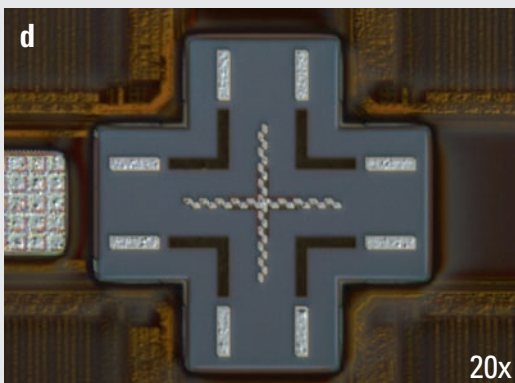
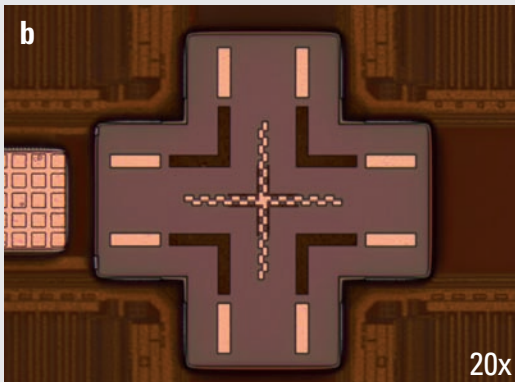
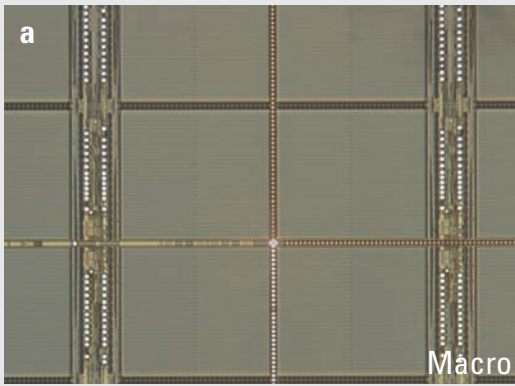


## New contrasting techniques for ultra-high resolution

Oblique illumination is an indispensable tool for examining sides, edges or chipping, whereas UV light is useful for obtaining higher resolution. The unique OUV mode combines both techniques. **View the sample from all sides, in 3D and in highest resolution.**

## In-depth darkfield contrast

The in-depth darkfield contrast reveals far more details of samples than conventional optical techniques. What's more, the large working distance protects samples from inadvertent damage during inspection.



**Accurate detection in all types of illumination:** Quick macro mode scan (a), particle detection in brightfield (b), detection of micro scratches with in-depth darkfield (c), looking for defects on transparent films with the DIC mode (d). It takes less than a second to switch modes, and best of all, the microscope integrates a contrast and illumination manager to support users with little experience using the system.

# For the Demanding Production Environment



## Keep the environment clean

LED illumination is integrated with the Leica DM8000 M/DM12000 M. You'll notice the effect of this smart design on your working environment: Without a lamphousing to get in the way, there is an optimal airflow around the microscope. A clean solution for the cleanroom.

The powerful LEDs have an extremely long lifetime yet extremely low power consumption. There is no need for lamp change, and there are no downtimes for servicing. **Help the environment while saving money and increasing productivity at the same time.**

## Patented for continuous operation

The motorized objective nosepiece is encapsulated and, like the entire system, designed for the most demanding cleanroom requirements. This is a solution that keeps the microscope in service for years, however tough the conditions.

## Effective protection of the samples

The focus stop works both mechanically and electronically to protect samples from inadvertent damage. With the large vertical adjustment range of the focus and individually extendable working distance, **every sample height is accommodated**, from micro-electronic components to polished metal sections, composites or minerals.

## System integration means single-source supply

With the Leica DM8000 M/DM12000 M, you have a complete system: the microscope, camera and the Leica Application Suite (LAS) software are perfectly matched.

Or upgrade the Leica DM8000 M/DM12000 M to an inspection or review system by choosing a wafer loader, matching accessories such as vacuum wafer chucks, and by installing inspection software or film thickness measurement software.

