Leica DM4500 P
Leica DM2500 P, Leica DM EP

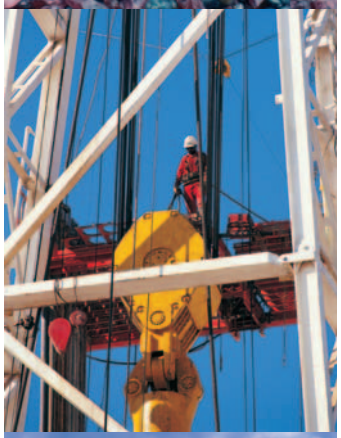
Breaking New Ground in Polarizing Microscopy

Living up to Life

Leica
MICROSYSTEMS

Brilliance
Reliability
Flexibility
Documentation

Simply Precise



Polarizing microscopes for geosciences and industry

The new Leica microscope series
is designed for all polarizing examinations: petrography, mineralogy, structure characterization and examination of liquid crystals. Leica's new polarizing microscopes are ideal for a wide range of applications.

With versatile instrument options, Leica polarizing microscopes are also an ideal match for industrial analysis and quality control, such as analyzing glass, plastics, textiles and fibers or testing displays in the semiconductor industry. Leica microscopes always provide the most accurate and reliable results.

Specifically designed for your application:
- Leica DM4500 P for research and development
- Leica DM2500 P for routine polarization applications
- Leica DM EP for university and other instructional use

Accurate results:
The new Leica polarizing microscopes will show you how easy and reliable microscopy can be. Leica's convenient operating concept allows you to improve your workflow and concentrate entirely on the task at hand.

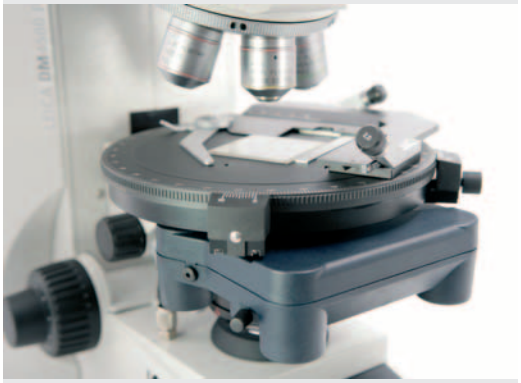
Advantages that speak for themselves:
- Improved polarization contrast to obtain more information from a sample
- Easy operation for accurate sample evaluation in both orthoscopy and conoscopy
- Ergonomic design for user comfort
- Camera and software modules can be integrated for fast, easy, and reproducible documentation

Leica Design by Christophe Apothéloz and Werner Hölbl

Leica DM4500 P
The Microscope that Guides You

- **Automation that anticipates your next work step:**
  – Automatic diaphragm setting and light intensity
  – Constant Color Intensity Control for constant color temperature
  – Condenser cap swings in and out automatically

Designed for use in research and development: the new Leica DM4500 P – polarizing microscopy has never been easier.



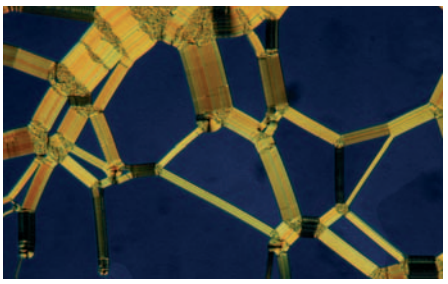
For the most precision:
the Leica DM4500 P's rotating stage

The right diaphragm – automatically
The Leica DM4500 P automatically detects which contrast method and objective are being used. This provides valuable consistency and reproducibility for your research. Manual diaphragm setting is no longer required, either in the transmitted light or incident light method. You can concentrate on your work – the Leica DM4500 P takes care of the rest for you.

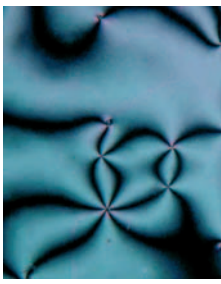
Always in the right light
Light intensity automatically adjusts to the objective. Image brightness remains constant when switching objectives, which eliminates glare. You can always adjust the light intensity manually as well.

Constant color temperature
The Leica DM4500 P's transmitted light axis is ideally suited for mineralogical stone identification. Its Constant Color Intensity Control automatically maintains a constant color temperature, and you no longer need neutral density filters to compensate for changes in light intensity.

