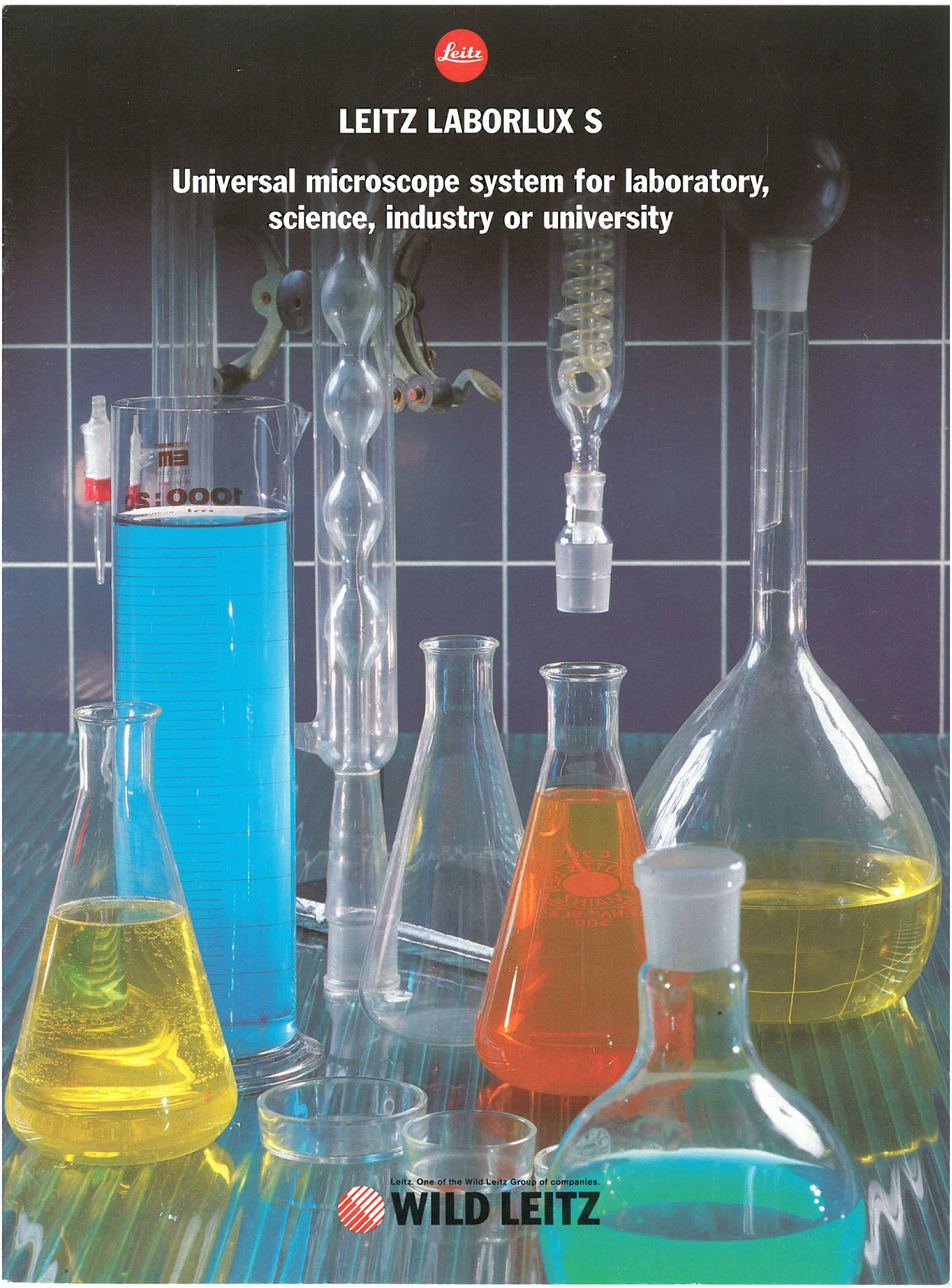
LEITZ LABORLUX S

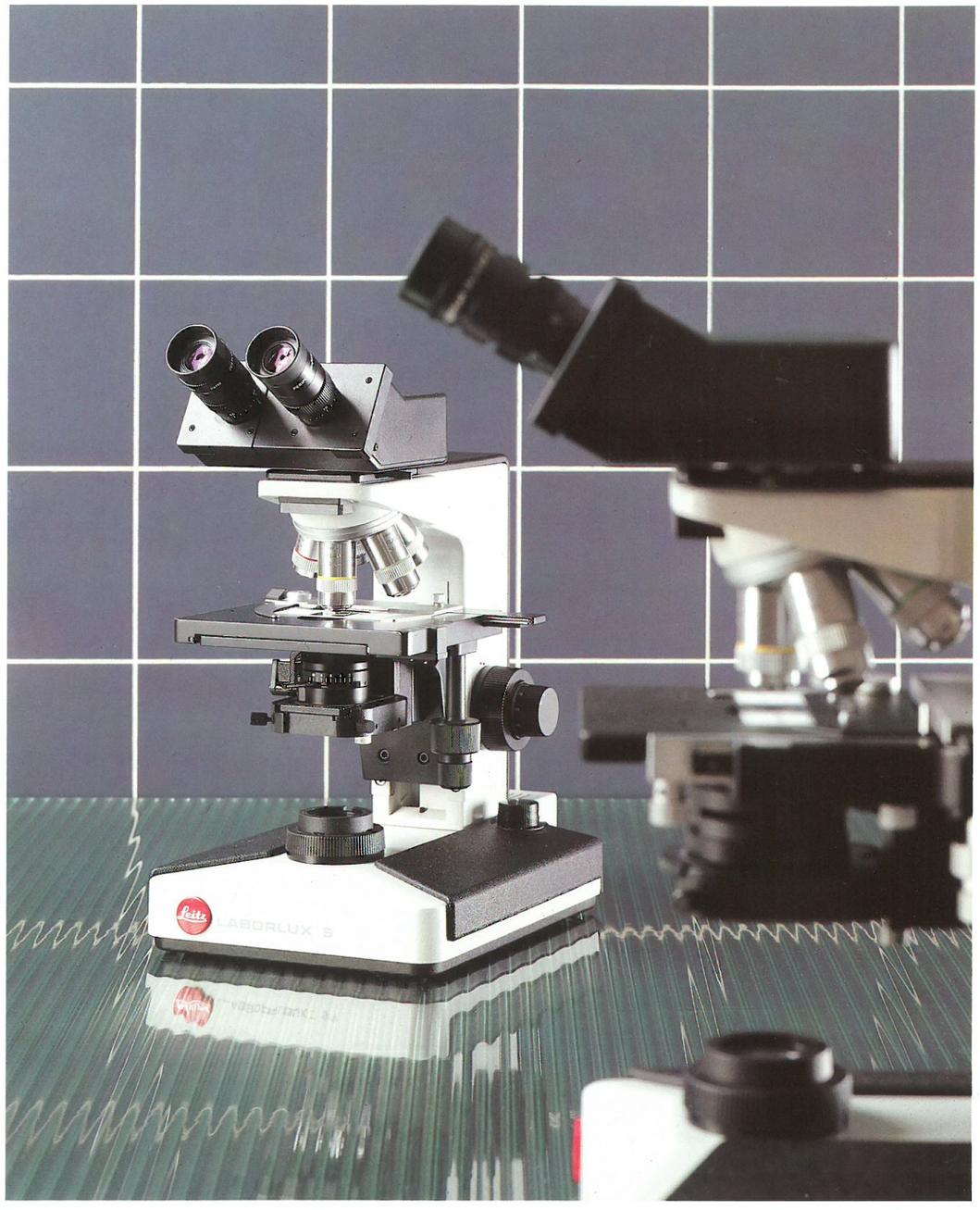
Universal microscope system for laboratory, science, industry or university



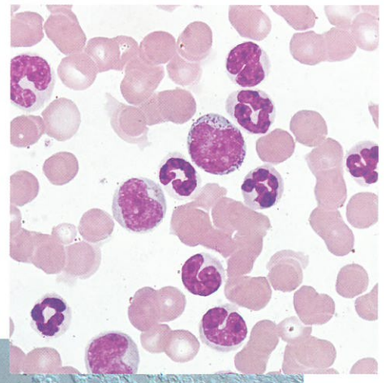
Leitz. One of the Wild Leitz Group of companies.

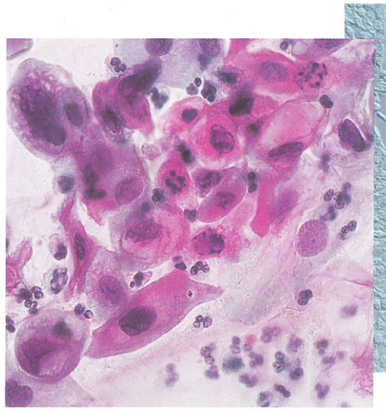
WILD LEITZ

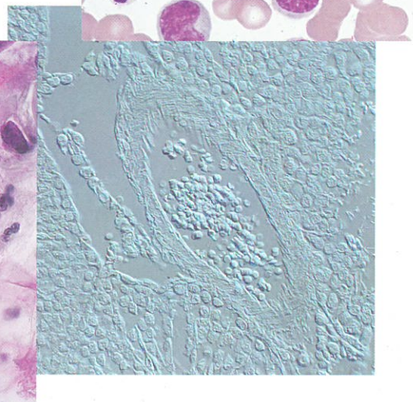
Leitz LABORLUX S
A name for 40 years of progress in training and laboratory microscopes



Ergonomic studies were an important aspect in the construction of the Leitz LABORLUX® S. The viewing height and angle of the tubes, the width and inclination angle of the handrests and the position of the controls all encourage a relaxed body posture, so that the microscopist can concentrate fully on the scanning of the specimens.
The secret of the favourable price/performance ratio is to be found in the application-oriented modular concept, allowing the amount of equipment to be tailored to specific needs and added as necessary.
The Leitz LABORLUX S offers all illumination techniques relevant for the investigation of transparent objects, making it suitable even for tasks in scientific microscopy.
The dual knob control of the extremely sensitive planetary gears guarantees fast and accurate focusing of the microscope image. The knurled knobs for adjustment of the object guide or the mechanical stage are within convenient reach, so that specimens can be moved swiftly and safely even at the highest magnifications.
Fields of view of 18, 20 or 22.4 mm diameter are available, depending on the outfit of the Leitz LABORLUX S.







Leitz LABORLUX S
Exemplary stability, extension-capability and efficiency

Anticorrosive aluminium-pressure casting and inner finning give the stand exceptional stability, which is the basis for this microscope's universal extension capability. The large base is sealed, protecting the illuminating optics against contamination. The standard lamphousing 20 with the 6 V 20 W halogen lamp, suitable for all routine applications with the Leitz LABORLUX S, is placed at the back of the microscope to prevent heat from affecting the stand.
A transformer is built into the base for stepless regulation of the intensity of the 6 V 20 W halogen lamp. It gives the instrument a low centre of gravity for excellent stability, saves space and avoids a clutter of cables on the bench-top. Instead of lamphousing 20, lamphousing 104 with a powerful 12 V 100 W halogen lamp can be attached for photomicrography in connection with light-absorbing illumination techniques such as darkfield, phase contrast or transmitted light interference contrast. Here power is supplied by a separate power unit.
The Leitz LABORLUX S has coaxial dual-knob coarse and fine focus control on both sides of the microscope stand.



