DIALUX®-POL

Polarizing Microscope

Monocular-binocular research microscope with built-in light source.

Designed for microscopical investigations in transmitted and incident polarized light as well as for phase contrast observation.

Optimum conditions for binocular examination, including conoscopical observation.

Changing devices for polarizing tubes, objective holders, and condensers.

Attachable lamp housing 250 for the use of high-pressure or spectral lamps up to 250 W.

DIALUX-POL S Microscope
for the microscopical investigation of large objects (see page 4).

55-16f/Engl.

DIALUX-POL

Polarizing Microscope

The DIALUX-POL® stand was designed with all those properties and details in mind which facilitate and simplify practical operation. The clear, smooth shape of the stand, the convenient position of the operating points, the prominent arrangement of the scales and last, but not least, the built-in light source are characteristic of this basic principle.

DIALUX-POL with binocular tube and revolving nosepiece with individual centration for each objective.

* Our lamp housing 250 can also be used as a lighting attachment.

** Polarizing filters have proved so reliable that polarizing prisms need be used in quite exceptional cases only. The DIALUX-POL microscope can be equipped with these on request.

® = Registered Trademark

The low-set coarse- and fine focusing mechanism with single-knob control of the object stage must also be mentioned. The level of the eyepiece tube remains unchanged during focusing. The entire focusing mechanism operates on polished ball races which ensure outstandingly smooth movement absolutely free from play, and unaffected by atmospheric influences; it requires neither lubrication nor any other maintenance.

The built-in light source* has the advantage of constant readiness for service, with centred illumination. The light intensity is adjustable and adequate for photomicrography. For investigations in D-line monochromatic light the 6 v, 2.5 A low-voltage lamp housed in the foot of the microscope can be replaced by a sodium vapour lamp. In addition, separate light sources such as spectral lamps, arc lamps, as well as monochromators can be used in the ordinary way by means of a microscope mirror.

The polarizing equipment consists of neutral-grey extinguishing **polarizing filters of the highest micro quality**** which offer valuable advantages over the Nicol prisms exclusively used in the past. The image is very brilliant and free from astigmatism without special corrections.

The stand can be equipped with a monocular or a binocular tube. The tube can be removed or attached with a single movement, and always remains centred to the object stage. Crossline eyepieces can be set for normal or diagonal positions. All inclined "Pol" tubes permit the unrestricted observation of all polarization effects even with the analyser swung out of the light path. Due to the special set of prisms in the binocular pol tubes insertion of an additional crystal plate beneath the beam-splitting prism is unnecessary. The important advantages of binocular observation are in the DIALUX-POL extended also to conoscopy. The change between binocular orthoscopic and binocular conoscopic observation is carried out simply by removing or inserting the focusing Bertrand lens with which the mineralogist is familiar in monocular observation. Change of tube length and the use of auxiliary eyepieces or dioptres are unnecessary.

The objective changing devices (objective centring clutch, or revolving nosepiece with individual objective centration, as well as vertical illuminators) are interchangeable. The DIALUX-POL microscope can therefore be equipped for ore-microscopy and coal-petrography at any time. However it is advisable for these purposes to choose our DIALUX-POL-S incident-light microscope. The large range of vertical adjustment of the object stage is of particular advantage with large polished specimens. See p. 4 for detailed description.

Constructional features of the DIALUX-POL

Stand

Large research stand with co-axial coarse and fine adjustment mechanism on ball races actuating the object stage; low-set, bilateral single-knob control (1 micrometer scale division = 0.002mm in the fine adjustment range). Top part of the stand with bayonet fitting for the interchangeable tubes and a filter analyser swung in and out by a lever and rotatable through 180°. Its circular scale division can be read off a vernier to an accuracy of 0.2°. The rotation can be arrested.

Swing-out, focusing, and centring Bertrand lens system for all tubes.

Horizontal dovetail slide for the detachable objective changing device.

Circular, rigidly centred rotating object stage No. 37 on ball bearings, with 360° graduation and two verniers for reading the rotation to an accuracy of 0.1°. Adjustable friction and arrest by means of a clamping screw. Stage diameter 150mm. Adjustable arresting device for any 45° interval of the stage rotation. Two object holders and a removable ring plate for the use of the universal rotating stages (attachable mechanical stage for the cross movement of the object extra). Substage dovetail fitting for the interchangeable condensers. High microscope foot to house the lamp unit.

Tubes

The following tubes can be used on the DIALUX-POL for orthoscopical and conoscopical observation: –

1) Inclined monocular pol-tube P 10 for the use of 30mm ⌀ eyepieces. Built-in iris diaphragm for masking of object detail during conoscopical observation.
2) Inclined binocular Pol-tube S 20 for 23.2mm ⌀ eyepieces.
3) Straight pol-photo tube O 13 for 30mm ⌀ eyepieces, spacing ring and index, and built-in iris diaphragm for masking during conoscopical observation and photography.
4) Pol-photo tube FS 21, inclined binocular portion 23.2mm ⌀ eyepieces, and pinhole stop for masking object details during conoscopical observation. The straight part of the tube, for 30mm ⌀ eyepieces, with spacing ring and index, permits the photography of orthoscopical and conoscopical images.