The correct condenser setting – immediately
All condensers are designed with condenser heads that are perfectly matched optically and automatically swing in and out depending on the objective magnification. They are effective from 1.25x–100x magnification.



Oily strikes of a cholesteric liquid crystal mixture.
Crossed polarizers, magnification 100x.



Defective texture in plana
Crossed polarizers, magn

Images courtesy of Dr. Toralf Scharf, Institute of Microtechnology (IMT), University of Neuchâte

All settings at a glance

You can see all microscope settings at a glance on the easy-to-read, integrated display: information such as contrast method, orthoscopic or conoscopic mode, objective, diaphragm setting, and light intensity are clearly indicated. With this feedback, results can easily be reproduced.

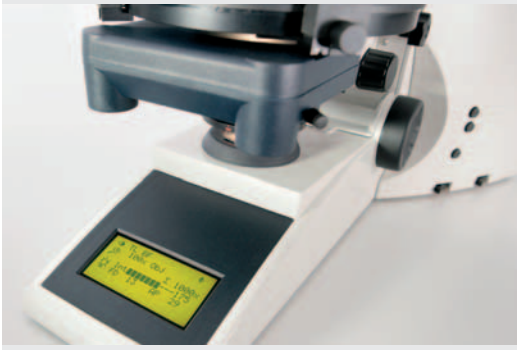
Easily assign function buttons

You can assign the function buttons to any function you want – no programming skills are required. Six conveniently located buttons behind the focus knobs provide fast and easy access to the functions you use most.

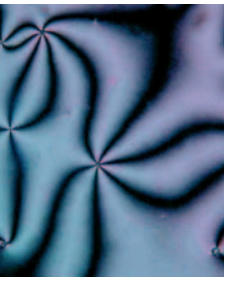
Perfect interaction of all functions

The interaction between the display and coding of the individual modules allows the microscope to guide your work. With just one look at the display, all relevant information is at your fingertips. For example, the display indicates when to swing the conoscopy module into or out of the beam path. You have the ability to adjust the light and diaphragm values to obtain the best conoscopic image at any time.

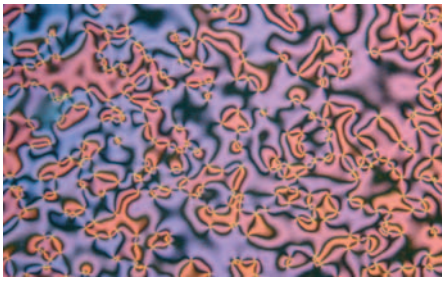
- **Conveniently arranged functions:**
  – New, convenient display
  – Variable, programmable function buttons
- **Great optical quality for crystal-clear results:**
  – Improved conoscopy module
  – Precise orthoscopy
- **State-of-the art functions:**
  – Microscope guides you to the next work step
  – Displays current operation status



Everything seen on the display of the Leica DM4500 P is saved automatically. This allows you to reproduce the settings at any time.

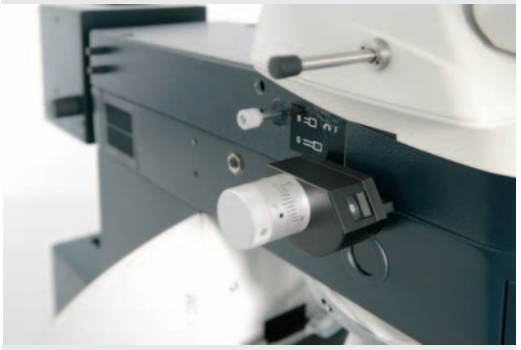


ar aligned liquid crystal sample.
ification 100x.



Liquid crystal, defective texture in a hybrid aligned cell.
Crossed polarizers, magnification 50x.

el, Switzerland



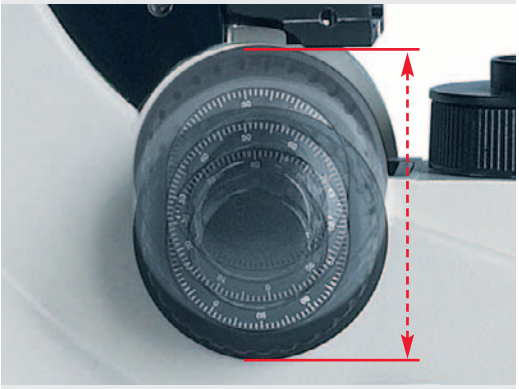
The Leica DM4500 P anticipates your next work step. Settings on the conoscopy module appear immediately on the display. This shows the current operating status of your instrument at all times.