Tubes

The quick-change tube mount is chromium-plated to withstand the toughest of treatment, and is large enough so that even if the release lever is accidentally operated, the tubes remain in place. They can be rotated through 360° and clamped in any position.

Binocular tubes S

These tubes permit a binocular view of the microscope image and are available with a viewing angle of 30° or 45°. The interpupillary distance can be adjusted from 55 mm to 75 mm, the necessary tube length compensation is set on the eyepiece mounts.

FSA-R binocular phototubes

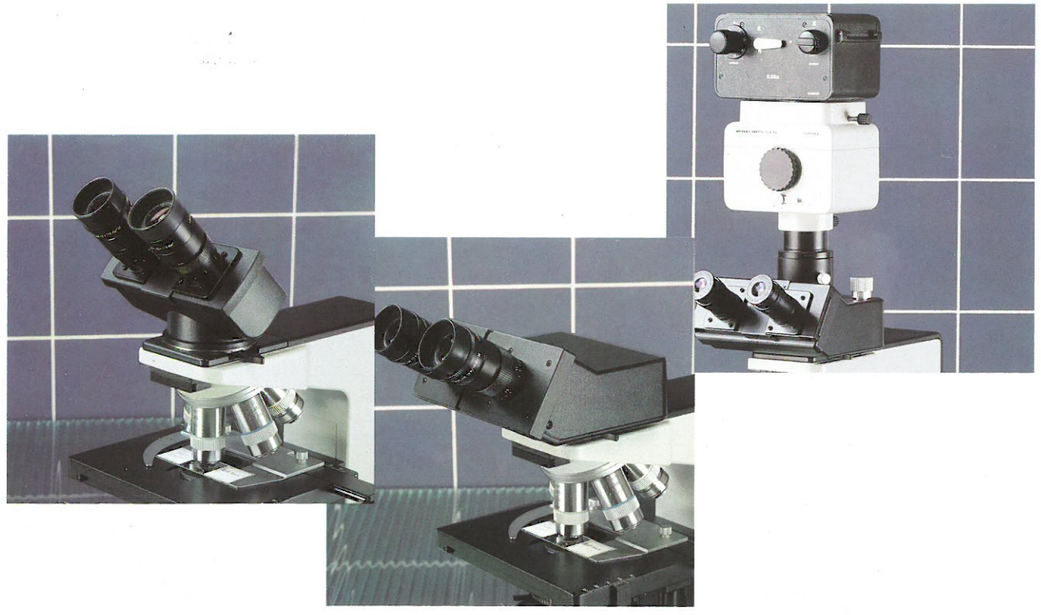
These combine the functions of both observation and photo tubes. The mechanical tube length compensation is automatically adjusted when the interpupillary distance is set and, as a result, the image need only be focused in the observation plane; film plane focus with Leitz and Wild camera attachments is then guaranteed.

FSA-GW-R binocular largefield photo tube

Used together with the LK or UKA condenser, PL FLUOTAR® objectives and PERIPLAN® GW eyepieces, the FSA-GW-R (1.25 x) binocular largefield photo tube offers a field of view index of 22.4. With this standard of performance the Leitz LABORLUX S can even meet the requirements of scientific microscopy.

Binocular ergonomy tube SV

The SV ergonomy tube has a variable viewing angle which can be steplessly adjusted between 0° and 40° vertically. It also has built-in image erection, a useful orientation aid for the microscopist. The vertically and laterally correct images simplify manipulation on the specimen.



Leitz LABORLUX S
Ergonomic microscopy for better results

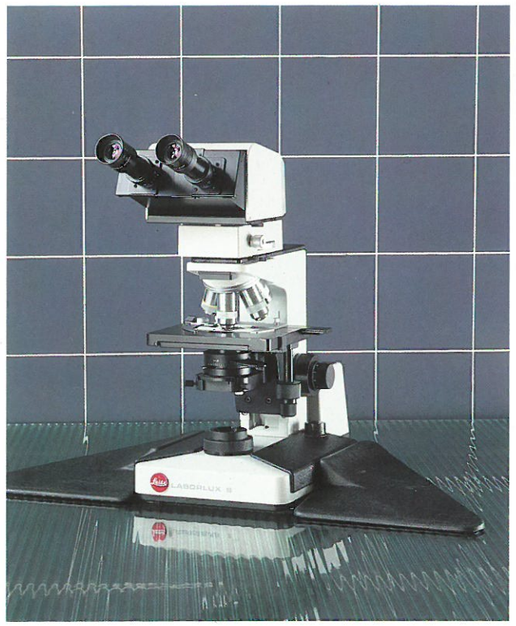
Hours of routine work at the microscope are tiring, often causing cramp in neck, back and leg muscles. This may lead to postural damage, especially in the region of the spinal chord.
Convenient operation sequences and optimum ambient conditions have a direct influence on the performance of the microscopist. These are factors which must be taken into consideration from the very beginning of the design of a microscope.
Leitz microscopes have always been designed according to the principles of human engineering. In the effort to make long spells of microscopy less strenuous, the Leitz LABORLUX S offers ergonomy modules optimising posture and all operation sequences:

Armrests

Attachable to the sides of the microscope base, the armrests offer comfortable hand-to-elbow support. The shape of the armrests and the grained surface prevent the arms slipping off the sides. Like all the other components of the Leitz LABORLUX S, the armrests are, of course, resistant to reagents used in microscopy.