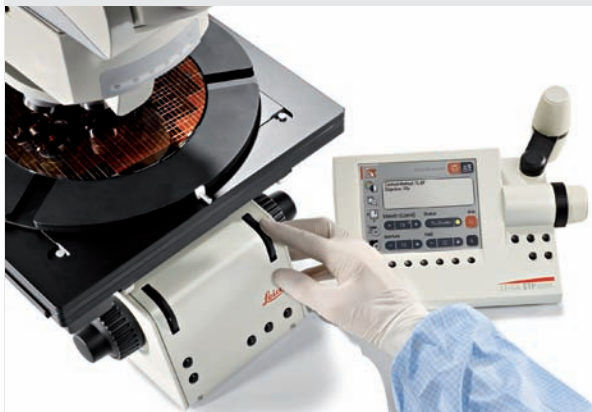


The objective nosepiece of the Leica DM8000 M/DM12000 M is designed to meet the most demanding cleanroom specifications, also.



Upgrade to an inspection or review system with wafer loader and customized inspection software

# Perfect Ergonomics and Convenience



## Easy to use, even in the cleanroom

Designed to the highest ergonomic standards, the controls are specifically intended for the more difficult conditions in the cleanroom.



## Ergonomics in perfection – for consistent, reliable results

The tube and focus knobs can be optimally adjusted to specific body size to reduce user fatigue.



## Ergonomics means higher quality

It has been proven that ergonomically-designed workplaces help increase productivity and enhance work quality. Adaptable to any user with its individually adjustable Ergotube and height-adjustable focus knobs, the Leica DM8000 M/DM12000 M is ideal for routine inspection and other applications.

All controls are easy to reach, so that users don't have to take their eyes and hands away from the microscope to switch to a different contrast technique or illumination. The camera's shutter release key is integrated with the microscope stand, also. **Convenient for the user and saves time.**

## Helps prevent user error

Even for users with no microscope skills, the Leica DM8000 M/DM12000 M is easy to use. The controls are preassigned using the memory function, **reducing the risk of operation errors.**

## Intelligent support

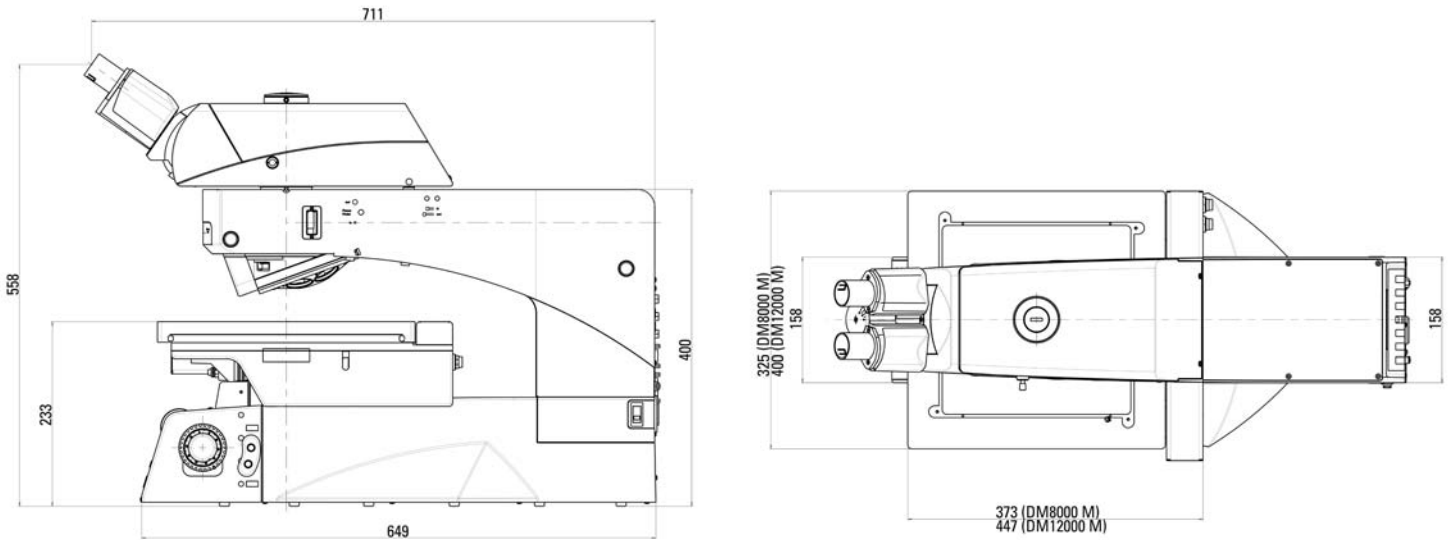
The contrast can be selected at the press of a button with the integrated contrast manager – the relevant parameters are adjusted accordingly. The integrated illumination manager automatically adapts the illumination to the chosen objective. Ultra-easy operation helps avoid errors and saves time.

