



Visopan



VISOPAN PROJECTION MICROSCOPE

Instruction Manual

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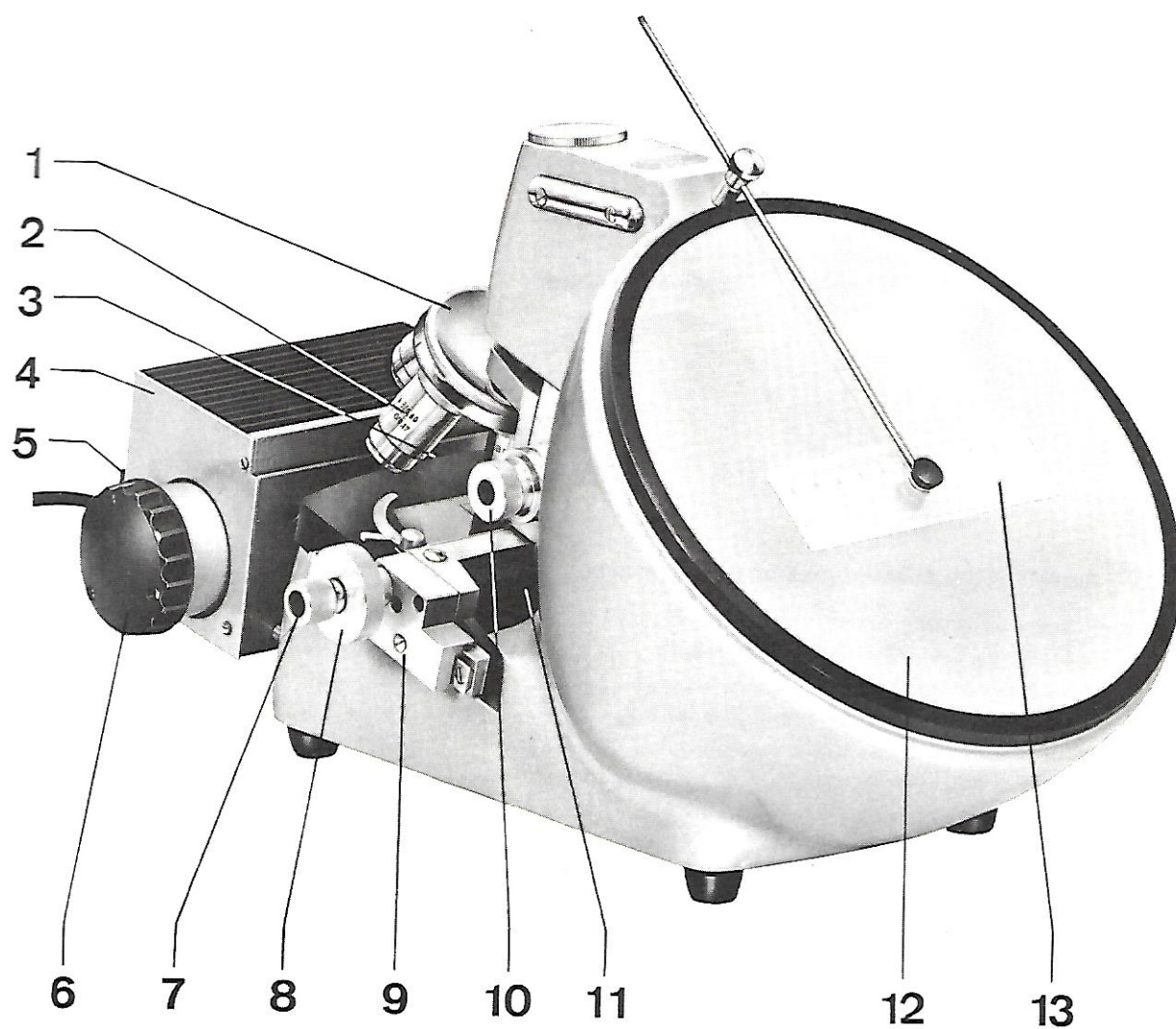


Fig. 1

- | | |
|--|--------------------------------|
| 1 Nospiece | 7 Control for mechanical stage |
| 2 Objective | 8 Control for mechanical stage |
| 3 Lamp collector control | 9 Mechanical stage |
| 4 "Lux US" Lamphousing | 10 Fine focusing control |
| 5 Clamping screw for lamp holder portion | 11 Stage |
| 6 Lamp holder portion for low-voltage halogen bulb | 12 Focusing screen |
| | 13 Measuring rule |

ASSEMBLING AND DESCRIPTION OF THE INSTRUMENT

Screwing in the objectives

Move the lever (14) upwards up to its stop. Screw the objectives into the nosepiece (1). The treaded hole for the lowest power objective supplied (e.g. Plane 4X/0,10) is marked with a black dot. The other objectives are fitted so that objectives of increasing magnification are swung in as the nosepiece is rotated clockwise.

