

Lamphousing 103/103 Z

Calberlux 12



Instructions

1. Introduction

Lamphousings 103 and 103 Z are intended for lamps of up to 100 W.

Lamphousing 103 is fitted with a pre-centered holder for a 12 V 100 W halogen lamp. The lamp centering cannot be adjusted. The collector can be replaced if necessary.

Lamphousing 103 Z can be fitted with the following:

12 V 100 W halogen lamp,

50 W high pressure mercury lamp,

100 W super high pressure mercury lamp,

75 W high pressure xenon lamp,

OSRAM spectral lamps.

The collector is interchangeable. A two-lens collector is used for the halogen lamps, and a four-lens version for the discharge lamps.

The power supply is automatically cut off when the lamphousing is opened, thus eliminating the danger of touching live parts.

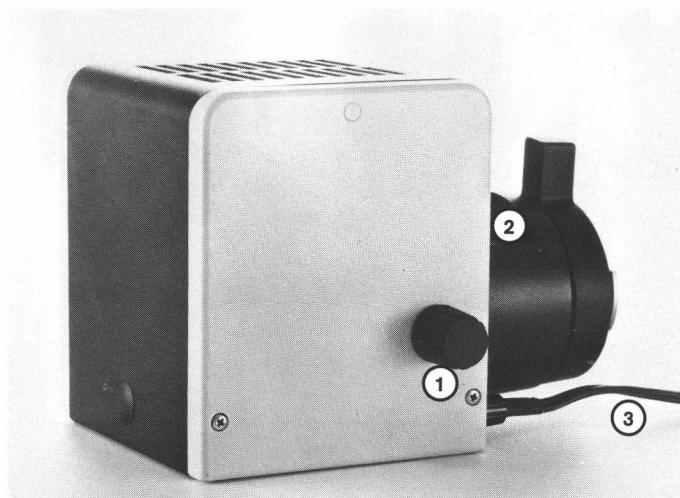
2. Lamphousing 103

2.1 Replacing the lamp

After loosening screw (2.1), remove the cover and the old lamp. Insert the replacement (holding it only by the protective sleeve) into the socket in the mount (3.1). Remove the lamp sleeve. Close the lamphousing and attach to the microscope. Connect cable (1.3) to the transformer, which is either built into the microscope base or is a separate unit, depending on the microscope.

Fig. 1

1. Collector adjustment control
2. Filter holder
3. Cable to transformer



2.2 Collector adjustment

First select a low-powered objective (either PL 1.6x or PL 2.5x with condenser top disengaged, or PL 10x with condenser top engaged).

While observing the object field through the eyepiece mounts, adjust the collector focus control (1.1) until the rear focal plane of the objective is evenly and fully illuminated.

Fig. 2

1. Lamphousing cover clamp screw

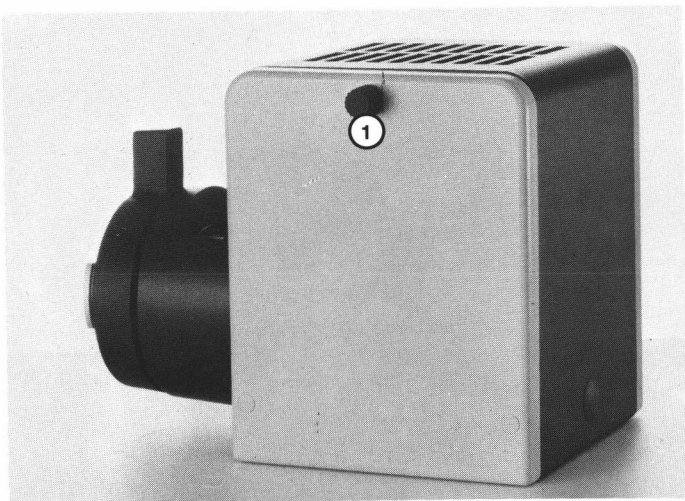
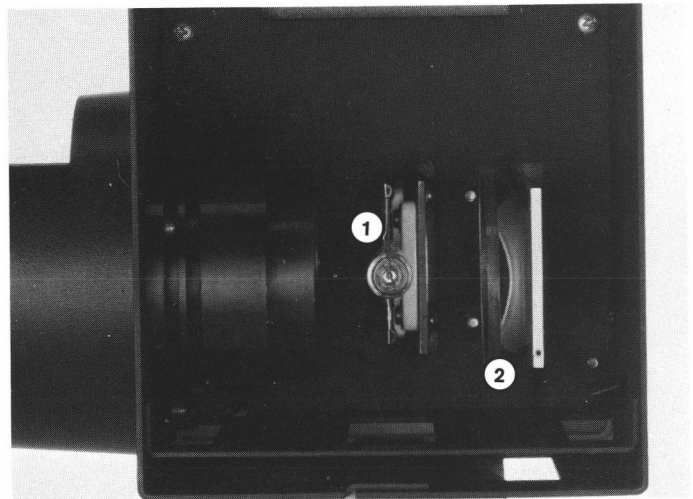


