# ZEISS



CARL ZEISS
JENA

# LUMIPAN

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# LUMIPAN

## LARGE-TYPE RESEARCH MICROSCOPE

**Another ZEISS contribution towards scientific and technological advancement**

This microscope has been designed and built to help in solving the numerous difficult problems confronting the provinces of Science and Engineering of our days.

Its precision, performance and reliability for the highest order of critical work is supported by a century of tradition in microscope building.

In virtue of its exceptional features the "LUMIPAN" heads the list of the "L"– series of ZEISS microscopes famous for their advanced design, excellent performance and dependable service.

## SALIENT FEATURES

1 **Fine Adjustment** Roller Slideway Motion ensuring unparalleled reliability and perfect smoothness with an accuracy of responsiveness exceeding the depth of definition of the highest power objectives.

2 **Integral Illuminating System** incorporated in the base of the stand including a 6 V 15 W projection lamp. The base is so constructed that increasing temperature of the lamp will not affect the body of the instrument nor its coarse and fine motions. The ingenious design of the illuminating system, accentuated by anti-reflection "T"-optics, furnishes an excellence of luminosity, making the instrument equally well available for dark-ground as well as for photomicrographic work with a camera attachment.

3 **Substage equipped with Pancratic System** operating in a novel type of triple condenser turret. The latter carries a spectacle lens condenser for low-aperture objectives, an aplanatic condenser for apertures ranging from 0.16 to 1.40 and a Cardioid condenser for dark-ground observations.

4 **Luminous Flux Control** The pancratic system represents what may be termed a "luminous flux control" which permits of the luminous flux issuing from the illuminating system to be adapted at will to the aperture and radiant field of whatever objective may be used. It thus affords complete utilization of the luminous flux for all objectives and, by the employment of the Köhler principle of illumination, turns the high performance of Zeiss objectives to full account. To this end it is merely required to adjust the aperture of the pancratic system to that of the objective used by means of a rotatable collar. The optics of the pancratic system being likewise provided with anti-reflection treatment a still greater yield of light is obtained.

5 **Condenser Turret** permitting rapid and safe interchange of condensers — a decided improvement over the conventional method of exchanging condensers by way of sliding sleeves.

6 **Monocular or Binocular working facility** in either ordinary or polarized light, bright and dark-ground observation or by the phase contrast method.

7

**An aperture stop**

laterally adjustable and rotatable, is incorporated within the base of the instrument and affords the possibility of oblique illumination. It is easily accessible and lies within the observer's sight.

8

**The low and compact construction**

embodies all advantages of the famous "L"-type of Zeiss stands and in conjunction with the inclined monocular and binocular tubes invites a maximum of observation comfort.

9

**Easy and rapid change of tubes**

by means of quick-changing arrangement provided for at the head of the tube carrier. This arrangement furthermore allows of rotating the inclined tubes in any direction required for observation.

10

**Equipped with pancratic system**

the "LUMIPAN" is the classical microscope for Phase Contrast observation. By permitting the employment of various illuminating apertures and with the aid of one single and specially mounted annular diaphragm, the pancratic system offers the possibility of a rapid and continuous change-over from phase contrast to bright -field observation or vice versa. The "LUMIPAN" does not require an additional phase condenser with matched annular diaphragms for each respective phase contrast objective. (For particulars please consult booklet "CZ 30-304a-1" on Phase Contrast Equipment.)

11

**For work in polarized light**

with the aid of polarizing filters the "LUMIPAN" is equipped with a rotatable object stage provided with graduation. For this work the revolving nosepiece at the head of the tube carrier is replaced by the analyser on a slide fitting while the polarizer is being attached to the pancratic system.

12

**Convenient Interchange**

All detachable parts of the Zeiss "L"-type of stands are interchangeable. The precision manufacture of optics and revolving nosepieces is of such a degree of uniformity that the objectives will screw into the nosepiece in any desirable order without thereby affecting the critical limits of centering. The optic used are of Zeiss quality throughout.