Inserting the low-voltage iodine bulb

After loosening clamping screw (5) withdraw the lamp holder portion (6) from the lamp housing (4). Remove the bulb (16) with its protective cover from the packing sleeve and carefully plug the pins into the lamp socket (15). Before this can be done the two clips on the lamp holder portion must be be pressed together. After the clips are released the bulb is locked in position.

Remove the cover and clean off any dirt on the bulb. Then slide the lamp holder portion into the lamp housing so that the axis of the bulb filament is perpendicular to the axis of the collector and the connecting cable points towards the back wall of the lamp housing.

Secure the lamp holder portion temporarily with clamping screw (5).

Step transformer

Only suitable for 115 and 220 V A.C.! The mains voltage must agree with the setting on the voltage selector which is located on the back of the transformer.

To change the voltage from 115 to 220 V or vice versa push in the button in the centre of the voltage selector rotate it anti-clockwise and remove it together with the fuse. Place a coin in the slot which is now visible and rotate the voltage selector so that the red line is opposite the desired voltage. Fit the button with a fuse to suit the new mains voltage and insert it back into the voltage selector.

When operating at 115 V mains supply the transformer is protected by a 1,5 A (slow or fast), at 220 V by a 0,8 A fuse (slow only).

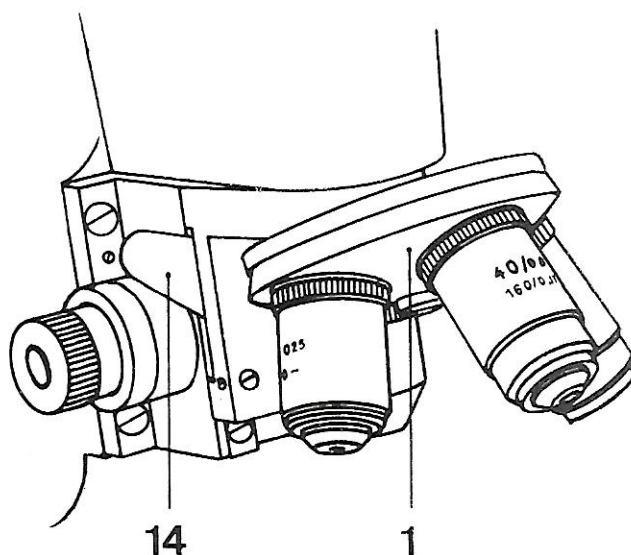


Fig. 2

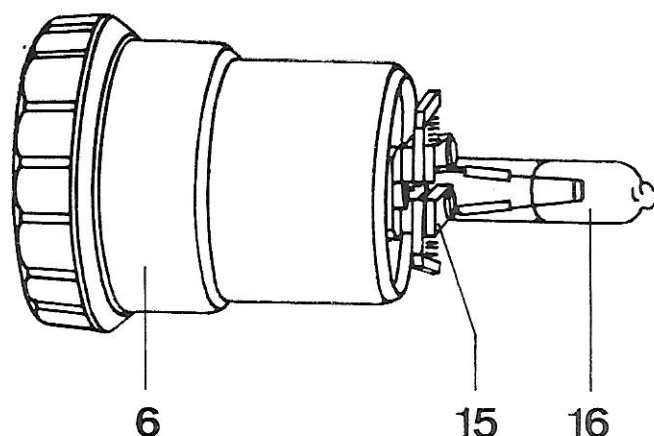


Fig. 3

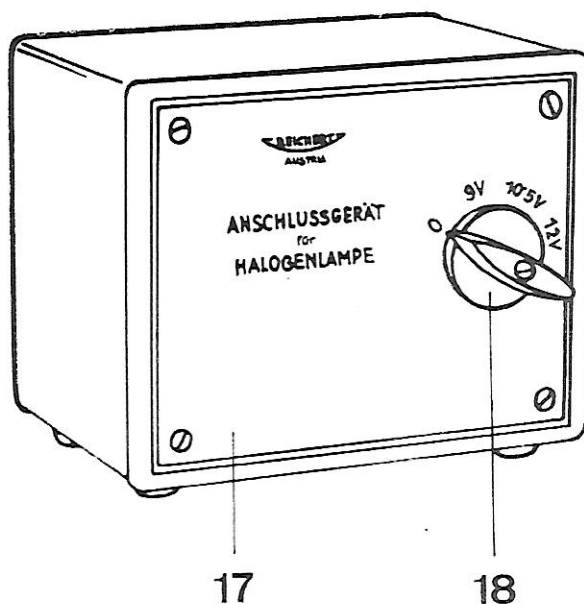


Fig. 4

Connect the plug of the lamp cable to the transformer. With the transformer switched off and knob (18) set to "0" connect it to the mains with the supply cable. Turn the knob (18) clockwise to switch on the transformer and set it to the desired lamp voltage 9 V, 10,5 or 12 V.