Fig. 3

1. Lamp holder

2. Mirror

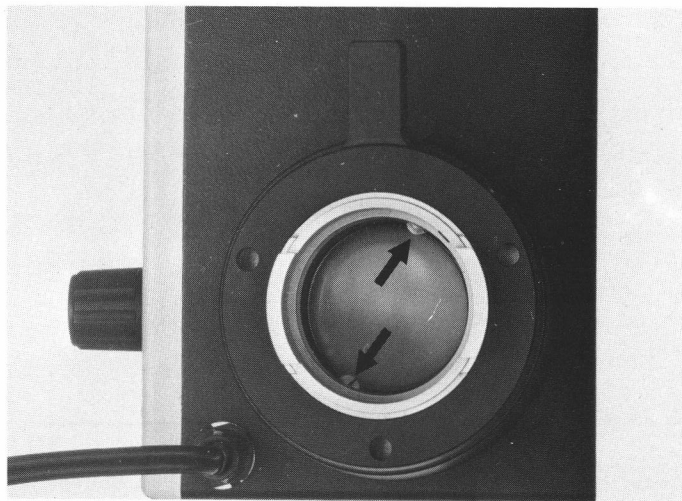


3. Lamphousing 103 Z

2.3 Heat-absorbing filter replacement

Through the lamphousing mount, loosen the two screws holding the filter, insert the replacement, and re-tighten the screws.

Fig. 4
Replacing the heat-absorbing filter



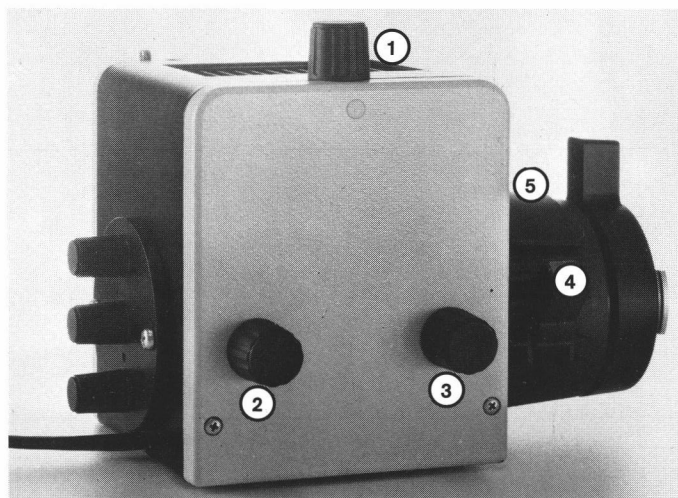
3.1 Inserting the 12 V 100 W halogen lamp

After loosening the screws (6.5) with the supplied screwdriver, open the cover (7.1). Move the collector (7.2) to its frontmost position by rotating control (5.3).

Insert the 12 V 100 W halogen lamp with protective sleeve into the socket in the mount (8.1), then remove the sleeve. Insert the mount into the guide slots (8.3) in the lamphousing and clamp with screws (8.2). When closing the lamphousing, make sure that the pins on the cut-out plug (6.4) engage in the sockets (8.4).

Fig. 5

1. Lamp height adjustment
2. Horizontal lamp adjustment
3. Collector focus control
4. Centering aid with focusing screen
5. Light barrier



Tighten the screws (6.5) fastening the cover (7.1), mount the lamphousing on the microscope, and connect the cable to the transformer.

Fig. 6

1. Mirror height adjustment control
2. Mirror focus control
3. Lateral mirror adjustment control
4. Power cut-out plug
5. Lamphousing cover clamp screws

