



# Leica DM LM

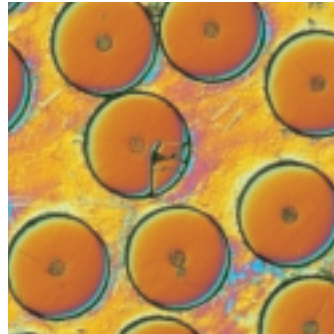
System Microscope  
for Material Control

*Leica*

# Leica DMLM

The Leica DMLM is a modern system microscope with a modular design that makes it suitable for a wide range of applications from simple routine examinations in material science to material research tasks. It has many features which make the user's daily workload decisively lighter and more convenient. The key performance features of the Leica DMLM are its modularity, universal application potential, stability, ergonomomy and excellent optics.

Our special DML system brochure gives an overview of all the available components and connected techniques.



Fibre composite;  
interference contrast



Leica Design by Ernest Igl

The many different configuration options, based on a tailored system for all industrial microscope applications, make the Leica DMLM the all-purpose microscope in every factory laboratory. The wide choice of objectives enables brilliant imaging quality for all customary imaging techniques.

The Leica DMLM offers a wealth of innovative technology and practical ideas:

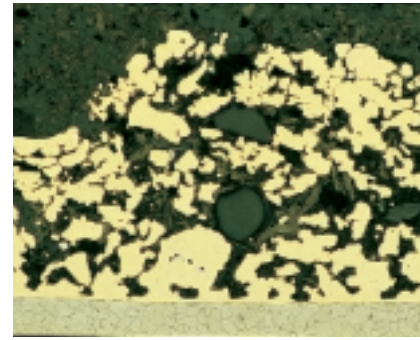
- HC infinity optics
- Special objectives (1.6x to 250x)
- 20, 22 and 25 mm fields of view
- 100W halogen illumination
- Automatic voltage adaptation and stabilisation
- Rotatable, ceramic-coated stage
- Flexible stage height settings (up to 100 mm) for large objects
- 3-gear focus drive with individual torque adjustment and stage height stop
- Compensation of thermally induced focus drift (new patented stand design)

All controls are specially balanced, culminating in a combination of high performance, first-class quality and engineering and excellent ergonomoy. The best prerequisites for smooth work routines and reliable results, in the laboratory and for scientific microscopy tasks.

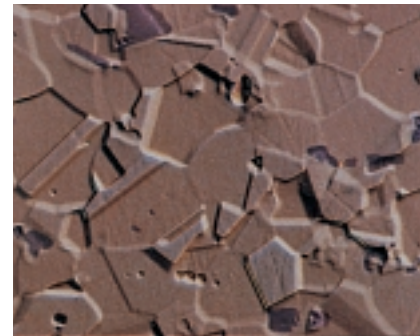
Providing all contrasting techniques required for industrial applications, the incident and transmitted light version offers ultimate universality. For examining opaque objects only, we recommend the incident light version, whose modularity allows such a high degree of specialisation that you can configure the perfect solution for your field of application.

Thanks to the Leica system philosophy, you can benefit from top-class objectives that used to be reserved for research applications. The Leica DMLM features several innovations that not only make microscopy much more convenient but also more attractive. You'll be amazed how enjoyable everyday routine work can be!

One of these innovations is the patented design of the stand. The enhanced mechanical and thermal stability minimises focus drift when accommodating heavy accessories (photo camera, video camera, etc.) despite the rise in temperature of the microscope due to the high power consumption of the light source. This offers exceptional advantages for long photomicrographic exposures, serial exposures or long video recordings, e.g. in connection with heating stages.



Ferrous product, brightfield



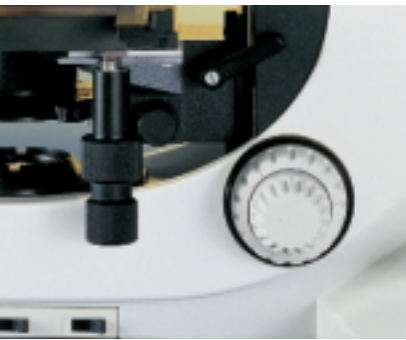
High-alloy steel, Fe-sputtered, interference contrast



Microscope for incident light



Microscope for transmitted light



3-gear coarse and fine drive



Pol rotary stage, 360° rotation



Special stage for large samples and heating stages 1750

### Revolutionary

The new HC optical concept is revolutionary for this class of microscope. A wide choice of different objectives, which are also used in research microscopy, offers you breathtaking imaging quality for your specific field of application.

### New: 5-function focusing system including 3-gear focusing

The torque (ease of movement) of the coarse drive is individually adjustable with one hand movement, e.g. for heavy samples. This also applies to the stage height stop (focus stop), promoting faster and smoother operation during frequent specimen changes and immersion.

The 3-gear focusing drive is absolutely unprecedented. It is now possible to simply press a button to switch on a gear between coarse and fine for more differentiated focusing. Those who work mainly with low to medium magnifications will greatly appreciate this innovation. The microscope is also available with conventional 2-gear focusing.