SV ergonomy tube

The viewing angle can be steplessly adjusted between 0° and 40° vertically, which enables the user to select the most comfortable position. Physical strain is thus kept to a minimum, even for hours of routine work.



LABODESK
ergonomic microscopy workstation

The following technical features make the LABODESK® an ideal workstation:
It has a clearly arranged working surface, accessible from any angle and with plenty of room for specimens, instruments and accessories. The edges of the table are rounded off and covered with shock-absorbing plastic.
The middle part of the table, just large enough to accommodate the microscope, can be lowered until the microscope armrests are on a level with the surface of the rest of the table. A footrest, usable in several positions, guarantees leg comfort. Microscope accessories and additional instruments can be kept in a matching cabinet. Anti-glare illumination with an indirect light source and an additional shelf are other optional extras.
The chair recommended for the LABODESK has armrests and castors. Both the height of the seat and the inclination of the back can be adjusted. The seat is divided into two upholstered elements whose angle of inclination becomes gradually larger or smaller when the position of the back of the chair changes.



Leitz LABORLUX S
Optimised optics for outstanding image quality

Objective nosepiece

The ball bearing-mounted quintuple objective nosepiece is arranged in such a way that all objectives not in use face the back of the stand. This gives free access to and a free view of the specimen, facilitating specimen change, especially during routine investigations and when working with immersion objectives.
After each turn of the nosepiece, the internal clickstops guarantee that the centre of the image is retained for all five objectives.

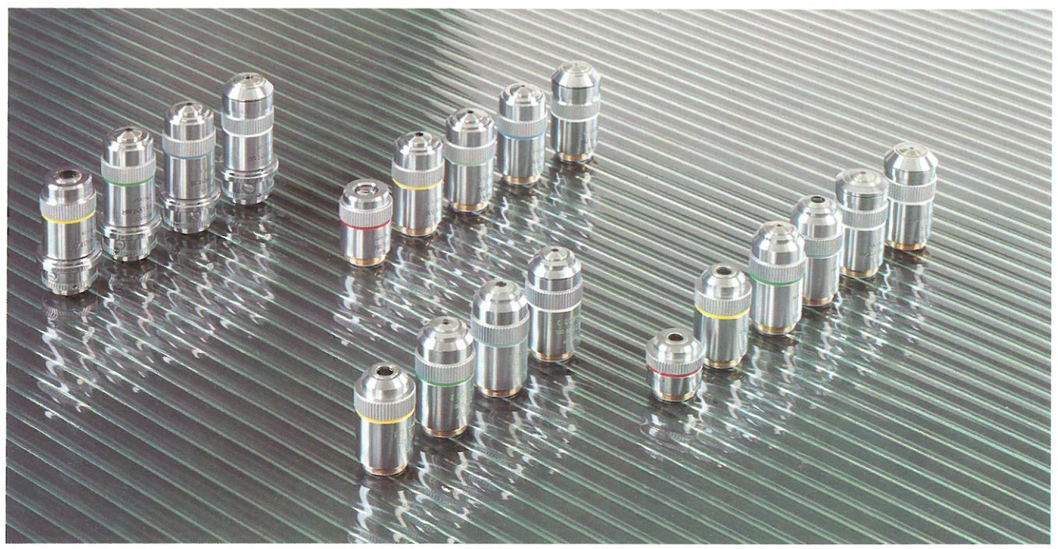
Objectives

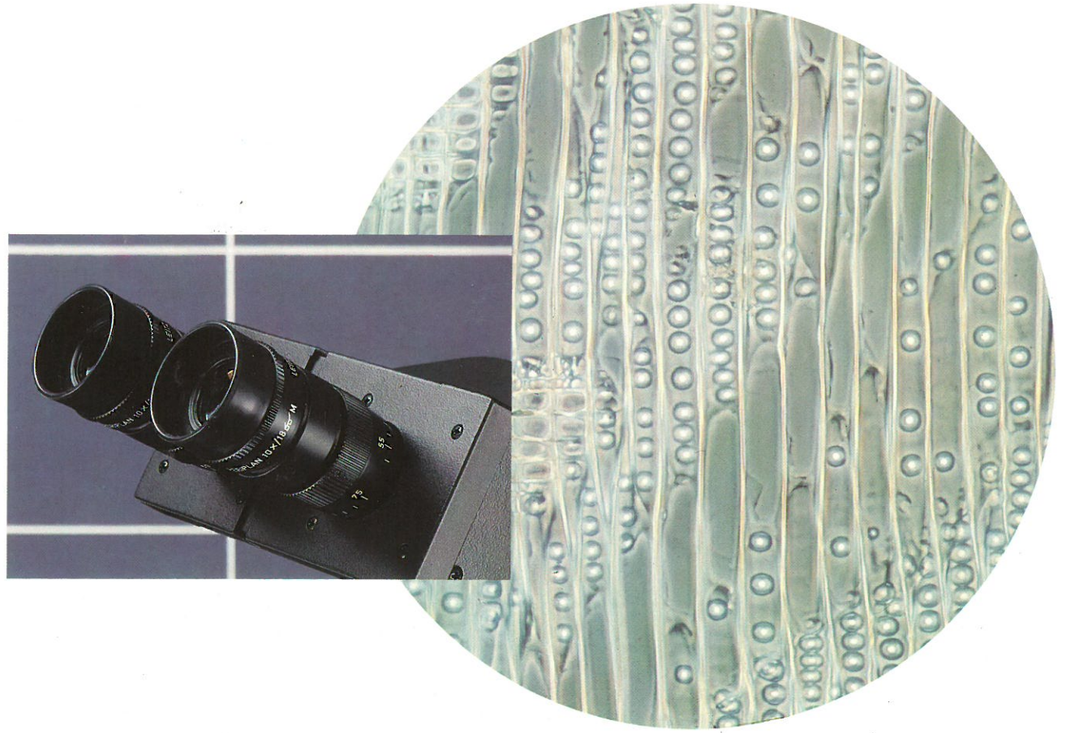
All objectives which can be used on the Leitz LABORLUX S have the following features in common:
The grip-ring for screwing the objectives into the nosepiece is conveniently placed over the front element.
The colour-coded rings facilitate recognition of the objective magnification.
The external collars can be rotated so that the engravings can be easily read.
Damage to the objectives or specimens during focusing is not possible; the low-power objectives cannot come into contact with the stage even at its highest setting, whilst the high magnification objectives have spring-loaded front pieces which give if contact with the stage occurs.

