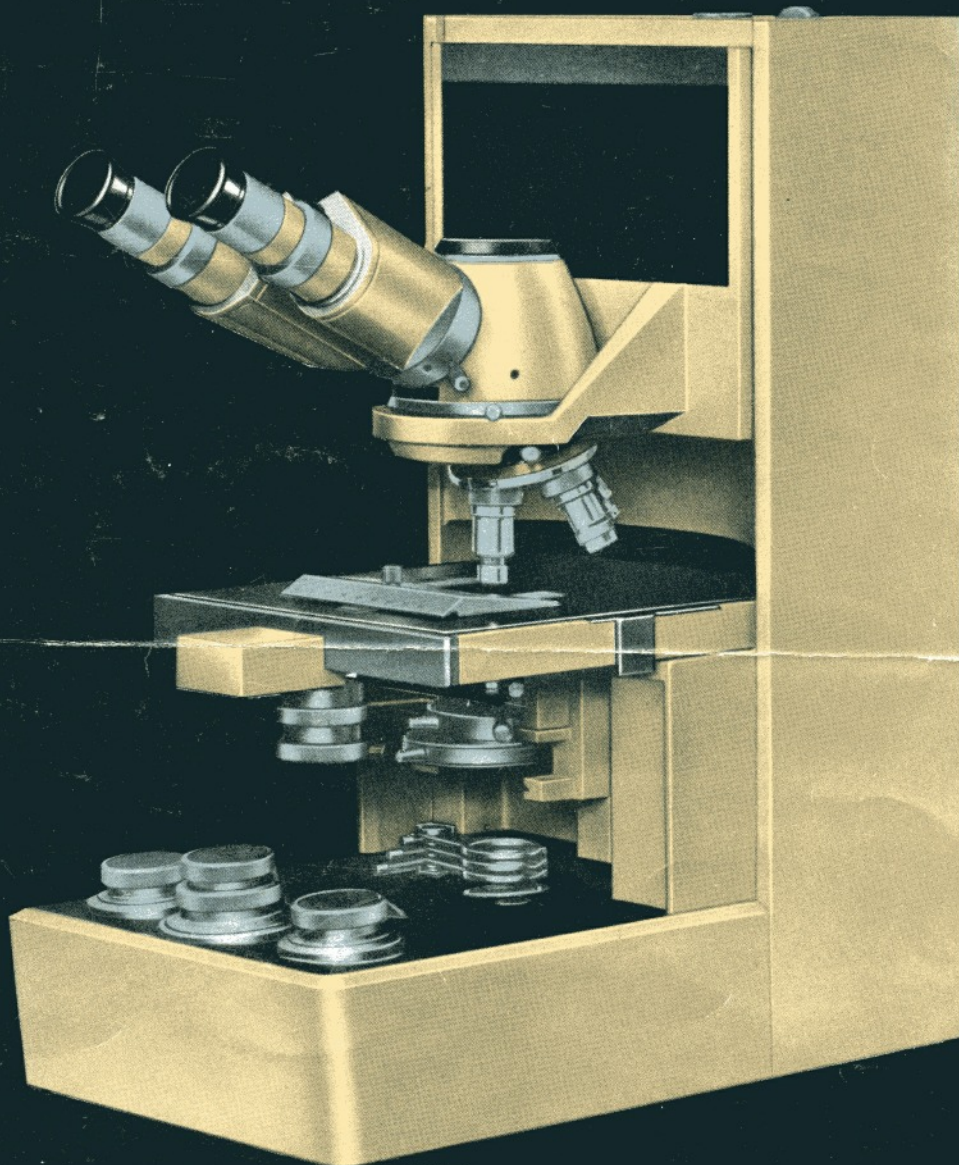




PATHOLUX



VICKERS INSTRUMENTS

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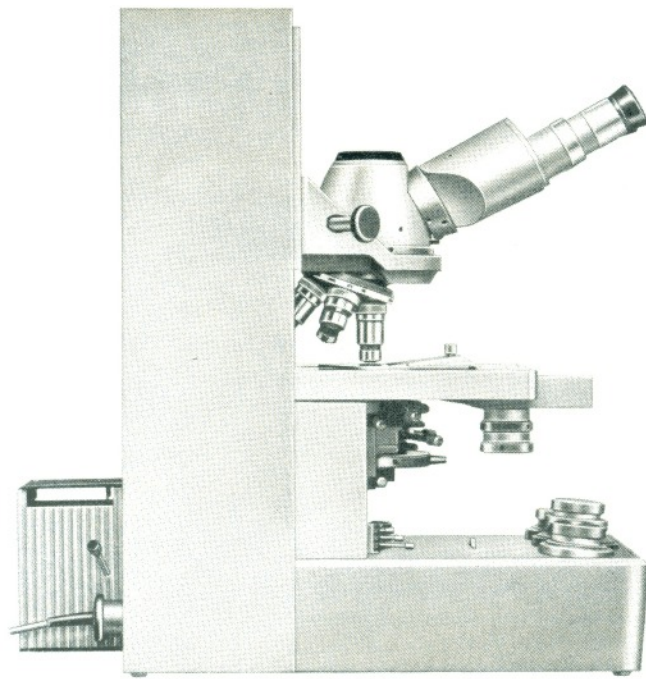
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TEL.: CRO. 3845