It is strongly recommended that the higher voltages should only be used when actually required otherwise the life of the bulb is shortened.

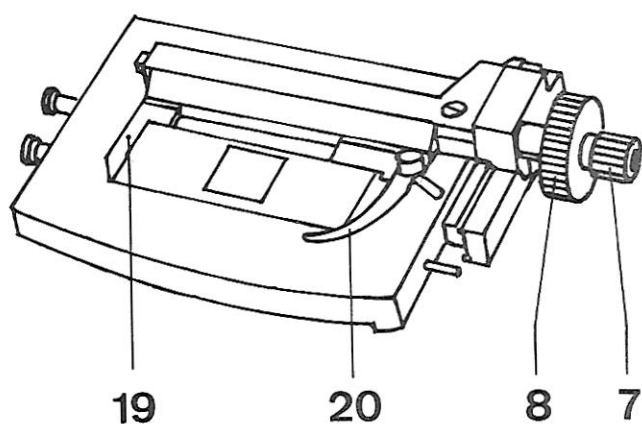


Fig. 5

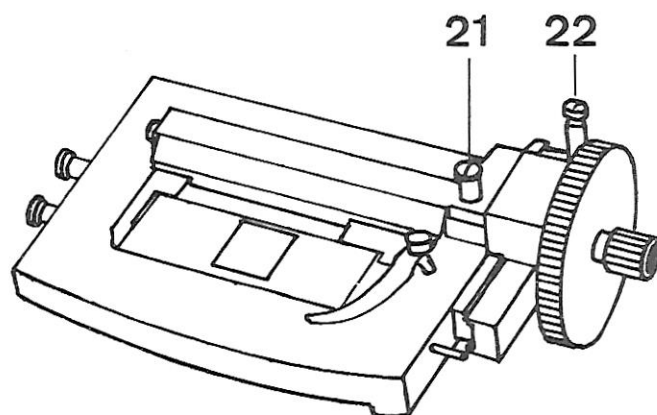


Fig. 6

Adjusting low-voltage halogen bulb

Switch on the transformer and swing the lowest power objective available (e.g. Plane 4/0,10) into the ray path. Put the front lens of the illuminating system into operation by completely pushing in knob (24/ Fig.8). By altering the height of the objective with lever (14/ Fig. 7) respectively by turning the control (3) of the lamp collector the bulb filament is imaged on the frosted screen.

Turn and displace horizontally the lamp holder portion until the filament is in the centre of the frosted screen.

Secure the lamp holder portion with the clamping screw.

This adjustment is necessary only if a new bulb has to be inserted.

Stage

a) Stage with standard mechanical stage (see Fig. 5)

A fixed specimen stop (19) and a springy grip (20) firmly secure the specimen.

Coordinate movement by coaxial drive knobs (7) and (8).

b) Stage with mechanical stage and click stop mechanism (see Fig. 6).

For the special version of the VISOPAN, the LANAMETER, a special mechanical stage with click stop mechanism can be supplied. With the aid of this a double scanning and measuring of one and the same specimen detail is eliminated. By raising and turning knob (21) through 90° the click stops of E-W specimen movement is put into or out of operation. The knob (22) operates the click stops for N-S movement. The step of the click stops is 0,5 mm approx. The knobs (21) and (22) have reference marks. If the click stops are switched in, the reference mark show E-W if they are switched out they will point N-S that is to say in direction of "bulb-frosted screen".

Coarse and fine focusing adjustment

The lever (14) is used for coarse focusing and registers in 3 different positions.

Fine focusing is made with control (10), the focusing range amounts to 2 mm.