Special features of the EF objectives are good contrast rendering and high resolving power. They also have optimum field flattening, making refocusing almost unnecessary for observation of object detail at the edge of the image for the conventional field of view index 18.
The PLAN series of objectives is suitable for more demanding routine work in the laboratory, providing the image quality required for observation and simple photomicrography. Their flattening corresponds to field of view index 20.
The PL FLUOTAR semiapochromats – top-class systems for all highly-qualified diagnostic and scientific work – guarantee a field of view of 22.4 mm with absolute edge definition, high contrast, exemplary resolution and colour rendering. High transmission in the near uv range, a minimum of auto-fluorescence and freedom from strain also make them useful in fluorescence microscopy and for interference contrast observations.

Eyepieces

PERIPLAN 6.3 x to 12.5 x eyepieces are available for the Leitz LABORLUX S, for use with fields of view between 18 and 22.4 depending on the different condensers, objective series and tubes. They are also available in a version for spectacle wearers. In the eyepieces with adjustable eyelens, different graticules can be inserted for microscopic measurement, counts or for format indication in photomicrography.





Leitz LABORLUX S
The condenser range makes all illumination techniques a matter of routine

Condensers

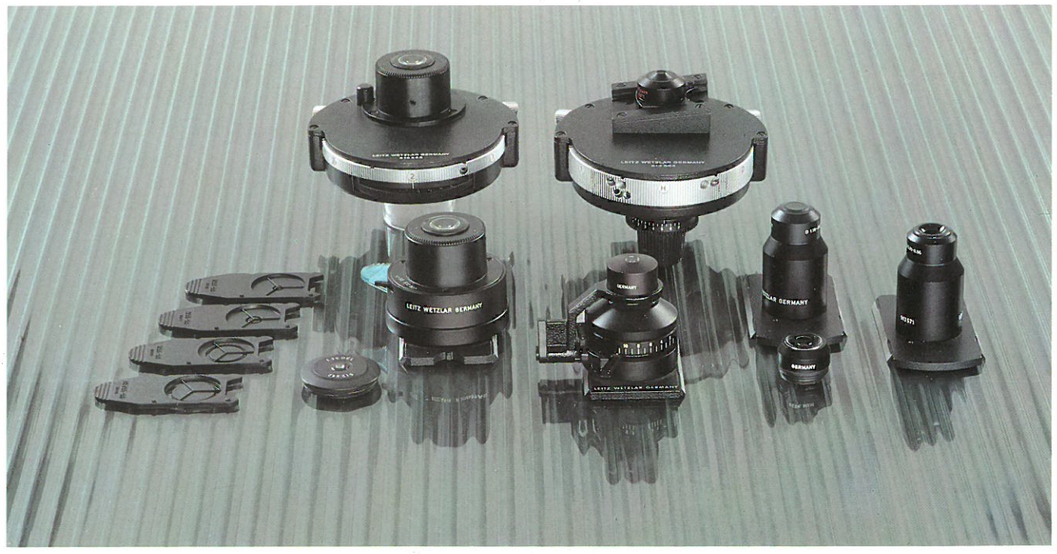
The condenser mount on the Leitz LABORLUX S is height adjustable and has a dovetail fitting, making quick change of the condenser possible at any time. The condenser can be clamped in all positions.
The upper condenser drive stop can be set by the user with a knurled screw, so that Koehler illumination is automatically obtained at this setting.

Condenser no. 56

This condenser, of illumination aperture 0.90, is designed to provide homogeneous illumination of the whole object field up to a field of view index of 20 and with objectives of 4 x and higher without the attachment of a supplementary front lens. If a higher illumination aperture is required, an additional lens can be attached which raises the numerical aperture to 1.25. Darkfield or phase contrast observation is made possible by means of annular stops in slides which are inserted into the condenser from the side.

LK Condenser

With interchangeable swing-in tops. For investigation of very fine structures with immersion objectives, where the highest resolution capability of the optical system is demanded, the APL OEL 1.32 immersion condenser top is available.
Darkfield condenser tops and tops with long intercept distances round off the LK system.
The LK condenser illuminates object fields up to 22.4 field of view index with objectives from 2.5 x upwards.