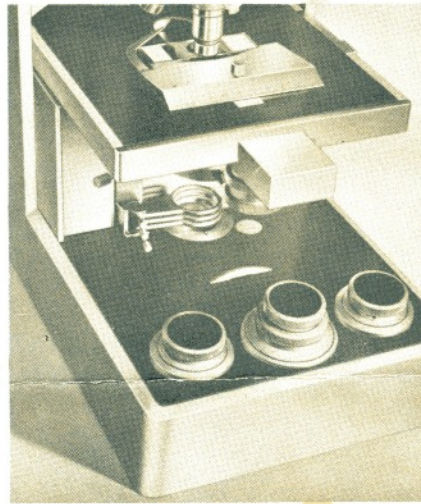
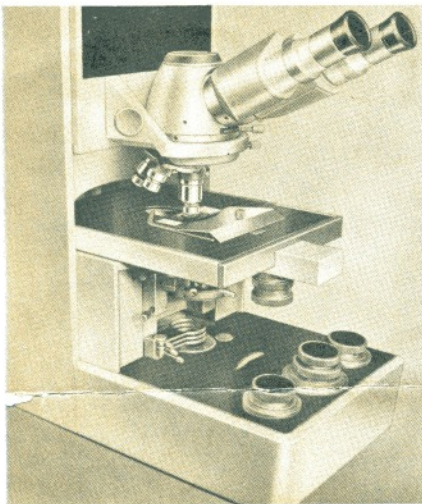
*The sensible new thinking
Construction of the
Patholux puts VICKERS
INSTRUMENTS
right ahead in design*

The appearance is pleasing and modern

*The comfort and convenience
are a revelation*



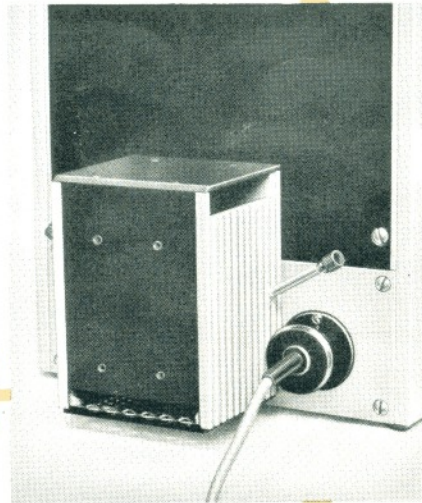
BOX FRAME GIVES
OUTSTANDING RIGIDITY



THE VERY LARGE
MECHANICAL STAGE

has ball bearing slides, melamine covered
top, concentric controls,
Range 50 mm. x 80 mm.

PANEL GROUPING OF CONTROLS
gives comfort and relaxation at work.
Ergonomics applied to the microscope.



BUILT IN LIGHTING OF
REAL CAPABILITY

100w high intensity Lamp, Kohler Illumin
ation, light dimming Enough light for
microprojection.

WIDE RANGE OF ACCESSORIES
gives great flexibility and allows wide
range of techniques to be used.

BEAM SPLITTING PRISM BOX

standard on all instruments. The prism reflects 50% of the light to the eye and transmits 50% to the camera. It may be swung aside to transmit 100% to the camera.

M. 320550

CONCENTRIC COARSE AND FINE FOCUSING

operates a sturdy lever and scroll mechanism moving a very wide ball bearing slide. No rack and pinion. Great comfort and control.

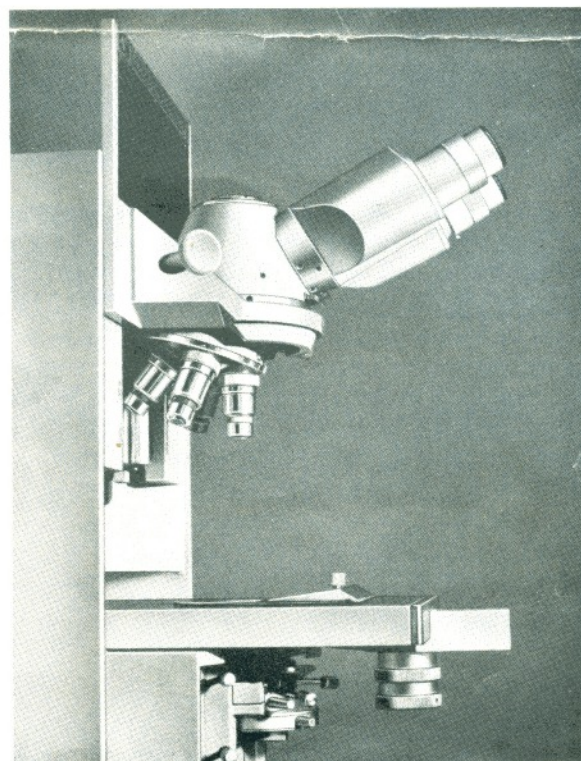
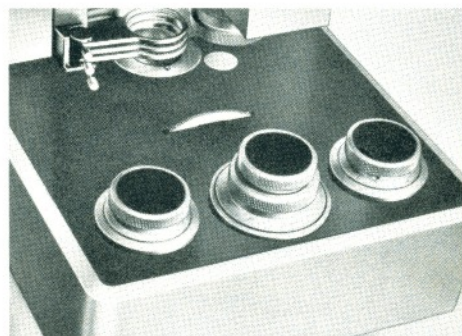
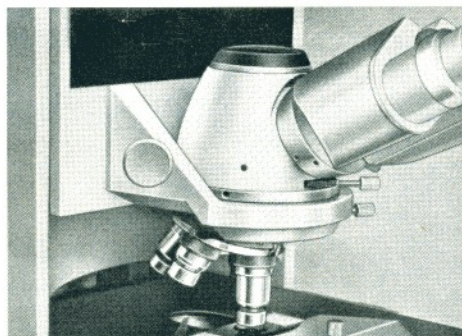
INTERCHANGEABLE OBJECTIVE HOLDERS