By combining coarse and fine focusing, specimens with object slides of 0,6 – 6,9 mm thickness can be examined.

Click stop positions of lever (14):

- a) Lower stop: for specimens on slides of 0,6 – 2,8 mm
- b) Medium stop: for specimens on slides of 2,7 – 4,9 mm
- c) Upper stop: for specimens on slides of 4,7 – 6,9 mm

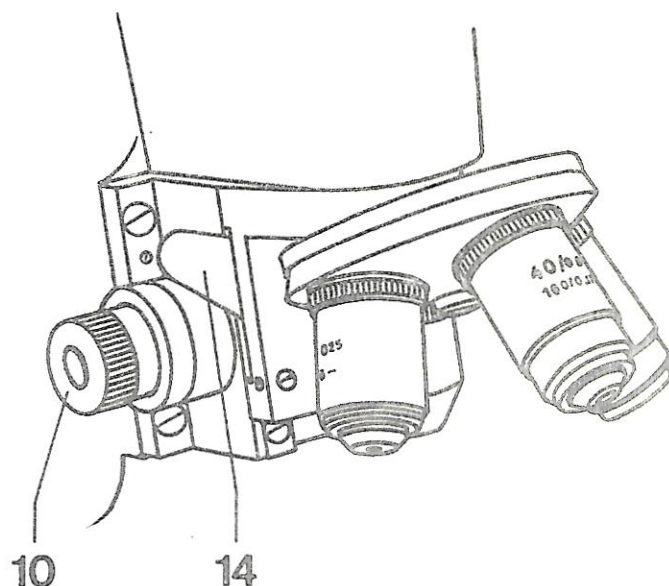


Fig. 7

Illumination

For examinations with the objective Plane 4/0,10 the front lens of the illuminating system is put out of the light path by actuating knob (24). For higher powers, from 10/0,25 onward, the front lens of the illuminating system is inserted by completely pushing in knob (24). The aperture iris diaphragm is operated with knob (23).

STARTING YOUR EXAMINATIONS

Raise nosepiece with lever (14). Put a specimen on the stage and swing the lowest power objective available into the ray path.

When working with objective Plane 4/0,10 the front lens of the illuminating system is swung out by means of the knob (24) and from objective 10/0,25 upwards the front lens has to be swung in.

Adjust the coarse focusing lever according to the thickness of the specimen. Switch on the lamp and focus the microscopic image on the frosted screen.

With the collector control (3) the most uniform illumination is made whereas with knob (23) of the aperture iris diaphragm the optimum quality of the image on the screen can be adjusted.

Whenever higher power objectives are used the setting of the lamp collector and of the aperture iris diaphragm have to be checked.

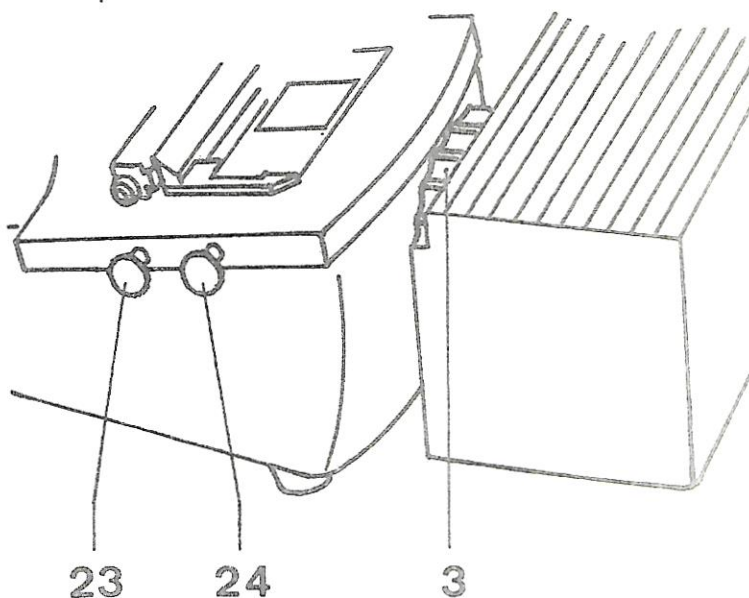


Fig. 8

NOTE. When working with object slides of great variations in thickness the lowest power objective available must be swung in and be focused before moving on to higher powers.