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## SOME CONSTRUCTIONAL FEATURES

# LUMIPAN

Binocular inclined tube "Bitukni L"
Primary magnification ×1.5 "T"-optics

Quadruple revolving nosepiece on slide fitting

Large mechanical stage E
Range of movement 75×50 mm.

Triple condenser turret

Pancratic system "T"-optics

Low-positioned controls

Laterally adjustable and rotatable aperture stop

Integral light source embodied
in the base of the stand "T"-optics

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Binocular inclined tube "Bitukni L"
Primary magnification ×1.5 "T"-optics

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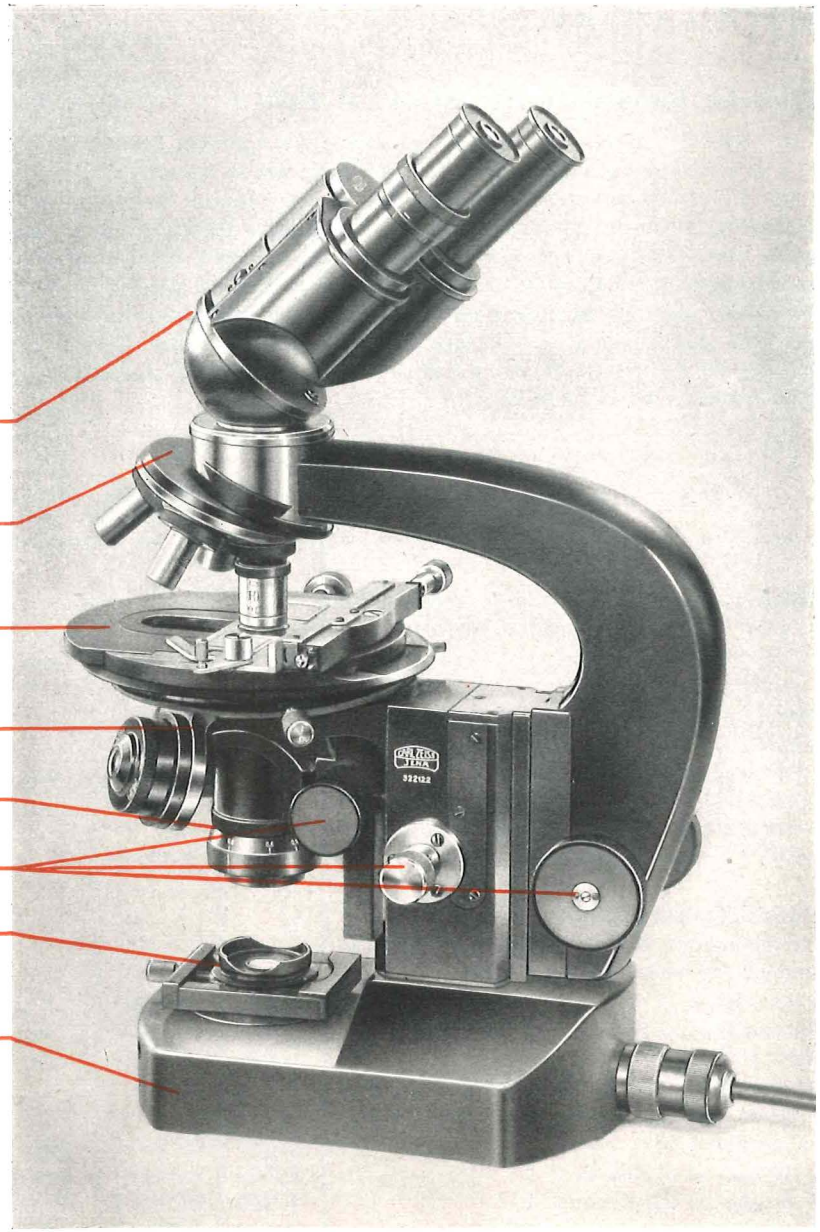
Triple condenser turret