UKL Universal Condenser

The UKL condenser can be used for brightfield, phase contrast and darkfield observation. The built-in light rings for phase contrast and the central stop for simple darkfield work up to medium magnifications are centred by the user. This condenser is particularly convenient for studies in which rapid changeover between the illumination methods is required in order to make all the available information visible. In terms of optical performance, this condenser is the same as condenser no. 56.

UKA Universal Condenser

The UKA universal condenser has a swing-in front lens. It can be used for all transmitted light techniques such as brightfield, darkfield, phase contrast or interference contrast.
The Wollaston prisms on the side of the illumination for transmitted light interference contrast are accommodated in a turret for fast changeover. The optical performance of the UKA universal condenser corresponds to the LK condenser.

Stage no. 11

The standard stage for the Leitz LABORLUX S, with a surface area of 125 mm x 140 mm. Specimens are held either by two removable clips or by attachable object guides for left- or right-hand operation. Adjustment range: 72 mm x 50 mm.

Mechanical stage no. 18

Precise movement is ensured by the ball-bearing mount. Coordinates can be read off from scales and verniers. Surface area of the stage: 165 mm x 135 mm.
Special value has been set upon optimising the working conditions with this stage. The control knobs are placed at the same height as the coarse and fine focus; the microscopist can therefore rest his hands on the base of the stand while operating the stage. Adjustment range: 76 mm x 52 mm.
The mechanical stage no. 18 can be fitted with a rotary stage.

Microscope stages

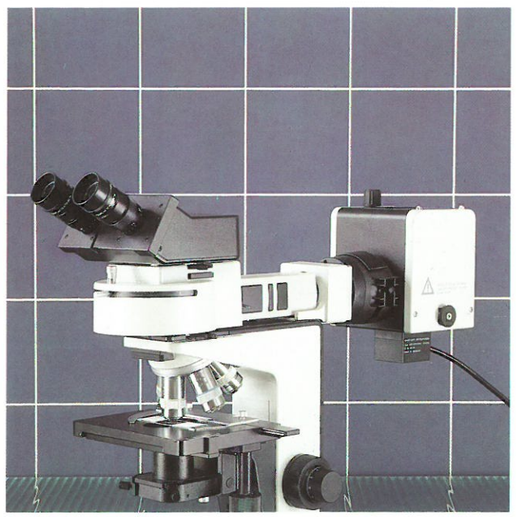
Two non-interchangeable stages are available:

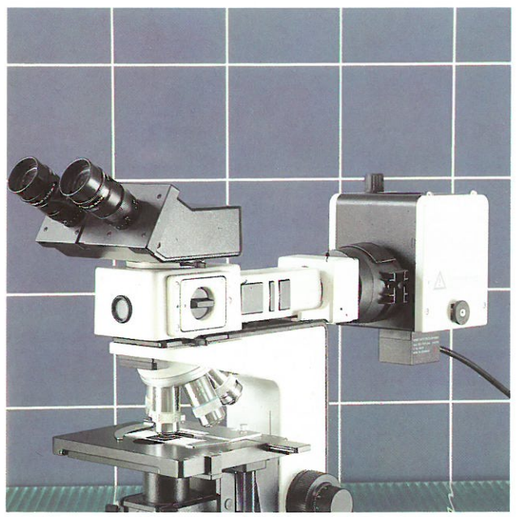


Leitz LABORLUX S
Perfect results for fluorescence investigations and photomicrography

Fluorescence excitation is becoming more and more important as a means of investigating specimens under the microscope. It can supply extra information in basic and applied research as well as in routine examinations. Its main fields of application, besides histology, cytology and microbiology are haematology and genetics. Notable examples of the use of fluorescence are the immunofluorescence method for the detection of antigens, and chromosome investigations after specific fluorochroming to visualise the band structures.
The Leitz LABORLUX S is converted into the perfect fluorescence microscope by attaching the Leitz PLOEMOPAK® fluorescence incident-light unit.
The 3-Lambda PLOEMOPAK allows fast switching between three excitation ranges. This is done by simply turning the filter revolver. Each filter block can be exchanged separately, the replacement being automatically aligned to the light path. A mechanical stop enables the microscopist to switch quickly between two neighbouring filters as often as desired, which is of particular advantage when the specimen has been treated with two fluorochromes, each requiring a different excitation wavelength.

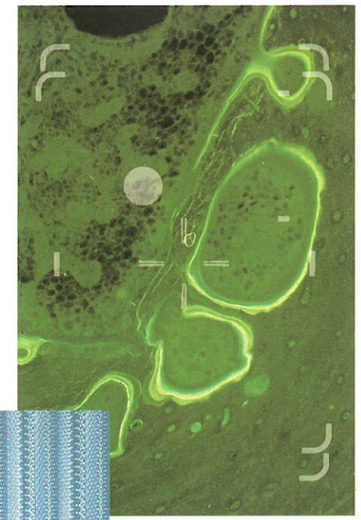
The 1-Lambda PLOEMOPAK takes one filter block, which can be exchanged through an opening in the side of the housing. By insertion of a transmitted light element, the microscope can also be used for other transmitted light illumination methods such as phase contrast, bright- and darkfield without removing the PLOEMOPAK.