### A worth-while investment:

the scratch-resistant, rotatable ceramic stage of the Leica DMLM. Even non-stop use in materials testing or quality control will leave none of the scratch marks often seen with lacquered surfaces.

It has a large rotation range of up to 100° and can be equipped with 3 different object holders.

Besides the usual holder for 1 specimen, there is a rotatable and tiltable object support and a large format object holder. The maximum sample height is approx. 50 mm. Alternatively, a special stage for samples up to approx. 100 mm thick and a ball-bearing precision rotary stage from the DMLP polarisation microscope range can be adapted via the quick-change dovetail mount.

Safe microscopy is guaranteed by the innovative stage height stop. This makes it easier to find the focal plane when examining different samples of the same height, besides helping to prevent collisions between the specimen and the objective which can damage the front lens of the objective.

As with all Leica products, modularity is a basic principle, a sound reason for choosing a Leica system microscope: whatever your area of application you can configure the microscope for your special endeavor. When you buy the Leica DMLM you can be sure of the possibility of future upgrading, too. For example, it can be turned into a TV and/or photomicroscope for documentation purposes, a microhardness tester or an interferometer.

Aluminium alloy  
Barker etching, Pol contrast



### Stand, objective nosepiece, tubes

There is a choice of two basic stands for all conventional contrasting techniques, either for incident light only (IL) or for both incident and transmitted light (IL/TL).

The sextuple or quintuple objective nosepiece is inclined to the back, providing a pleasantly unobstructed view of the specimen and objectives and offering optimal access to the stage. Due to the integration of the IC prism slide mount there is no need for a special IC turret. Almost all optical configurations need only 2 prisms for all objective magnifications from 10x to 100x. The low position of the x/y stage drive, the location of the brightness control near the focus drive, the bilateral controls of the transmitted light condenser and the conveniently situated controls of the universal incident light illuminator round off this ergonomic concept. These features ensure a faster, smoother and more efficient workflow than ever before with conventional microscopes of this category.

Altogether there is a choice of 8 binocular and trinocular tubes. Individual adaptation of the viewing height with the ergotubes ensures a comfortable working position, encouraging long, fatigue-free periods of work at the microscope, e.g. for materials testing or quality control. An ergotube is essential for user comfort when people of different heights alternately work with the same microscope.

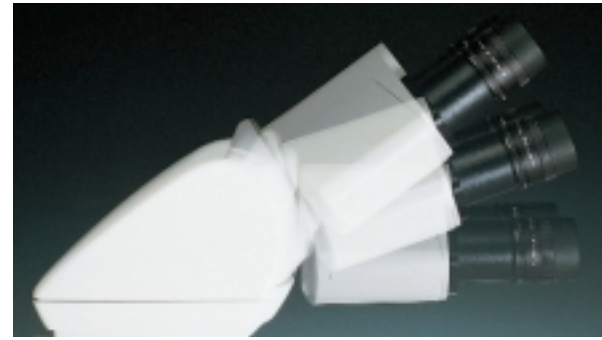
### Illumination

100W halogen illumination (IL and TL) for greatest possible light yield makes even difficult darkfield, polarisation and interference contrast specimens show up clearly. A powerful light source is a particular advantage for photomicrography, as shorter exposure times result in significant time savings.

There are three lamphousings to choose from, plus a mirror housing for simultaneous connection of two light sources. This enables fast and accurate switching between different lamps, e.g. gas discharge and halogen lamps with different intensities and spectral distributions. There is also a choice of several different mercury and xenon lamps for fluorescence microscopy.

### Built-in power supply with automatic voltage adaptation

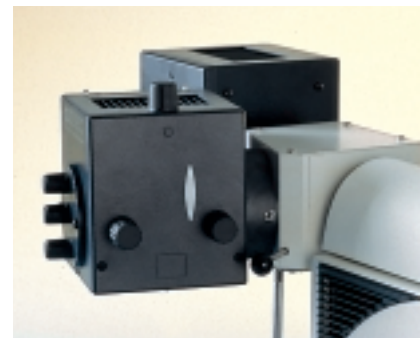
Another new feature in the standard microscope configuration is the built-in stabilised power supply. The microscope adapts automatically to the local power supply of 90-250V, 50-60 Hz, compensating for any voltage fluctuations in the mains supply which could impair the illumination intensity and colour temperature. This is a major advantage for photomicrography. Split-second switching between transmitted and incident light is achieved with an alternating switch on the TL/IL stand.