Pancratic system "T"-optics

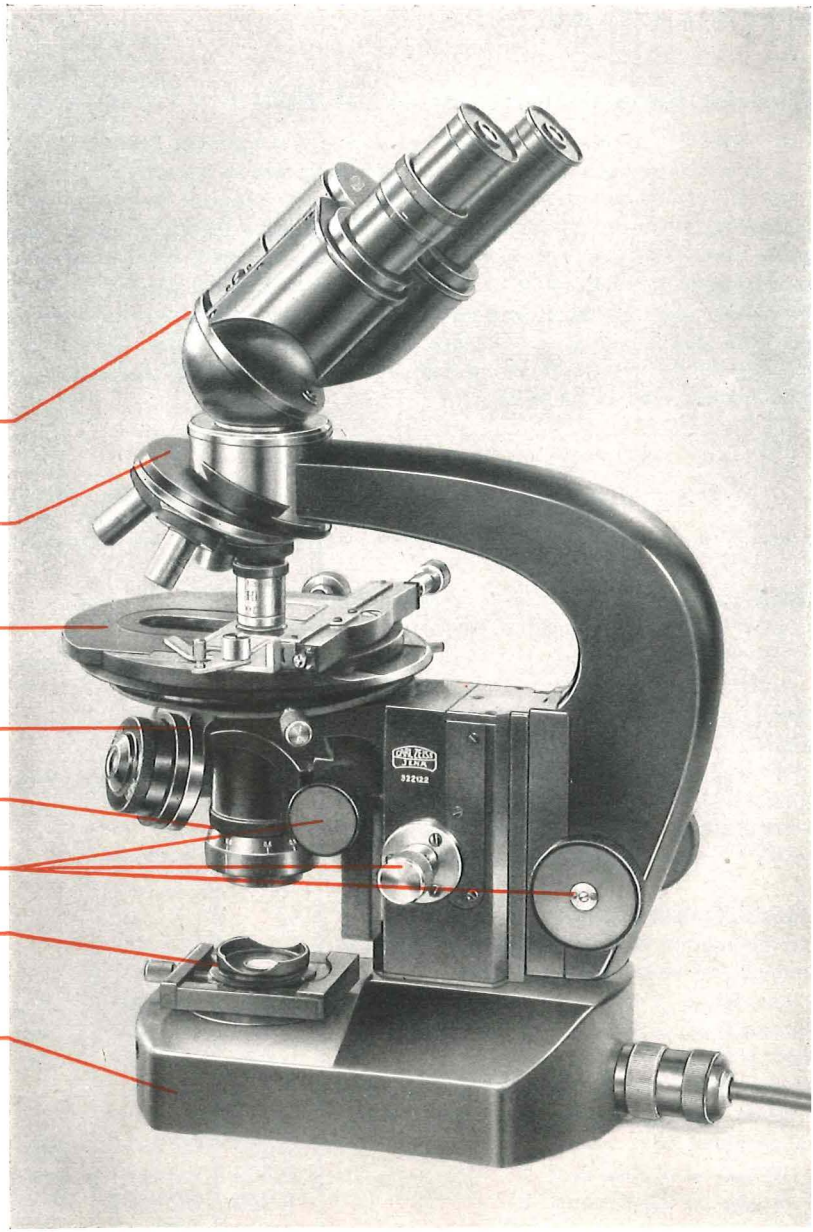
Low-positioned controls

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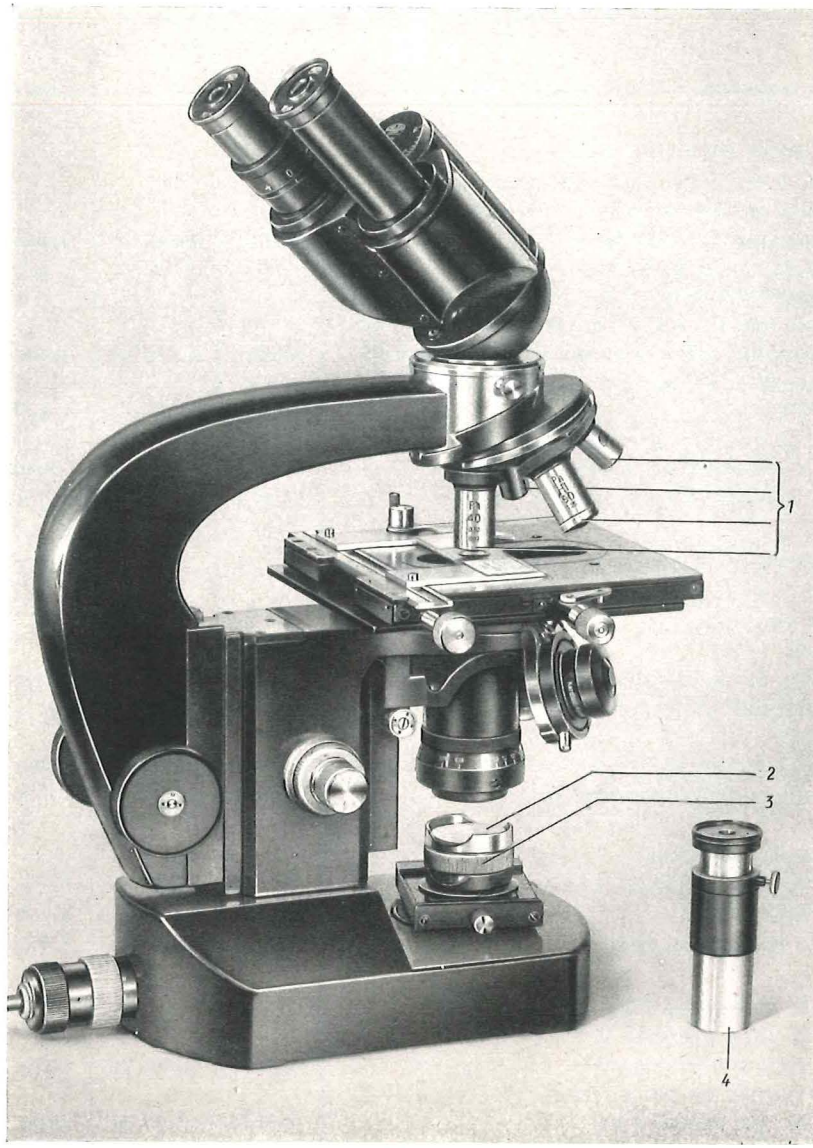
# SPECIFICATIONS

## Binocular Research Microscope "LUMIPAN"

"Lp"-type of stand with quick tube-changing arrangement. Low positioned coarse and fine motion controls, substage with pancratic system ("T"-optics), triple condenser turret holding spectacle-lens condenser for low-aperture objectives, aplanatic condenser 1.4 for microscope objectives with apertures from 0.16 to 1.40 and cardioid condenser for dark-ground observation, integral illuminating system ("T"-optics) embodied in base of stand, centering field stop, diaphragm carrier with laterally adjustable and rotatable aperture stop including filter holder, daylight filter and neutral filter as well as lamp holder with leads, in cabinet with lock and key (not including electrical accessories, cf. page 12).

| Designation | Weight kos. | Catalogue No. | Code-word |
|---|---|---|---|