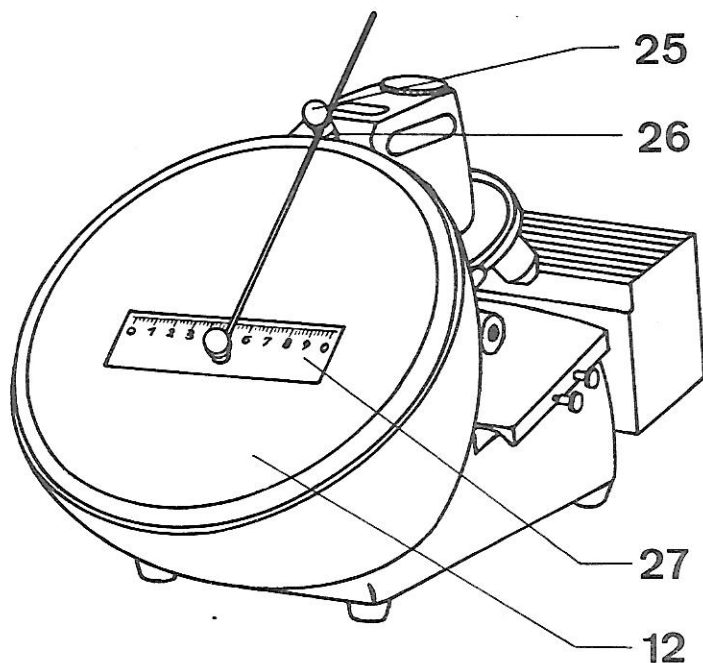


Fig. 9

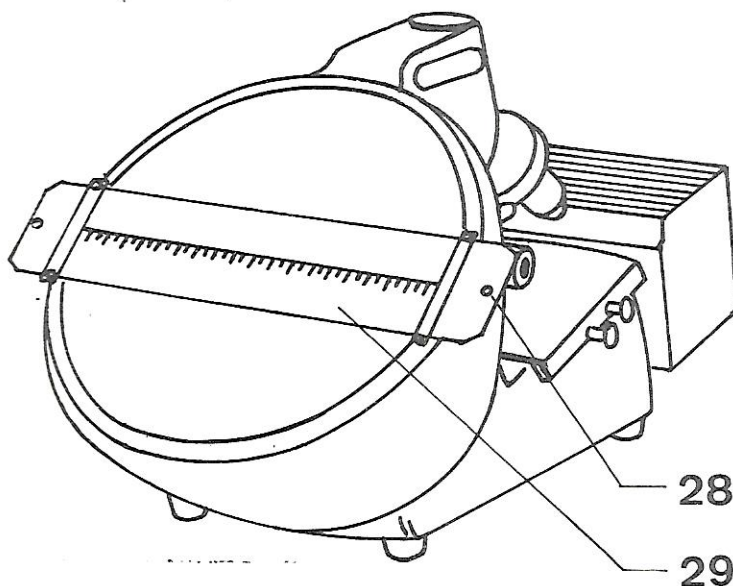


Fig. 10

MEASURING

	Objective	Magnification	Micrometer Value in μm
Plan	4/0,10	50	20
	10/0,25	125	8
	16/0,32	200	5
	40/0,65	500	2
	63/0,75	800	1,2
	100/1,25	1250	0,8

The micrometer value indicates how many microns ($1 \mu\text{m} = 0,001 \text{ mm}$) correspond to 1 division on the measuring rule.

The 500 X magnification on the screen (23) is adjusted at the factory to suit a 1 mm thick slide. If the slide thickness differs from this value there is a change in the magnification on the screen. This change is however so small that it has practically no effect on the result of the measurement. For example, a change of 1 mm in slide thickness changes the magnification by only 1 %.

If for special applications it should prove necessary to have a completely exact magnification, this can be set for all the usual slide thicknesses by adjusting the height of the projection lens after releasing the clamping screw.

Measuring equipment

The VISOPAN can be equipped with two different measuring devices which can be lined up with the specimen. When using a 500 X magnification which is achieved with the 40/0,65 objective, each division of the measuring rule corresponds to a length of $2 \mu\text{m} = 0,002 \text{ mm}$.

a) 100 mm Measuring device

The adjustable measuring rule (27) is secured in the removable socket (26) of the VISOPAN by means of the pin (25). The rule can be rotated and moved about freely.

b) 200 mm Measuring device

The measuring rule (29) of this device can be rotated and also moved along between two screws (28). After unscrewing one of these two screws the rule can be withdrawn from its guide.



C. REICHERT

OPTISCHE WERKE A.G.

A 1171 WIEN

AUSTRIA