Leica DM2500 P

The Microscope that Adapts to Each User

- **Ergonomic design adjusts to you:**
  – Height-adjustable focus knobs
- **Convenient features let you work faster:**
  – Color-coded objectives and condenser diaphragms match lenses
- **Safety feature protects the sample and objective:**
  – Integrated focus stop prevents objective/sample collisions

The Leica DM2500 P will show you how easy and reliable polarizing microscopy can be.



Ergonomically designed to the last detail: you can adjust focus knob height to match your hand size.

Comfortable and relaxed work

No two people are alike. The Leica DM2500 P ensures that every user can work at the microscope in a relaxed manner. The height of the microscope's focus knobs can be individually adjusted to fit each user's exact hand size, which prevents hand, arm, and shoulder tension and ensures a comfortable and fatigue-free posture.

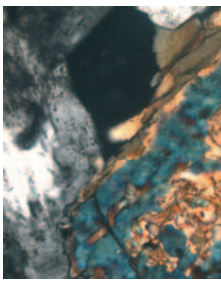
Efficient and reproducible microscopy

Color-coded lenses match the color-coded field and aperture diaphragm adjustment (CDA), to ensure that the illumination conditions are always matched to the objective. Using a manual microscope has never been easier. With CDA, the Leica DM2500 P offers a level of reproducibility that is one-of-a-kind in its class.

Reliably and accurately adjusts to your sample

The built-in focus stop protects your samples and the front lens of the objective. For samples of equal height, the focus stop makes the focusing plane easier to reconstruct so you can concentrate entirely on your application.

Textile fibers, crossed polarizers with lambda plate, magnification 100x.



Light augite with biotite re
rims. Black magnetite gra
magnification 200x.

Images courtesy of Michael Doppler, Leica Microsystems

Versatile and adaptable

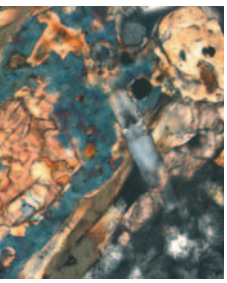
You have a choice of two conoscopy modules to supplement the Leica DM2500 P. The advanced conoscopy module with a centerable, focusable Bertrand lens and extended field of view has been designed for advanced requirements in conoscopy. As an economical alternative, Leica offers the standard conoscopy module with a pre-focused, centerable Bertrand lens, built-in analyzer, and integrated pinhole for examining small grains.

The 4-position polarization incident light axis is ideally suited to research applications. Reflected light contrast methods such as brightfield according to Smith, quantitative polarization (POL) or fluorescence (Fluo) – provide ideal imaging conditions for mineralogical or geological examinations. A centerable Bertrand lens module is also available for conoscopy.

The 5-position objective nosepiece provides individual centration for each objective, and two rotating stages are available. A 45° stage rotation with click stop is optional.

- **Flexibility to meet your needs:**
  - Choice of Bertrand lens modules
  - Orthoscopy
  - 4-position Pol incident light axis
  - 5-position, centerable objective turret

A first on the world market: correct diaphragm setting at all times – the Color-coded Diaphragm Assistant helps set the diaphragm values needed.



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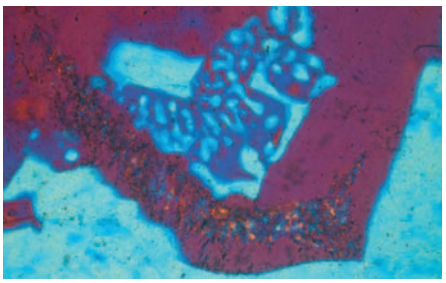
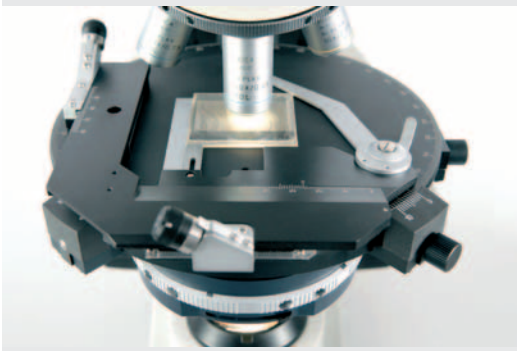


Biotite hornblende granite myrmekite (quartz-feldspar) with lambda plate. Crossed polarizers, magnification 200x.



Developed for everyday use on the Leica DM2500 P – the new POL rotating stage with 45° click stop to indicate the illumination positions.