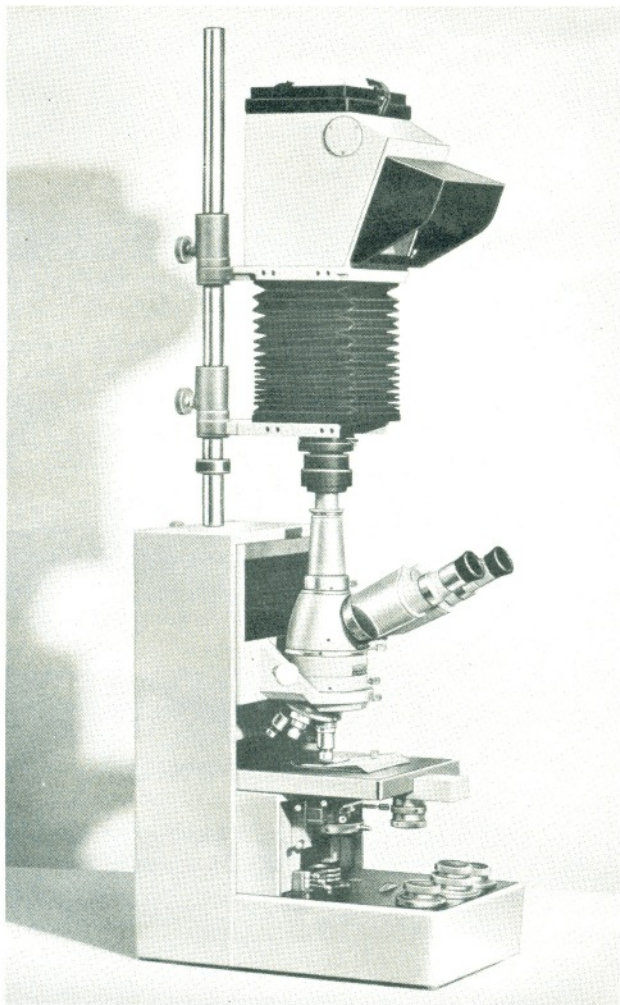
enabling sets of objectives to be kept on revolvers. For example, one revolver with phase contrast objectives, one with fluorite objectives, etc. When focusing the lens system moves, the stage remaining stationary. Important for micro-manipulation.

M. 320480

THE BODY LIFTS ON AN EXTRA SLIDE

and gives a maximum clearance of the objective focal plane above the stage of 90 mm. for examining large specimens.





THE RANGE OF PATHOLUX ACCESSORIES

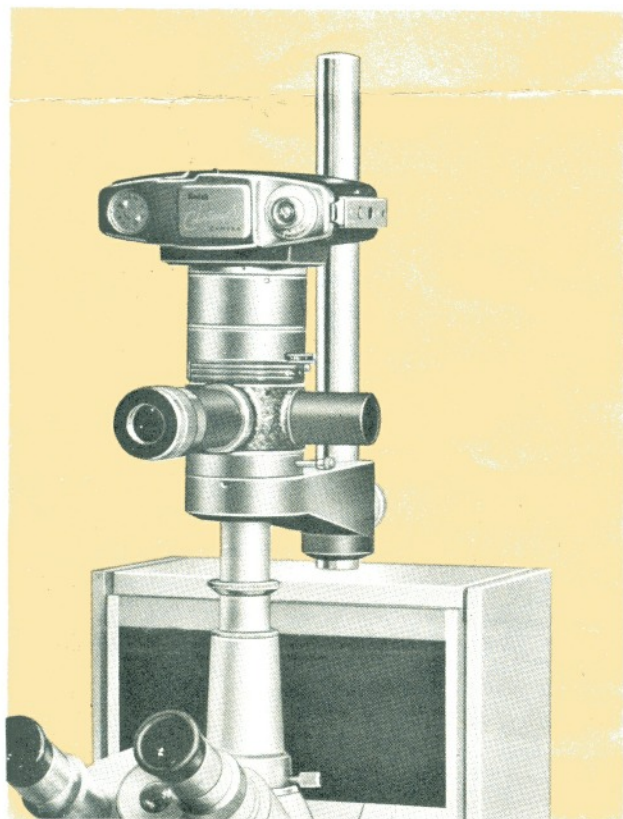
Accessories for :

PHOTOGRAPHY *
MAGNIFICATION CHANGING
MEASURING
PROJECTION
SPECIMEN CONTROL
FULL RANGE OF OPTICS †

BELLOWS EXTENSION REFLEX CAMERA

A true reflex with moving mirror allowing the image to be projected on to a screen for focusing and then on to the plate for photography. Has a speeded shutter, and variable bellows extension tubes, plate holders $3\frac{1}{4}'' \times 4\frac{1}{4}''$ or 9 cms. x 12 cms.

CAMERA COMPLETE M. 320003



35 mm. and POLAROID CAMERAS WITH MANUALLY OPERATED SHUTTER

A 35 mm. camera for colour or black and white. Speeded shutter, eyepiece and tube to take the photocell of the Cadmium Sulphide Photometer* is available for the Patholux. Similarly, a Polaroid Camera with the same shutter and viewing equipment is available. These two cameras are supported on a pillar on the microscope.

35 mm. MANUALLY OPERATED CAMERA COMPLETE M. 320004

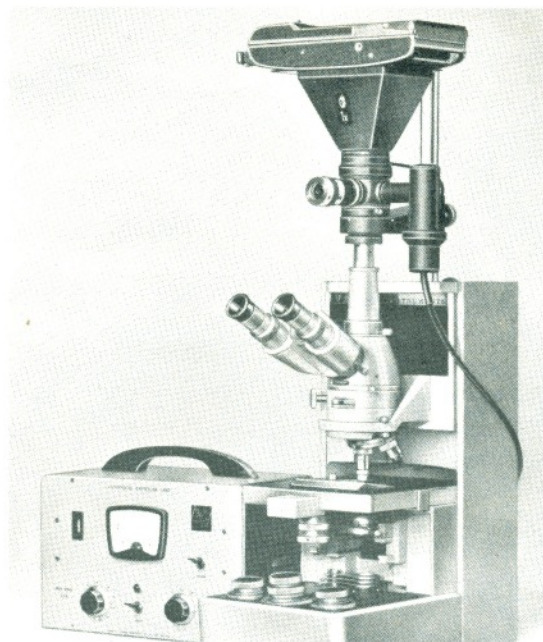
* See separate leaflet for full details of Vickers Instruments Photomicro equipment.