| **Stand Lp** as above, with large mechanical stage **E** (75 mm. × 50 mm. movement) cf. illustration, page 7 | 13.730 | 301060 | *Kyhnt* |
| **Stand Lp** as above, with square mechanical stage **G** (75 mm. × 50 mm. movement) cf. illustration, page 10 | 13.650 | 301061 | *Kyhou* |
| Quadruple revolving nosepiece on slide | 0.260 | 305205 | *Kyhty* |
| Binocular inclined tube "Bitukni L" with coated "T"-optics (primary magnification × 1.5) | 0.830 | 305000 | *Knyyc* |
| **Optical Equipment a)** for transmitted light with achromatic objectives, magnifications × 60 to × 1350 | | | |
| Achromat 8/0.20 | 0.500 | 302005 | *Kohok* |
| Achromat 20/0.40 | 0.055 | 202007 | *Kohrm* |
| Achromat 40/0.65 | 0.070 | 302008 | *Kohto* |
| Achromat 90/1.25, homogeneous oil immersion with iris diaphragm (also for dark-ground observation) | 0.080 | 302015 | *Koitn* |
| 2 Huygenian eyepieces × 5 | 0.100 | 303101 | *Komdu* |
| 2 Huygenian eyepieces × 7 | 0.080 | 303102 | *Komev* |
| 2 Huygenian eyepieces × 10 | 0.080 | 303103 | *Knurz* |