Leica DM EP

The Microscope for Teaching and Research

- **Advanced performance in a teaching polarizing microscope:**
  - Standard and advanced conoscopy modules
  - Polarizer with notch markings
  - 4-position objective turret, centerable
  - Sturdy, compact design
- **Convenience that makes work easy:**
  - Easy-to-access control functions
  - Ergonomic viewing angle
  - Accurate angular measurement with verniers on the rotating stage

Developed for college teaching and research use: the Leica DM EP.

Accurate and versatile for teaching

The Leica DM EP is the ideal polarizing microscope for university and other instructional use, offering a standard and an advanced Bertrand lens module for unsurpassed ease of operation. With a wide range of accessories and Leica's renowned optics, the Leica DM EP is exceptional not only for its compact, durable design, but also for its efficiency and ease of operation.

Designed for optical brilliance and long life illumination

The standard Köhler field diaphragm and magnetically fixed blue filter provide vivid, pin-sharp images. The 2,000-hour, 35-watt halogen lamp saves hundreds of dollars in replacement bulb cost over the life of the microscope. An illuminated intensity control system reminds the user to switch off the lamp after finishing work to increase the lamp's service life and save energy.

Maximum ease of use and high optical brilliance are the outstanding features of the Leica DM EP.

Camera and Software Modules Complete the System

Ready to expand at any time
To seamlessly interface with the new Leica polarizing microscopes, Leica offers a comprehensive camera and software solution for fast, convenient documentation of your work. You can expand your system at any time using Leica's cameras and application-specific software modules. All future software and hardware components from Leica will operate on a uniform interface.

Archiving and documentation is easy
The basic core functionality of the Leica Application Suite (LAS) is provided with every Leica microscope and digital camera as part of an integrated system solution. Together, the combined system provides an intelligent, automated microimaging environment. LAS is the basic software for microscope configuration and control, and provides a platform for acquiring, analyzing, and processing the highest quality digital images.

LAS Reticule for comparison and measurement
The LAS Reticule application provides electronic tools for displaying live images and overlaying different types of measuring reticules. LAS Reticule provides visual feedback about the approximate size of the field of view. In this way, object size comparisons and distribution measurements can be carried out quickly and effortlessly.

Advanced interactive measurement
The Interactive Measurement module of the Leica Application Suite has been designed for particularly difficult measurements. Using this module, samples can be individually counted and assigned to an identified class as well.

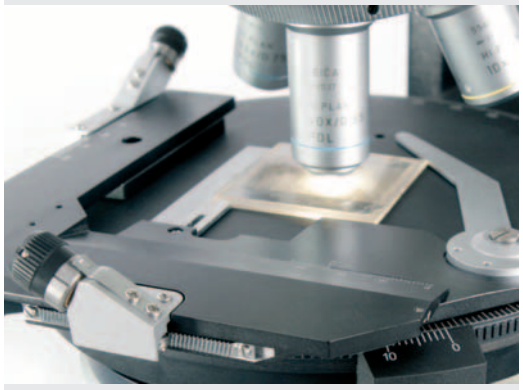
- **Leica's complete polarizing microscope systems integrate the following components:**
  – Leica polarizing microscope
  – Leica Digital FireWire Camera (DFC)
  – Leica Application Suite (LAS) software

Modular, Customized Configurations – Microscopes Designed for You

- **Flexibility that gives the freedom you need:**
  – Wide selection of POL objectives

- **Compatibility that knows no bounds:**
  – Fully compatible components across Leica's polarizing microscope product line
  – Wide selection of analyzers, polarizers, and compensators
  – Full wave & quarter wave plates are available
  – Wide selection of POL observation tubes

The result of combining maximum precision and optimum ergonomic design – the 360° analyzer.



Flexibility is key. All of Leica's rotating stage polarizing microscopes feature attachable, interchangeable mechanical stages.

Flexibility – Designed for you

Flexible to the last detail. All Leica polarizing microscope components can be configured for all microscopes in the polarizing line. For example, you can choose from over twenty POL objectives for the Leica DM4500 P, DM2500 P or DM EP. The optical possibilities are unlimited. You will enjoy the benefits provided by this complete system when using the new 360° analyzer, the 360° polarizer or even with full wave plates. All components can be used for classroom teaching, everyday routine work, and research.

Leica's entire line of DIN standard compensators can be used in all Leica polarizing microscopes, as can the attachable mechanical stage for accurate sample positioning. This always ensures flexible interchange and replacement of parts.