† See separate leaflet 'Optics for the Microscope'.

35 mm. and POLAROID CAMERAS WITH LIGHT INTEGRATING EQUIPMENT AND AUTOMATIC SHUTTERS

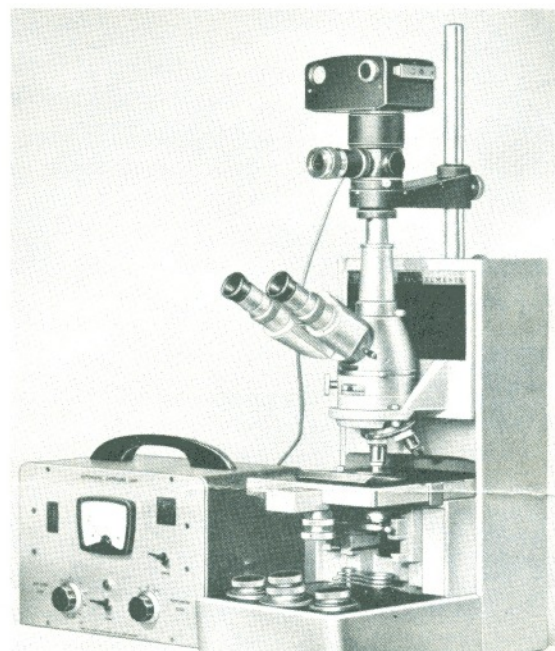
These two cameras are equipped with electromagnetic shutters and photo multiplier cells in housings. The light is automatically sampled and integrated and the correct exposure given. The cameras are operated from a control box which contains the necessary electronics.

POLAROID SEMI AUTOMATIC CAMERA COMPLETE M. 320007



35 mm. FULLY AUTOMATIC CAMERA
This 35 mm. camera is fully automatic. On pressing the exposure trigger on the control box it samples and integrates the light, gives the correct exposure and winds the film on for the next exposure.

CAMERA COMPLETE M. 320008



PILLAR FOR MOUNTING SPECIAL EXPERIMENTAL APPARATUS

23.5 mm. diameter

535 mm. long

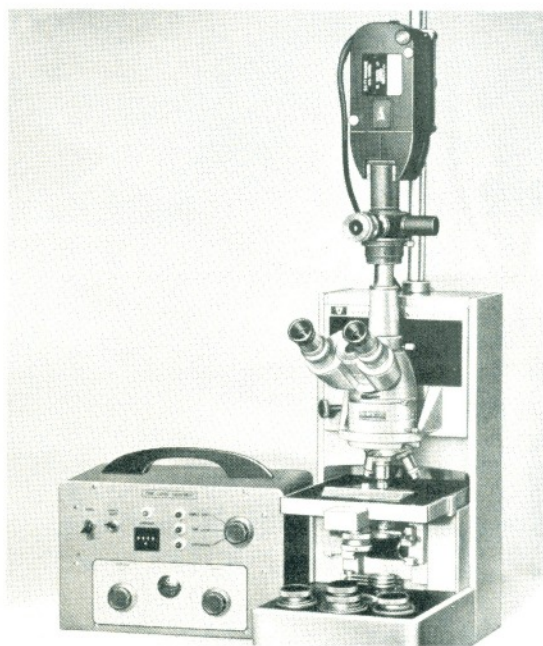
This is the same pillar as is supplied with the Bellows Extension camera and the Time Lapse equipment.

M. 320970

TIME LAPSE EQUIPMENT

This equipment works with the Vinten Mark I 16 mm. cine camera. The equipment will automatically give exposures of preset times ($\frac{1}{4}$ to 60 secs.) at preset intervals ($\frac{1}{4}$ sec. to 1 hour). The camera can also be set to do continuous cine or single exposure still shots.

CAMERA COMPLETE M. 320009





VIEWING ACCESSORIES

MAGNIFICATION CHANGER fits below the Beam Splitting Prism Box. It has a revolver which brings four optical systems into line turn, x 1.5, x 2, and x 3, and a focusing Bertrand Lens for examining the back focal plane of the objective. Very useful in setting up Phase Contrast.

M. 320670



ALTERNATIVE BEAM SPLITTING PRISM BOX has a fully reflecting prism which reflects 100% of the light to the eye. The prism can be swung aside to allow 100% then to go to the camera. The object cannot be seen at the moment of exposure as with the standard Beam Splitting Prism Box.

M. 320580

MONOCULAR DRAW TUBE interchanges with the binocular tubes for monocular observation or measuring with eyepiece measuring devices. The extending draw tube is divided.