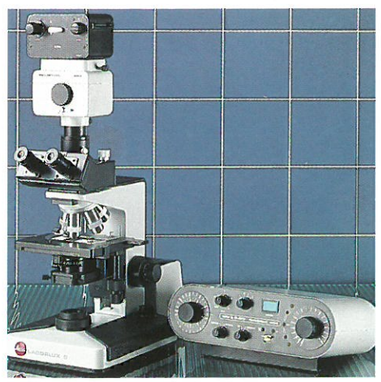


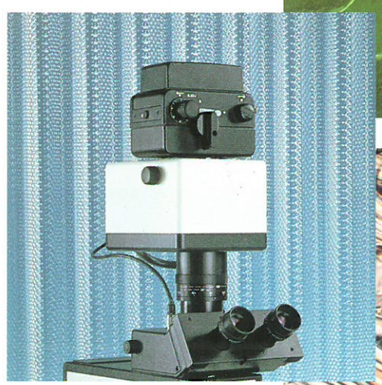


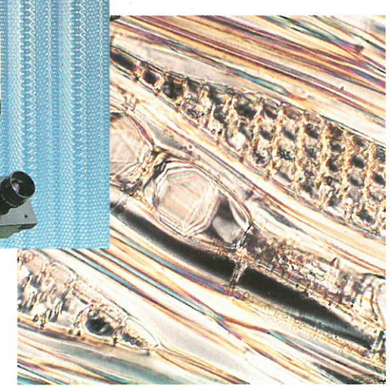
Whether for your own records, to accompany research results or for publication in journals, the Leitz ORTHOMAT® E camera system offers the ideal basis for integrating photography into traditional microscope investigations.
The various camera attachments permit the use of all common film formats. Depending on the contrast and the light ratios present in the image, the exposure can be measured over the entire object field or, with the movable spot, at any specimen detail. Automatic exposure measurement during the exposure ensures superb pictures for all microscope techniques in both incident and transmitted light.
The accommodation of the controls and digital displays on a control panel enables the user to read all important functions at a glance and relieves him from awkward operations which are often a source of subjective errors.
For a description of the ORTHOMAT E, please see brochure no. 913 442.
The WILD-MPS micro camera system offers a choice of various outfits for film formats from 24 x 36 mm to 101.6 x 127 mm (4″ x 5″).

From the WILD MPS 11 A micro camera without exposure meter – for cases where the exposure time can be based on empirical values – to the WILD MPS 45/51 Photoautomat, a variety of different requirements are catered for. Depending on the model, features include integral exposure metering, spot metering, reciprocity failure compensation, electronic shutter control, automatic film transport etc. Details can be obtained from the WILD brochures M1-301, M1-302, M1-303 and M1-315.









Leitz LABORLUX S
The accessories make the system

Discussion tubes

The asymmetrical discussion tube is intended for simultaneous viewing by two people. It can be oriented to the left, to the right or to the rear. An externally movable arrow can be made to point at any specimen detail in the field of view for demonstration purposes.
The symmetrical discussion tube allows three people to view the microscope image at the same time. This tube also has a movable arrow.

Tracing device

The tracing device, attachable between the upper part of the stand and the observation tube, reflects the tracing surface into the intermediate image plane of the microscope. The magnified object is visible together with the tracing surface, providing a convenient way of tracing specimen features while viewing through the microscope. The magnification of the image on the tracing surface can be varied by a factor of two.

Comparison bridge

Designed to allow the comparison of two specimens using the light section and coincidence methods and two Leitz LABORLUX S microscopes.

TV microscopy and projection attachments

Ideal for discussion with a larger number of people.

Polarisation device

For the recognition of birefringent substances such as crystal inclusions, hard biological substances or plastics.

Leitz MULTICON

The Leitz MULTICON is the first instrument to offer the possibility of subsequent electronic manipulation of the microscope image. This is done to enhance or alter colour contrast to obtain more information.

Leitz MICROVID

With the Leitz MICROVID, any data, rasters, etc. can be reflected into the Leitz LABORLUX S, where they are seen and photographed together with the microscope image.

Magnification changer

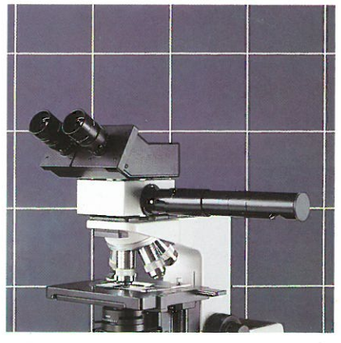
allows alteration of the total magnification in steps of 1x, 1.25x, 1.6x and 2x without the need for eyepiece change. It is thus possible to increase the total magnification of the microscope for measurements, counts or specimen manipulation, for example, while retaining the axial resolving power (depth of focus) of the original magnification.

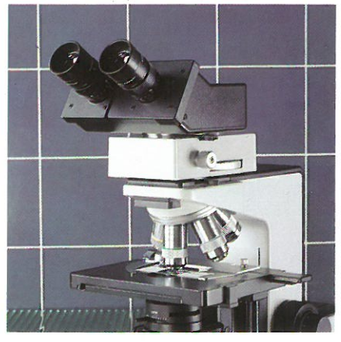
Heating stages

for the observation of thermal reactions in the microscopic range. There is a choice of two heating stages: Heating and Cooling Stage 80 for temperatures between -20° and +80 °C and Heating and Cooling Stage 350 for temperatures from -20° to +350 °C.