| Designation | Weight kos. | Catalogue No. | Code-word |
|---|---|---|---|
| **Optical Equipment b)** | | | |
| for transmitted light with apochromatic objectives, magnifications × 75 to × 1350 | | | |
| Apochromat 10/0.30 | 0.055 | 302051 | *Kogun* |
| Apochromat 20/0.65 | 0.070 | 302052 | *Kogvo* |
| Apochromat 60/1.00 homogeneous oil immersion with iris diaphragm for dark-ground observation (also for bright-field observation) | 0.085 | 302057 | *Kokha* |
| Apochromat 90/1.30 homogeneous oil immersion | 0.070 | 302060 | *Kokoh* |
| 2 Compensating eyepieces × 5 | 0.160 | 303120 | *Komsi* |
| 2 Compensating eyepieces × 7 | 0.130 | 303121 | *Komuk* |
| 2 Compensating eyepieces × 10 | 0.080 | 303122 | *Komyo* |
| **Binocular Research Microscope "Lumipan"** (not including electrical accessories, cf. page 12) | | | |
| **LpE** | | | |
| **with optical equipment a)** | 15.335 | 300043 | *Kyhuz* |
| **with optical equipment b)** | 15.470 | 300044 | *Kyhva* |
| **LpG** | | | |
| **with optical equipment a)** | 15.255 | 300045 | *Kyhyd* |
| **with optical equipment b)** | 15.390 | 300046 | *Kyhze* |
| **Supplementaries** | | | |
| Monocular inclined tube L | 0.190 | 305001 | *Knywa* |
| Achromat 3 | 0.050 | 302002 | *Kohfb* |
| Compensating eyepiece × 15 | 0.040 | 303123 | *Konap* |
| **For Measuring Purposes** | | | |
| Focusing eyepiece K 7 × (without micrometer) | 0.065 | 303126 | *Kozko* |
| Focusing eyepiece H 7 × (without micrometer) | 0.070 | 303105 | *Kozei* |
| Focusing eyepiece O 17 × (without micrometer) | 0.060 | 303114 | *Kozim* |
| Eyepiece micrometer 10:100 | 0.005 | 305711 | *Kraej* |
| Stage micrometer 1:100 | 0.015 | 305720 | *Krams* |




3 00 047

**The "LUMIPAN" with phase contrast equipment**

*1* Phase contrast objectives
*2* Yellow-green filter
*3* Annular stop mount
*4* Auxiliary microscope

| Designation | Weight kos. | Catalogue No. | Code-word |
|---|---|---|---|
| **For Phase Contrast Observation** | | | |
| **Stand LpE,** as on page 8 | 13.730 | 301060 | *Kyhnt* |
| **Stand LpG,** as on page 8 | 13.650 | 301061 | *Kyhou* |
| and: | | | |
| Quadruple revolving nosepiece on slide | 0.260 | 305205 | *Kyhty* |
| Binocular inclined tube "Bitukni L" with coated "T"-optics (primary magnification ×1.5) | 0.830 | 305000 | *Knyyc* |
| Annular stop in mount and auxiliary microscope | 0.210 | 304027 | *Kutka* |
| Yellow-green filter | 0.005 | 304626 | *Pjapi* |
| **Optical Equipment** | | | |
| magnifications × 75 to × 1350 | | | |
| Achromat Ph 10/0.30 | 0.055 | 302083 | *Kusuk* |
| Achromat Ph 20/0.40 | 0.055 | 302080 | *Kusyo* |
| Achromat Ph 40/0.65 | 0.070 | 302081 | *Kutap* |
| Achromat Ph 90/1.25 homogeneous oil immersion | 0.070 | 302082 | *Kuteu* |
| 2 Huygenian eyepieces × 5 | 0.100 | 303101 | *Komdu* |
| 2 Huygenian eyepieces × 7 | 0.080 | 303102 | *Komev* |
| 2 Huygenian eyepieces ×10 | 0.080 | 303103 | *Knurz* |
| **Binocular Phase Contrast Microscope** | | | |
| **"LUMIPAN" LpE (Ph)** equipped as above | 15.545 | 300047 | *Kykor* |
| **Binocular Phase Contrast Microscope** | | | |
| **"LUMIPAN" LpG (Ph)** illustrated on page 10, equipped as above | 15.465 | 300048 | *Kyksu* |
| **Supplementary Equipment** | | | |
| Special objective for dark-ground observation: Apochromat 60/1.00 homogeneous oil immersion with iris diaphragm | 0.085 | 302057 | *Kokha* |
| **Electrical Accessories,** cf. page 12 | | | |