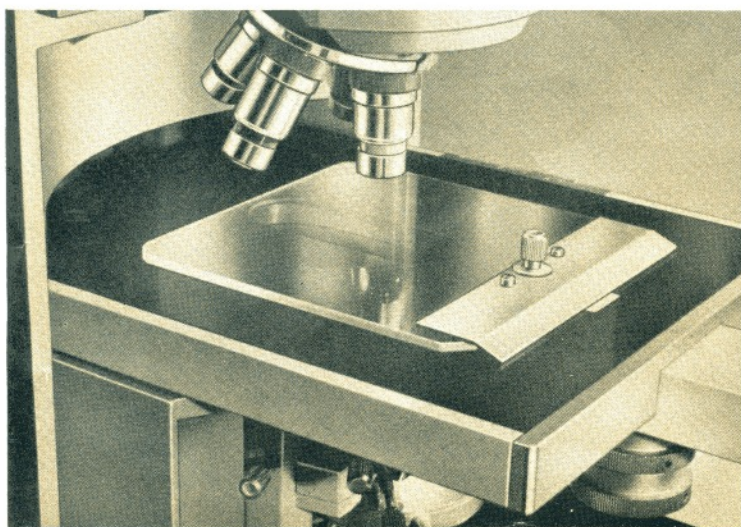
M. 320650

PROJECTION TUBE. A fixed length tube which takes an eyepiece and which is necessary when any of the cameras is ordered. It is also useful, with the projection prism, for microprojection.

M. 320700

PROJECTION MIRROR fits over the eyepiece on the Projection Tube or will fit directly on to the Beam Splitting Prism Box to direct the light horizontally for microprojection on to a screen.

M. 321000



STAGE ACCESSORIES

Transparent Plate Specimen Holder interchanges with the standard slide holder for moving large objects such as culture dishes on the mechanical stage.

M. 320400

OPTICAL PARTS

CONDENSERS

TRILUX CONDENSER for light field, dark field and phase contrast microscopy with the same condenser. Has a supplementary lens to fill the field when low power objectives are used. M. 320720

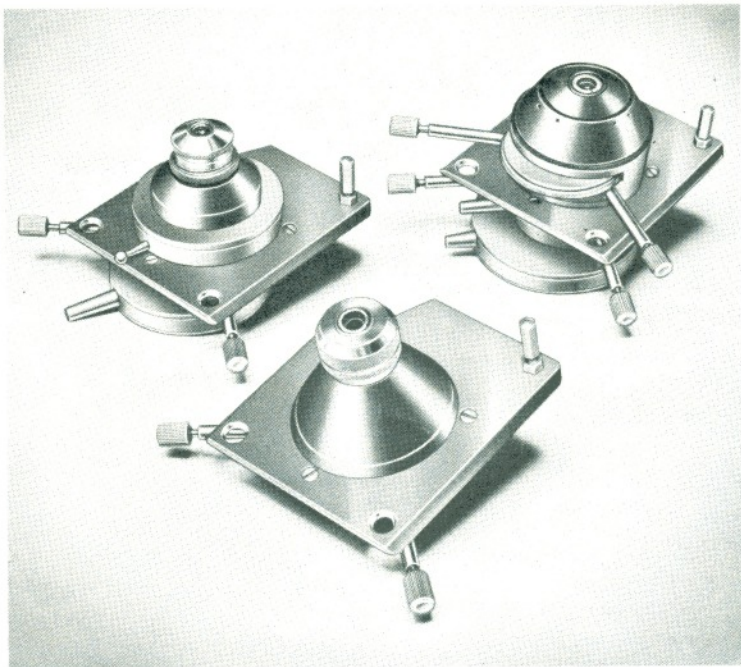
ACHROMATIC CONDENSER which can be oil immersed if necessary and then has N.A. 1.3. Has a supplementary lens to fill the field when low power objectives are used. M. 320800

APLANATIC CONDENSER has better spherical correction than the Abbe and a higher N.A. when immersed. M. 320840

CONDENSER WITH SWING OUT TOP LENS. An Abbe type condenser where the top lens swings aside to fill the field of view with low power. M. 320870

ABBE CONDENSER. The most inexpensive condenser. M. 320930

DARK FIELD CONDENSER (OIL IMMERSION) with adjustment for varying slide thicknesses. M. 320910



EYEPIECES

Three types of eyepiece are supplied for the Patholux.

HUYGHENS EYEPIECES which are low priced and suited for low power objectives without chromatic difference of magnification.

COMPENSATING EYEPIECES which compensate for the chromatic difference of magnification with high power objectives.

COMPLAN EYEPIECES which are compensating eyepieces with an extra wide field of view and a long eye distance so that in many instances spectacle wearers can keep their glasses on when using the microscope.



OBJECTIVES

Standard 160 mm. tube length objectives are used for the Patholux.

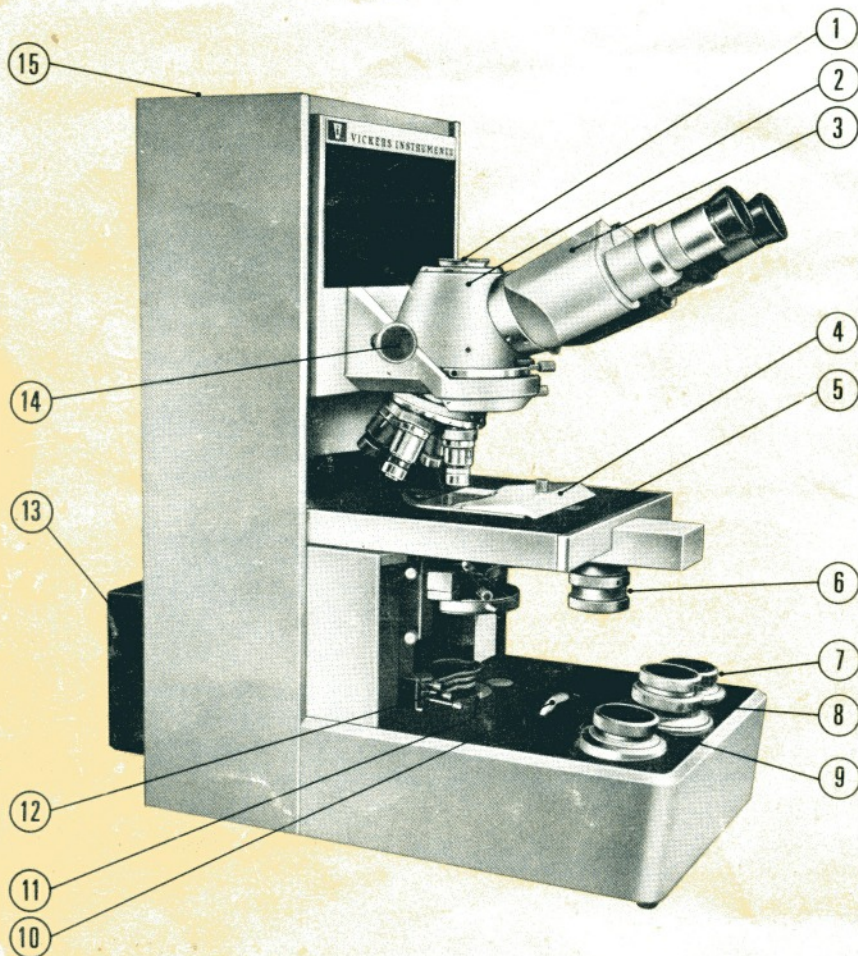
ACHROMATIC OBJECTIVES are for routine use.