EF flat-field objectives
for bright- and darkfield
Recommended field of view: 18 mm

Tube length 160 mm
Image distance 150 mm
Parfocalising distance 45 mm

Objective magnification/aperture	Free working distance in mm	Cover-glass correc-tion[1]	Order no.
EF 4/0.12	24.00	DO	519759
EF 10/0.25	6.80	DO	519760
EF 25/0.50	0.50	D	519761
EF 40/0.65	0.45	D	519762
EF 63/0.85	0.15	D	519858
EF 100/1.25	0.10	D	519804
100/1.25-0.60 OEL[2]	0.09	D	519805

PLAN objectives for bright- and darkfield
Recommended field of view: 20 mm

Objective magnification/aperture	Free working distance in mm	Cover-glass correc-tion[1]	Order no.
PL 2.5/0.08	11.8	DO	519495
PLAN 4/0.10	14.54	DO	519863
PLAN 10/0.25	0.62	DO	519864
PLAN 20/0.45	0.73	D	519865
PLAN 40/0.65	0.21	D	519866
PLAN 100/1.25	0.19	D	519859

PL FLUOTAR objectives for brightfield, darkfield and ICT interference contrast
Recommended field of view: 22.4 mm

Tube length 160 mm
Image distance 150 mm
Parfocalising distance 45 mm

Objective magnification/aperture	Free working distance in mm	Cover-glass correc-tion[1]	Order no.
PL FLUOTAR 6.3/20	6.8	DO	519851
PL FLUOTAR 10/0.30	7.6	DO	519872
PL FLUOTAR 16/0.45	0.8	D	519874
PL FLUOTAR 25/0.60	0.51	D	519870
PL FLUOTAR 40/0.70	0.45	D	519737
PL FLUOTAR 50/1.00 OEL	0.20	D	519693
PL FLUOTAR 63/0.90	0.11	O	519503
PL FLUOTAR 63/0.90 KORR[3]	0.11	D	519446
PL FLUOTAR 100/1.32 OEL	0,16	D	519847
PL FLUOTAR 100/1.32-0.60 OEL[2]	0.11	D	519848

EF flat-field objectives
for phase contrast
Recommended field of view: 18 mm

Tube length 160 mm
Image distance 150 mm
Parfocalising distance 45 mm

Objective magnification/aperture	Free working distance in mm	Cover-glass correc-tion[1]	Order no.
EF 10/0.25 PHACO 1	6.80	DO	519767
EF 25/0.50 PHACO 2	0.50	D	519768
EF 40/0.65 PHACO 2	0.45	D	519769
EF 100/1.25 OEL PHACO 3	0.10	D	519806

PLAN objectives
for phase contrast
Recommended field of view: 20 mm

Tube length 160 mm
Image distance 150 mm
Parfocalising distance 45 mm

Objective magnification/aperture	Free working distance in mm	Cover-glass correc-tion[1]	Order no.
PLAN 10/0.25 PHACO 1	0.62	DO	519867
PLAN 20/0.45 PHACO 2	0.73	D	519868
PLAN 40/0.65 PHACO 2	0.21	D	519869
PLAN 100/1.25 OEL PHACO 3	0.19	D	519860

PL FLUOTAR objectives
for phase contrast
Recommended field of view: 22.4 mm

Tube length 160 mm
Image distance 150 mm
Parfocalising distance 45 mm

Objective magnification/aperture	Free working distance in mm	Cover-glass correc-tion[1]	Order no.
PL FLUOTAR 10/0.30 PHACO 1	7.75	DO	519873
PL FLUOTAR 16/0.45 PHACO 1	0.80	DO	519875
PL FLUOTAR 25/0.60 PHACO 2	0.51	D	519871
PL FLUOTAR 40/0.70 PHACO 2	0.45	D	519747
PL FLUOTAR 50/1.00 OEL PHACO 3	0.20	D	519694
PL FLUOTAR 100/1.32 OEL PHACO 3	0.16	D	519849

PERIPLAN eyepieces (Ø 23.2 mm) Tube length 160 mm

Magnification	Field of view in mm	Order no. single	Order no. pair
6.3x	18	519625	519627
6.3x	18 M	519626	519628
6.3x	18 M[4]	519626	519629
10x	18 60✓	519748	519744[5]
10x	18 60✓ M	519750	519745[5]
10x	18 60✓ M[4]	519750	519746[5]

PERIPLAN GF large field eyepieces (Ø 23.2 mm)

Magnification	Field of view in mm	Order no. single	Order no. pair
GF 10x	18	519620	519622
GF 10x	18 M	519621	519623
GF 10x	18 M[4]	519621	519624
GF 12.5x	18	519838	519834
GF 12.5x	18 M	519839	519835
GF 12.5x	18 M[4]	519839	519836

Pointer eyepiece (Ø 23.2 mm)

Magnification	Field of view in mm	Name	Order no.
10	18 60✓ Z	High-point eyepiece with fixed pointer	519751

PERIPLAN GW eyepieces (Ø 30 mm) Tube length 160 mm

Magnification	Field of view in mm	Order no. single	Order no. pair
GW 6.3x	28 M[4]	519597	519596
GW 8x	28 M[4]	519400	519399
GW 8x	28 60✓ M[4]	519442	519445
GW 10x	24 M[4]	519234	519235
GW 10	25 60✓ M[4]	519682	519681

[1] D: with coverglass (coverglass thickness 0.17 mm ± 0.05 mm)
O: without coverglass
DO: use with or without coverglass

[2] Oil immersion with iris diaphragm for darkfield

[3] Coverglass thickness from 0.11 to 0.23 mm are allowable for the objective with correction mount (KORR).

M = eyepiece with adjustable eyelens and suitable for graticule insertion; of a pair of eyepieces, only one has an adjustable eyelens.

[4] Both eyepieces of the pair are fitted with adjustable eyelens

[5] With soft rubber turn-back eyecup, can also be used by persons with normal eyesight.

60✓ = High-point eyepiece for spectacle wearers

The LABORLUX S – yet another result of Leitz' continuing strategy of innovation

The Leitz LABORLUX S is a universal microscope system for use in laboratories, science, industry or universities.
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