Technical Data

	Leica DM EP	Leica DM2500 P	Leica DM4500 P
• **Objective turret**	4x (M25), centerable	5x (M25), centerable	6x (M25), centerable, absolute encoded
• **Objectives**	HI Plan POL N Plan POL Immersion objectives	HI Plan POL N Plan POL PL Fluotar POL Immersion objectives	HI Plan POL N Plan POL PL Fluotar POL Immersion objectives
• **Usable field of view**	20 mm	25 mm	25 mm
• **Contrast method** **Changeover** **Color reproduction**	Manual	Manual	Motorized CCIC: Constant Color Intensity Control
Transmitted light	Polarization contrast Orthoscopy Conoscopy Brightfield Phase contrast Darkfield	Polarization contrast Orthoscopy Conoscopy Brightfield Phase contrast DIC Darkfield	Polarization contrast Orthoscopy Conoscopy Brightfield Phase contrast DIC Darkfield
Incident light	Polarization contrast Brightfield	Polarization contrast Brightfield Darkfield* DIC Fluorescence	Polarization contrast Brightfield Darkfield* DIC Fluorescence
• **Conoscopy**	Bertrand lens cube in new IL axis Bertrand lens module (AB module) Advanced conoscopy module	Bertrand lens cube Bertrand lens module (AB module) Advanced conoscopy module	Fully integrated conoscopy beam path User guidance with display feedback
• **Transmitted light axis** **Illumination** **Operation**	12 V 35 W halogen lamp Manual User guidance with CDA	12 V 100 W halogen lamp Manual User guidance with CDA	12 V 100 W halogen lamp Motorized Integrated illumination manager
• **Incident light axis**	Manual User guidance with CDA	Manual User guidance with CDA	Motorized Integrated illumination manager, round and rectangular field diaphragms for ocular or camera observation
• **Condensers**	Manual changeover User guidance with CDA	Manual changeover User guidance with CDA	Motorized changeover of condenser head, 7x condenser disc, polarizer
• **Focus drive**	Manual, 2-gear gearbox	Manual, height-adjustable, Focus stop, 2 or 3-gear gearbox	Manual, 2-gear gearbox

* on request

Leica Microsystems – the brand for outstanding products

Leica Microsystems operates internationally in four divisions, where we rank with the market leaders.

• Life Science Research Division

Leica Microsystems' Life Science Research Division supports the imaging needs of the scientific community with advanced innovation and technical expertise for the visualization, measurement and analysis of microstructures. Our strong focus on understanding scientific applications puts Leica Microsystems' customers at the leading edge of science.

• Industry Division

The Leica Microsystems Industry Division's focus is to support customers' pursuit of the highest quality end result by providing the best and most innovative imaging systems for their needs to see, measure and analyze the microstructures in routine and research industrial applications, in materials science and quality control, in forensic science investigations, and educational applications.

• Biosystems Division

The Biosystems Division of Leica Microsystems brings histopathology labs and researchers the highest-quality, most comprehensive product range. From patient to pathologist, the range includes the ideal product for each histology step and high-productivity workflow solutions for the entire lab. With complete histology systems featuring innovative automation and Novocastra™ reagents, the Biosystems Division creates better patient care through rapid turnaround, diagnostic confidence and close customer collaboration.

• Surgical Division

The Leica Microsystems Surgical Division's focus is to partner with and support micro-surgeons and their care of patients with the highest-quality, most innovative surgical microscope technology today and into the future.

Leica Microsystems' mission is to be the world's first-choice provider of innovative solutions to our customers' needs for vision, measurement and analysis of micro-structures.

Leica, the leading brand for microscopes and scientific instruments, developed from five brand names, all with a long tradition: Wild, Leitz, Reichert, Jung and Cambridge Instruments. Yet Leica symbolizes innovation as well as tradition.

Leica Microsystems – an international company with a strong network of customer services

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Austria:	Vienna	Tel. +43 1 486 80 50 0	Fax +43 1 486 80 50 30
Belgium:	Groot Bijgaarden	Tel. +32 2 790 98 50	Fax +32 2 790 98 68
Canada:	Richmond Hill/Ontario	Tel. +1 905 762 2000	Fax +1 905 762 8937
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Italy:	Milan	Tel. +39 0257 4861	Fax +39 0257 40 3475
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Spain:	Barcelona	Tel. +34 93 494 95 30	Fax +34 93 494 95 32
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