FLUORITE OBJECTIVES with more refined colour correction.

MICROPLAN OBJECTIVES which give flat fields of view sharp over the whole field.

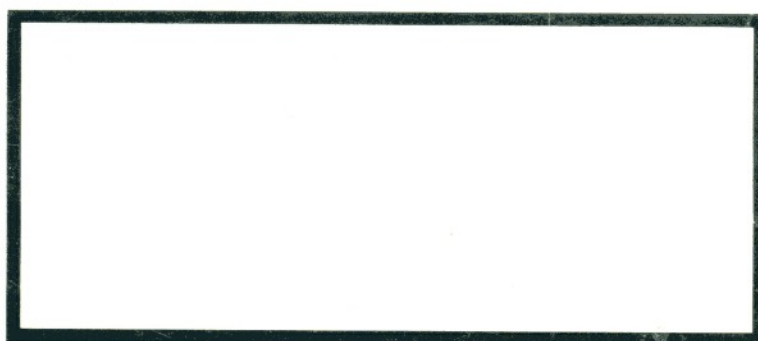
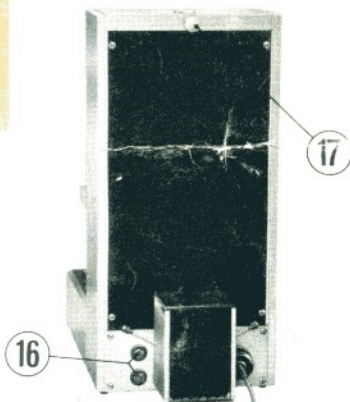
Certain powers of each type are available as Phase Contrast objectives for use with the Trilux Condenser.





THE PARTS OF THE PATHOLUX

- 1 Attachment for cameras, monocular projection tube, etc.
- 2 Beam splitting Prism box (interchangeable).
- 3 Binocular Head (interchangeable).
- 4 Specimen Holder (interchangeable).
- 5 Mechanical Stage.
- 6 Stage controls.
- 7 Light dimming control.
- 8 Coarse and fine focus control.
- 9 Substage focus control.
- 10 Field Iris Diaphragm Control.
- 11 Light exit window.
- 12 Filter holders (3).
- 13 Lamp house.
- 14 Clamp for high lift body slide.
- 15 Attachment for pillar for bellows camera or special experimental equipment.
- 16 Fuses.
- 17 Clamp for pillar.



VICKERS LTD.

VICKERS INSTRUMENTS

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PURLEY WAY, CROYDON

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Telegrams: Optivorum Croydon



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226 PURLEY WAY
CROYDON
CR9 4HN

GHL/AT

12th May, 1970

Q U O T A T I O N

Patholux research microscope with 100 watt tungsten halogen lamp; Kohler illumination system (including bulb) with dimming rheostat; concentric focusing controls, substage focusing, mechanical stage with concentric controls, scales and verniers, slide holder for 3" x 2" slides.	M.320001	£264.	0.	0.
Beam splitting prism box with fully reflecting prism	M.320580	28.	0.	0.
Binocular head (type which does not alter the tube length when inter-ocular distance is changed)	M.320600	41.	18.	0.
Revolving quadruple objective changer on interchangeable fitting	M.320480	5.	8.	0.
One flexible dust cover	M.320490	2.	8.	0.
One accessory box	M.320495	5.	0.	0.
x10 Achromatic objective	M.022311	5.	4.	0.
x20 Achromatic objective	M.022411	9.	2.	0.
x40 Achromatic objective	M.022911	9.	0.	0.
x100 Fluorite objective	M.023511	40.	14.	0.
x10 Pair Wide field Compensating eyepieces	M.041332	9.	8.	0.
Trilux condenser for light field, dark field and phase contrast	M.320720	82.	14.	0.
		<u>£502.</u>	<u>16.</u>	<u>0.</u>

Prices firm for 60 days.

Instructions for Use of Mercury Super Pressure Lamps HBO 200 W, HBO 200 W/2, HBO 200 W/4, HBO 500 W, HBO 500 W/2, HBO 1000 W/2, and HBO 1000 W/4

1. Installation and Connection of Lamp

Lamps to be operated on DC should not be run previously on AC.

HBO 1000 W/2 should be operated on DC, HBO 1000 W/4 on AC.

Pay attention to correct connection on DC (positive lead be connected to the lower stamped base), as operation with reversed polarity will damage the electrodes of the lamp. When using ignition device Z 4000 (suitable for lamps with and without ignition electrode), connect lamp according to wiring diagram 1. In case of lamps with ignition electrodes make sure that the base of the non-connected ignition electrode is well insulated against metal parts.