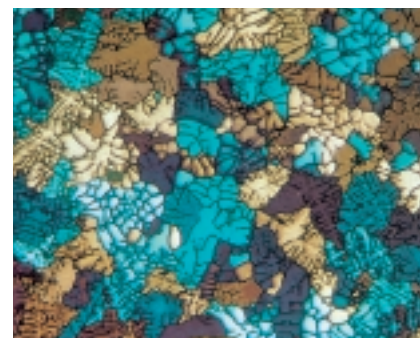
Ergotube with variable viewing angle



Quintuple objective nosepiece for bright-/darkfield



Mirrorhousing 106 for 2 lamphousings



Aluminium alloy  
Barker etching, Pol contrast

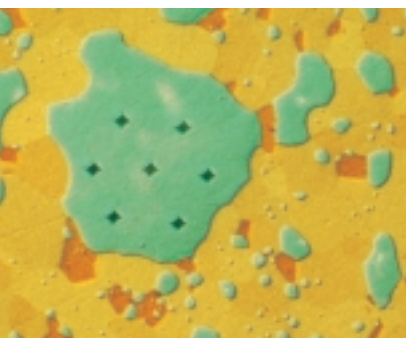
HC objectives and eyepieces



Universal incident light illuminator for all illumination techniques



Incident light interference attachment Michelson/Mirau 5x-40x



Molybdenum-silicon alloy with microhardness indentations

### Integrated filter magazines

The incident light illuminator has a filter magazine with 4 filter positions. For transmitted light a 3-position filter magazine is insertable in the microscope base for exceedingly easy operation. All the filter magazines can be fitted with a wide range of individually selectable filters that can easily be flipped in and out as required. Also, extra filter holders can be adapted in transmitted and incident light, providing a total of up to 6 filter slots in incident light and 7 in transmitted light.

## Objectives and eyepieces

The new HC optics are Leica's 4th generation of infinity optics. There are three series to choose from:

- N PLAN planachromats 2.5x-100x
- PL FLUOTAR® semiapochromats 1.6x-100x
- PL APO apochromats 50x-250x

All the eyepieces are designed for use with or without eyeglasses and available with fields of view 20, 22 and 25 for the standard 10x magnification. Other eyepiece magnifications: 12.5x, 16x and 25x.

### 20, 22 or 25 mm field of view

#### A wider view – greater efficiency

For the first time in this microscope class, Leica offers the option of a 22 and 25 mm field of view. Users who often have to cope with large numbers of samples will greatly appreciate this improvement. It gives you 50% more image information at a glance, saving time and stepping up efficiency.

### LU 4/25 universal illuminator

The universal illuminator is the heart of the Leica DMLM incident light microscope. The BF (brightfield, interference contrast, polarisation), DF (darkfield) and Smith (quantitative polarisation) reflectors and the fluorescence filter systems are easily and conveniently switched with the 4-position turret plate.

All incident light techniques can therefore be used in quick succession. An additionally adaptable neutral density filter reduces light intensity when switching from brightfield to darkfield. Darkfield illumination is especially bright and contrasty due to the pinhole technology of the DF reflector.

The aperture and field diaphragms are both centrable and optimally adjustable to the specimen structures in all contrast ranges. The Pol modules for incident light Pol and interference contrast are conveniently located at the front of the illuminator and protected from heat. With the incident light illuminator LU 4/25 together with the appropriate objective/eyepiece combination, metallographic standard magnifications of 16x to 1500x can be covered with large fields of view up to 25 mm. Further variations in magnification are possible using the magnification changer 1x/1.25x/1.5x.

## Data in brief:

### Incident light techniques

Brightfield  
Darkfield  
Polarisation contrast  
Differential interference contrast  
Quantitative interference  
Fluorescence

### Transmitted light techniques

Brightfield  
Darkfield  
Phase contrast  
Oblique illumination  
Polarisation  
Interference contrast

### Lowest/highest objective magnification

1,6x/250x

### Total magnification

16x to 1500x (3000x)

### Eyepiece magnifications

10x, 12,5x, 16x, 25x

### Field of view index

20, 22 and 25

### Transmitted light source

Halogen, 12 V 100 W

### Incident light sources

Halogen 12V 100 W  
Mercury Hg 50, Hg 100  
Xenon Xe 75

### Transmitted light condensers

8 options

### Incident light illuminators

3 options

### Up to 8 filter positions

#### Incident light

4-position integratable filter magazine  
Intermediate piece, 2-4 pos.

### Up to 8 filter positions

#### Transmitted light

Integratable filter magazine, 3 pos. (option)  
Filter holder, 2 pos.  
Intermediate piece, 2-4 pos.  
Single pos. in base

### Specimen stages

3 options

- Ceramic-coated x/y stage (right-hand operation)  
Object holder: 4 options
- Stage with inverted stage bracket  
for large samples (without object guide)
- Pol rotary stage with mountable object guide

### Objective nosepiece (3 options)

6xM25 (HF, IC, Pol)  
5xM32 (DF, HF, IC, Pol)  
5xM25, centrable

### Observation and photo tubes

7 options including ergofunctions and  
up to 2 photo TV exits

### Accessories

Microhardness tester  
Heating stage up to 1750°C  
TV adaption  
Macro device  
Slide overlay device  
Microscope camera systems  
Microscope photometer  
Discussion unit for 2, 3 or 5 viewers  
Tracing device  
Comparison device (2 microscopes coupled)

### Incident light interference device

Michelson/Mirau

### Dimensions

Base of stand, front-to-back:	472 mm
Base of stand including eyepieces, front-to-back	582 mm
Width:	370 mm
Height:	575 mm
Weight:	ca. 18 kg

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Leica, the leading brand for microscopes and scientific instruments, has grown from five brand names with a long tradition: Wild, Leitz, Reichert, Jung and Cambridge Instruments. Leica symbolizes both tradition and innovation.

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