Objective changers

The following objective changers are interchangeable on the DIALUX-POL on a horizontal dovetail slide: –

1) Objective centring clutch with compensator slot under 45°, with four centring objective changing rings
2) Revolving nosepiece with compensator slot under 45°, with individual objective centring devices for each of the four or five objectives
3) Vertical Opak illuminator with compensator slot under 45°, prism polarizer and 6 v 2.5 A low-voltage lamp, for investigations in brightfield incident light
4) Vertical Opak illuminator as described under 3), but mounted on a special carrier for the use of the reflection photometer.
   For detailed description please see our List "Polarizing Microscopes" 55-20 , and List 55-21 .
5) ULTROPAK® illuminator, with 6 v 2.5 A low-voltage filament lamp, for investigations in darkfield incident light.

Condensers and polarizers

The following condensers can be used on the DIALUX-POL: –

1) Five-lens, two-diaphragm polarizing condenser No. 50 f on changing slide, with swing-out top lens and vertically removable filter polarizer in a rotating mount graduated et 5° intervals
2) Five-lens, two-diaphragm polarizing condenser No. 50 p, as 1), but with prism polarizer
3) All other condensers with dovetail fitting for bright- and darkfield as well as phase contrast.

Illumination

Removable microscope lamp unit fitting into the foot of the stand, with 6 v 2.5 A low-voltage lamp

Interchangeable with sodium vapour lamp and starting unit

Tilting and rotating plane- and concave mirror, fitting into the foot.

Accessories

λ-plate (red 1st order) and $\lambda/4$ plate.

Our comprehensive catalogue 55-20 on the LEITZ polarizing equipment contains information on further accessories.

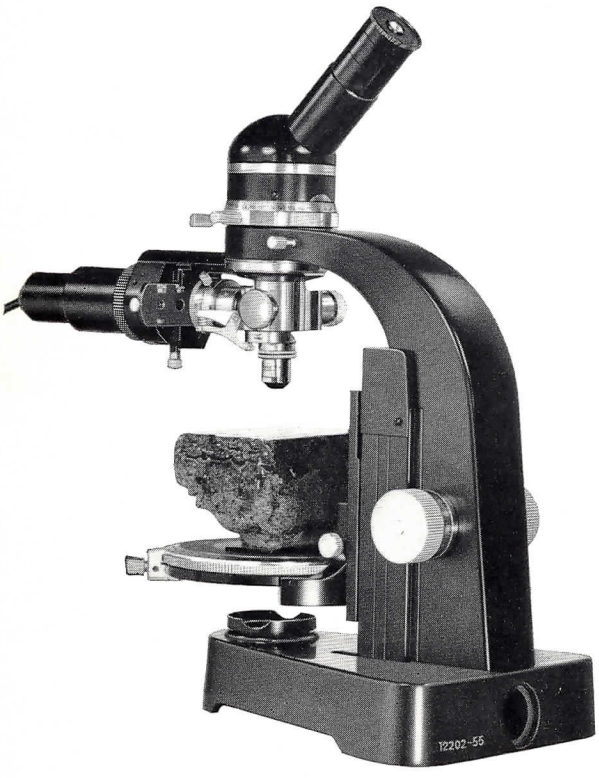
DIALUX-POL S

for microscopical investigation of coal, coke, ores, and refractory substances

Microscopical investigations of coal and coke are to-day almost nivariably carried out on polished specimens. It was therefore essential to develop a routine microscope which is equally suitable for the qualitative sampling of polished specimens and the quantitative microscopic seam profile and grain analysis. It also has to accomodate polished specimens of any size. The ore- and keramics microscopist, too, sometimes has to examine specimens whose size would normally prevent investigation under the microscope. He, too, will welcome the possibility of examining polished portions of large samples without the need for breaking up the sample.

Wherever a polarizing microscope for practically unlimited sample sizes is called for, our DIALUX-POL S microscope with its extremely large adjustment range of the object stage is recommended. One of the advantages of this stand is that it allows preliminary examination of unpolished specimens with the ULTROPAK® incident-light illuminator. This will often indicate which portion of the specimen calls for more detailed investigations or how the polished surface should be orientated in the specimen.

In combination with a point counter this microscope can also be used for quantitative work.



DIALUX-POL S

Constructional features

The LEITZ DIALUX-POL S microscope is a large research instrument designed mainly for investigations in incident light. Its outward appearance is similar to that of the DIALUX-POL. By means of additional illuminating devices it can be converted into a standard transmitted-light microscope.

Low-power illuminator for the DIALUX-POL S

Its most outstanding feature is the large adjustment range, 100mm vertically, of the object stage. This permits the non-destructive examination even of large samples. The object stage generally recommended is a 130mm diameter rotating stage on ball bearings, with 360° graduation and two verniers with a reading accuracy of 0.1°. On request a rotating object stage of 150mm diameter with adjustable 45°-interval click stops can be supplied.

Two variants of the DIALUX-POL S are available depending on the purpose for which it is used: –
with Bertrand lens for conoscopical investigations,
without Bertrand lens, e. g. for coal petrography or coke microscopy.

The optical equipment consists of incident-light objectives corrected for a mechanical tube length of 215mm. Here, too, measurements in polarized light should be carried out only with our strain-free achromats marked with a large "P"; the highest degree of freedom from strain is assured by the exclusive use of glass lenses in their optical systems. More highly corrected objectives such as fluorite systems etc. can be usefully employed only for less critical observations or photomicrography; the fluorspar of which some of their components consist is seldom free from internal tensions (lattice imperfections). Special outfits are listed in our price list.

An OPAK illuminator with a built-in 50mm lens of the MILAR type is available for low-power pictures with a photomicrographic camera such as the bellows camera or the LEICA®. This device can of course be used also for visual observations.

Design subject to alteration without notice.

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