Lamps HBO 1000 W/2 and 1000 W/4 may be started with ignition device Z 2201 (as per wiring diagram 1). If lamp is to be started in a cold condition only, ignition is possible with ignition device Z 4000 and choke PD 250 connected in parallel (see wiring diagram 3).

Lamps with ignition electrode HBO 200 W and HBO 500 W may also be started with ignition device Z 0-100. Connection according to wiring diagram 2.

Lamps HBO 200 W/4 can be ignited with starter St 192 (wiring diagram 4).

At first connect the flexible leads to the corresponding bases (according to wiring diagram). Insert lamp in the fixed support and tighten the knurled nut (stamped base at bottom). When this is being done, hold lamp by the particular base in order to avoid a transfer of twisting or bending forces to the quartz body. At inclined burning position (for permissible inclination see table) turn lamps HBO 200 W and HBO 500 W so that the ignition electrode is under no circumstances located above the arc.

Make sure at AC operation that the lamp is connected to the tapping of the choke corresponding with its range of operating voltage (marking L1 or L2 on the lower base and on one of the knurled nuts).

The ignition lead should be kept as far away as possible from metal parts of the housing. Care should be taken that the ignition lead is sufficiently insulated since short-circuit to grounded metal parts would destroy the lamp.

Clean lamp with alcohol and then with distilled water in order to remove traces of grease (finger prints) which would otherwise be burnt-in.

Do not cover ventilating ducts in the housing.

2. Switching on and Ignition of Lamp

Close housing.

Apply supply voltage to lamp.

Operate ignition device (duration of ignition: 0,5 sec max.).

3. Running

Starting current of lamp shortly after switching on has to lie within the range stated in the table. It takes approx. 15 minutes (minimum operating time per start) until the lamp has fully warmed-up.

At DC operation, the wattage should be set at rated value unless the power consumption is automatically controlled by the power supply. In case of mains voltage fluctuations, the wattage must not deviate by more than $\pm 25\%$ from the rated value for a longer period than a few minutes.

The average life of HBO lamps (for values, see table) is reduced by: over or underload for a longer period of time; falling short of the minimum operating time of 15 minutes per start; greater number of starts than would average one start per 2 running hours; too high a current pulsation (maximum value 25 %; for further details, see catalogue HBO) when the lamps are operated on rectified AC.

If an inversed image of the arc is reflected onto the original arc by means of an auxiliary mirror, utmost care must be taken that lamp and mirror are precisely focussed in order to avoid damages to the lamp (please, pay attention to the operating instructions of the equipment).

4. Switching off the lamp

Open main switch.

Lamp housing not to be opened until at least 10 minutes have elapsed after switching off.

5. Maintenance

Check regularly cleanliness of contact surfaces of lamp, support, and conductor respectively. If need be, clean them.

6. Warranty

The warranty is covered by our Terms of Delivery.

Please note: A guarantee can only be given if ballasts and ignition devices are used which meet the electrical data established by our company.

To enable us to judge your claim on guarantee, please, complete the questionnaire accompanying each lamp in all detail and return it together with the rejected lamp to your supplier who will pass it on to us.

We do not accept liability for HBO-lamps which became unusable due to inexperienced handling, particularly non-observance of these instructions, or due to damages during transport.

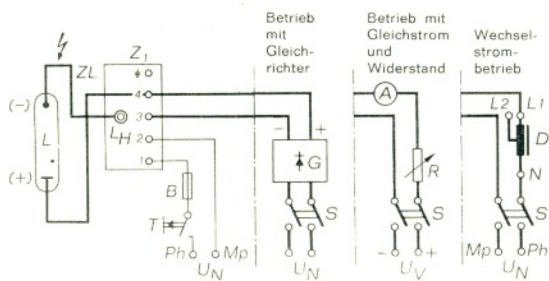
7. Devices for Operation of Lamps

When designing housings, please, pay attention to our "Guide for the Design of Equipment for Mercury Super Pressure Lamps HBO" (available upon request).

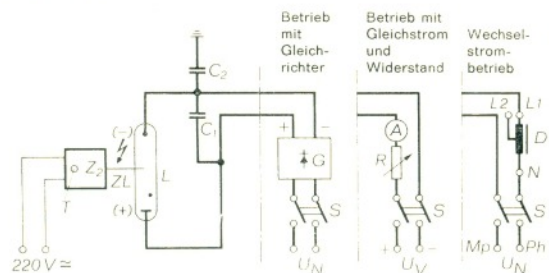
Upon request, interested parties will also be provided with the papers "Requirements on Rectifiers for Mercury Super Pressure Lamps HBO" and "Directions for Designing and Testing Chokes".

Modifications to devices for operation of HBO lamps must be agreed upon by the manufacturer concerned. Otherwise, optimum performance of lamp may not be obtained.

Detailed information about the photometric and electric characteristics as well as further data of HBO lamps are contained in catalogue HBO.