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TRPT-Nr. 5866/52

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| Designation | Weight kos. | Catalogue No. | Code-word |
|---|---|---|---|
| **For observation in polarized light** | | | |
| **Stand Lp** (as described on top of page 8) with simplified rotatable mechanical **stage B,** graduated, in place of "G"-stage | 13.400 | 301062 | *Kylab* |
| and: | | | |
| Monocular inclined tube L, extensible with mm.-graduation | 0.830 | 305002 | *Ksome* |
| Filter polarizer Lp (attachable to lower end of pancratic system) | 0.030 | 305901 | *Kylde* |
| Slide fitting with filter analyser and compensating objective (swinging in and out and rotatable) | 0.300 | 305915 | *Kylef* |
| and: | | | |
| Objective slide fitting with centering device, taking one objective (A separate slide fitting is recommended for each objective) | 0.035 | 305216 | *Kymdd* |
| Compensator Red I | 0.010 | 305980 | *Kylhi* |
| Compensator $^1/_4\,\lambda$ | 0.010 | 305986 | *Kyllm* |
| 4 Achromats of optical equipment a) (cf. page 8) and one Huygenian eyepiece each of × 5, × 7 and × 10) | 0.385 | — | *Kyoig* |
| **Monocular Polarizing Microscope** | | | |
| **"LUMIPAN" LpB (Pol)** equipped as above. In place of the slide fitting analyser a filter analyser attaching to the eyepiece, cf. CZ 30-331-1 (522), can be supplied on request. | 15.000 | 300042 | *Kylno* |
| **Electrical accessories** | | | |
| Bulb 6 V 15 W frosted pre-centered base | 0.010 | 2612 ZN 54 ZS | *Kwoko* |
| Bulb 6 V 15 W clear glass pre-centered base | 0.010 | 2612 ZN 54 ZS | *Kyowu* |
| Low-voltage transformer 15 VA 220/6 ZN 5090, including leads | 1.100 | — | *Kwons* |

For photomicrography the employment of miniature cameras is recommended. Please apply for special quotation.

The illuminating system operates from 220 V alternating current. Please apply for special quotation where line voltages and kind of current are other than the above.
Weights are approximate and given without obligation.



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| | 30 52 16 | 12.00 |
| | 30 59 80 | 13.50 |
| | 30 59 86 | 13.50 |
| | 30 00 42 | 1308.10 |
| | 2613ZN54 KSM | 5.86 |
| | 2613ZN54 | 5.06 |
| | Variable 05 85 26 110 V. | 15.00 |

Additional Accessories, not listed in catalogue:

Straight Monocular Tube for Photomicrography ..... Kobac 30 50 04 $ 7.00

Apochromatic Objective, Dry Series, 40x, N.A. 0.95, focal length 4.3mm., free working distance 0.12mm., with correction mount for cover glass ..... Kokat 30 20 53 130.00

Apochromatic Objective, Dry Series, 40x, N.A. 0.95, same as above, but corrected for uncovered objects Ktywf 30 23 43 130.00


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