For the inspection of strongly reflecting surfaces such as blank wafers, the focus finder is an intelligent feature for quickly focusing on the detail of interest.

Inspection tasks can be clearly and simply defined by different user authorizations where several users with different skill levels work at the same microscope.



# Technical Data



Systems	Leica DM8000 M	Leica DM12000 M
<b>Optical system</b>	Leica HC optics (optical system corrected to infinity)	
<b>Viewing tube</b>	Trinocular Ergotube with upright and unreversed image Switching positions (eyepiece/camera): 100/0 and 0/100 100/0 and 50/50	
<b>Macro imaging</b>	Super widefield overview image with up to 40 mm scan field on the sample	
<b>Illumination system</b>	– Full LED incident light illumination; viewing techniques: Brightfield, darkfield, DIC, qualitative POL, oblique illumination, UV, OUV – Full LED transmitted light illumination; viewing techniques: Brightfield, qualitative POL	
<b>Status feedback</b>	Status indicator on front Service interval indicator (on back of instrument)	
<b>Operation support</b>	Integrated contrast manager Integrated illumination manager	
<b>Objective nosepiece</b>	Motorized, brightfield/darkfield objectives (M32), 6-position	
<b>Microscope stages</b>	Manual inspection stage 8 x 8"; 202 x 202 mm travel range, integrated rapid adjustment; for incident and transmitted light techniques  Scanning stage 8 x 8"; 202 x 202 mm travel range, motorized, 4 mm pitch; for incident and transmitted light techniques	Manual inspection stage 12 x 12"; 302 x 302 mm travel range, integrated rapid adjustment; for incident and transmitted light techniques  Scanning stage 12 x 12"; 302 x 302 mm travel range, motorized, 4 mm pitch; for incident and transmitted light techniques
<b>Control units</b>	Joystick with 4 freely programmable function keys Leica SmartMove, x,y,z control with 4 freely programmable function keys Leica STP6000 SmartTouch, x,y,z control with 4 freely programmable function keys	
<b>Focus</b>	Heavy-duty manual 2-stage focus, coarse and fine mode; 35 mm travel range; height-adjustable focus knobs Precision 3-stage focus with coarse, fine and super fine mode; 35 mm adjustment range; height-adjustable focus knobs Motorized 2-stage focus; 35 mm travel range; high reproducibility; parfocality compensation	
<b>Electrical system</b>	Supply voltage: 100–120/220–240 V AC, 50/60 Hz	
<b>Weight</b>	approx. 41 kg (of which microscope approx. 36,1 kg)	approx. 52 kg (of which microscope approx. 36,5 kg)
<b>Ambient conditions</b>	For use in industrial environments with EMC (Class A threshold). If used in a protected environment, instruments may influence each other Ambient temperature: 15°C – 35°C Relative humidity: 80% for temperatures up to 33°C (without condensation) Voltage fluctuations: +/- 10% Over-voltage category: II according to IEC60664 Contamination class: 2 according to IEC60664	

Can be delivered in cleanroom packaging (two-layer packaging) on request.