Schaltbild 1



Schaltbild 2

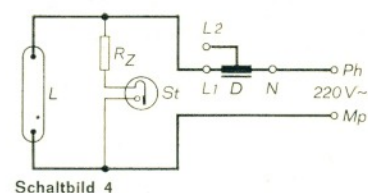
Schaltbild 3

Zündung der HBO 1000 W mit Z 4000 und PD 250

A — Strommesser
B — Sicherung 3 A
C₁ — Kopplungskondensator 2500 pF
C₂ — Netzschutzkondensator 2500 pF
D — Drosselspule
G — Gleichrichter-Vorschaltgerät
L — Lampe
L₁, L₂, N — Anschlüsse der Drosselspule
L_H — Hochspannungsanschluß
Mp — Mittelpunktleiter
Ph — Phasenleiter

(HBO 1000 W/2 nur für Gleichstrombetrieb)
(HBO 1000 W/4 nur für Wechselstrombetrieb)

R — Widerstand
R_Z — Zündkreiswiderstand 1000 Ω, ≥ 15 W
S — Schalter
St — Sicherungsstarter St 192
T — Drucktaste
U_N — Netzspannung 220 V~
U_V — Versorgungsspannung
Z₁ — Zündgerät Z 4000 (bei HBO 1000 W/2 und HBO 1000 W/4: Z 2201)
Z₂ — Zündgerät Z 0-100
ZL — Zündleitung

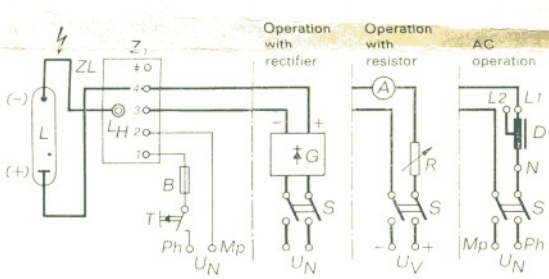


Schaltbild 4

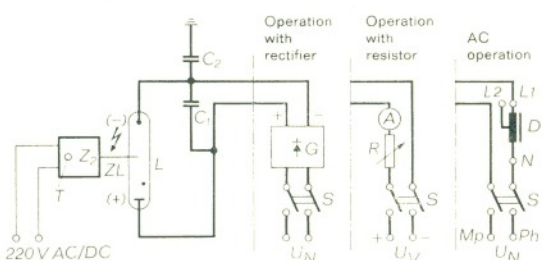
	Strom- art	Lampen- leistung Nennwert W	Anlaufstrom min. A	max. A	Mittlere Lebensdauer Std.	Brennstellung, zulässige Neigung zur Senkrechten in Grad	Schaltbild	Zündgeräte Bestellbezeichnung
HBO 200 W	~	200	4	7	200	45 °	1 2	Z 0-100, Z 4000
HBO 200 W/2	~	200	4	7	400/200 ¹⁾	45 °	1	Z 4000
HBO 200 W/4	~	200	4	7	200	45 °	4	Starter St 192
HBO 500 W	~	500	8	13	200	20 °	1 2	Z 0-100, Z 4000
HBO 500 W/2	~	500	8	13	400/200 ¹⁾	20 °	1	Z 4000
HBO 1000 W/2	~	1000	16	22	400	15 °	3	Z 2201 ²⁾
HBO 1000 W/4	~	1000	16	22	200	15 °	3	Z 2201 ²⁾

¹⁾ Bei Wechselstrombetrieb beträgt die mittlere Lebensdauer 200 Stunden.

²⁾ Ist Inbetriebnahme der Lampe nur in kaltem Zustand vorgesehen, so ist Zündung mit Zündgerät Z 4000 und parallel geschalteter Drosselspule PD 250 möglich.



Wiring Diagram 1



Wiring Diagram 2

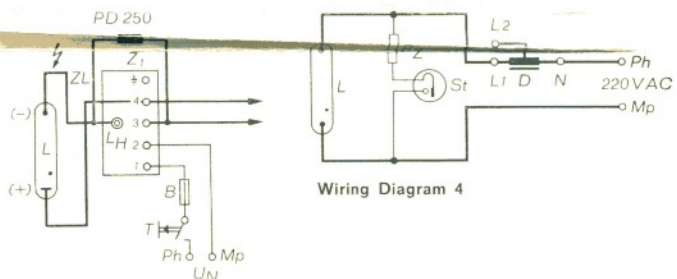
Wiring Diagram 3

Ignition of HBO 1000 W with Z 4000 and PD 250

A — Ammeter
B — Fuse 3 amps.
C₁ — Coupling condenser 2500 pfd ²⁾
C₂ — Protective condenser 2500 pfd ²⁾
D — Choke
G — Rectifier
L — Lamp
L₁, L₂, N — Tappings of Choke
L_H — High Voltage Terminal
Mp — Neutral Lead
Ph — Phase Lead

(HBO 1000 W/2 for DC operation only)
(HBO 1000 W/4 for AC operation only)

R — Resistor
R_Z — Resistor for ignition circuit
1000 Ohms, ≥ 15 W
S — Switch
St — Reset starter St 192
T — Push Button
U_N — Mains Voltage 220 V AC
U_V — Supply Voltage
Z₁ — Ignition Device Z 4000 (for HBO 1000 W/2 and HBO 1000 W/4: Z 2201)
Z₂ — Ignition Device Z 0-100
ZL — Ignition Lead



Wiring Diagram 4

	Type of Current	Lamp Wattage rated value watts	Starting Current min. amps.	max. amps.	Average Lamp Life hours	Burning Position: vertical; permissible inclination in degrees	Wiring Diagram	Ordering Abbreviation of Igniters
HBO 200 W	AC/DC	200	4	7	200	45 °	1 2	Z 0-100, Z 4000
HBO 200 W/2	AC/DC	200	4	7	400/200 ¹⁾	45 °	1	Z 4000
HBO 200 W/4	AC	200	4	7	200	45 °	4	Starter St 192
HBO 500 W	AC/DC	500	8	13	200	20 °	1 2	Z 0-100, Z 4000
HBO 500 W/2	AC/DC	500	8	13	400/200 ¹⁾	20 °	1	Z 4000
HBO 1000 W/2	DC	1000	16	22	400	15 °	3	Z 2201 ³⁾
HBO 1000 W/4	AC	1000	16	22	200	15 °	3	Z 2201 ³⁾

¹⁾ At AC operation average lamp life is 200 hours. ²⁾ 1 pfd = 10⁻¹² fd