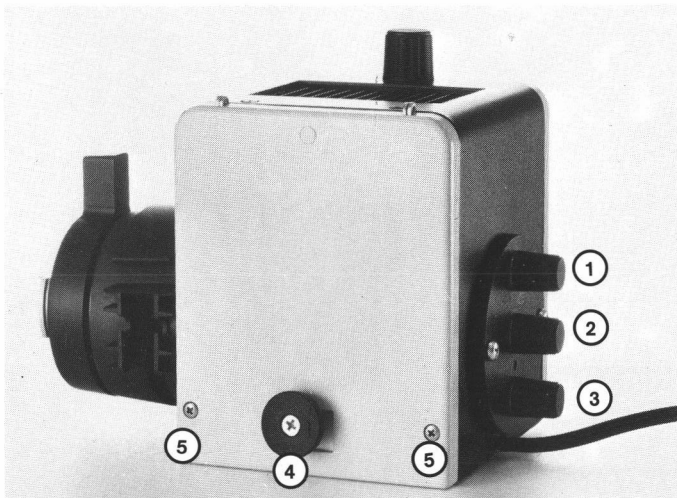
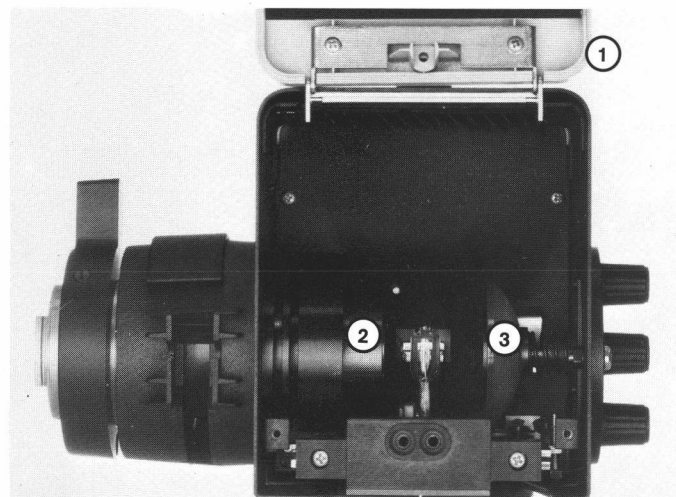


Fig. 7

Lamphousing 103 Z with 12 V 100 W halogen lamp

1. Lamphousing cover
2. Collector
3. Mirror



3.2 Centering the lamp

Remove any filters which may be in the holder (9.2). Position the centering aid in the light path (horizontal). Center the lamp as described on p. 7. Return the centering aid to its 45° position, replace the filters, and re-adjust the collector as described in section 2.2.

Fig. 8
12 V 100 W halogen lamp in mount

1. Lamp sockets
2. Lamp mount clamp screws
3. Guide slots
4. Cut-out plug sockets

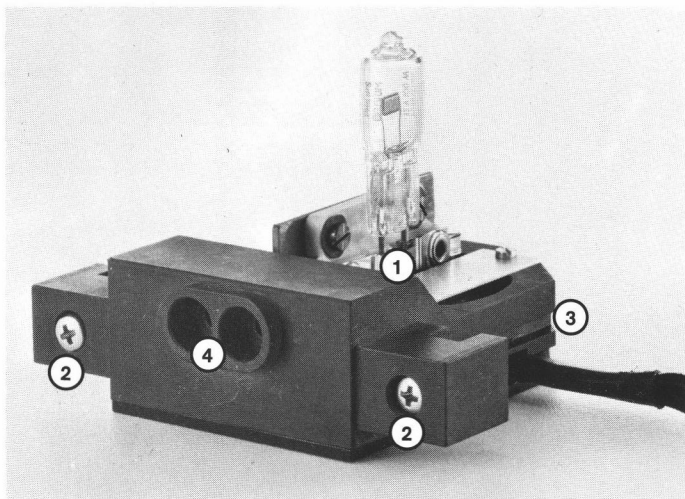
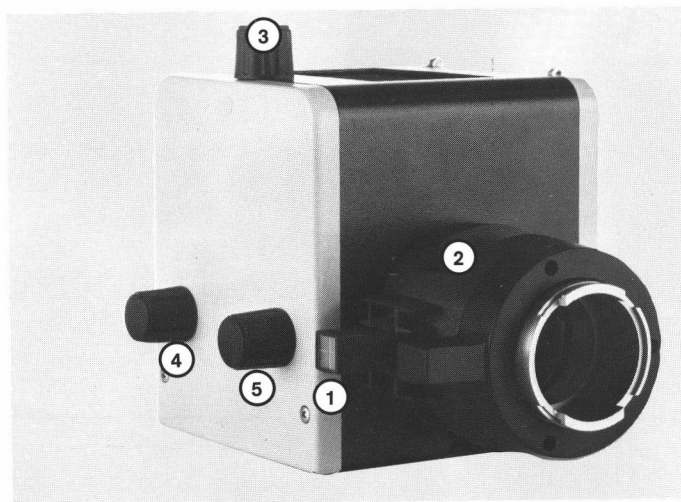
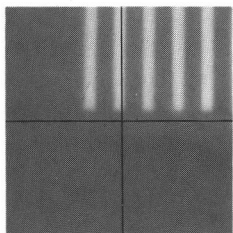


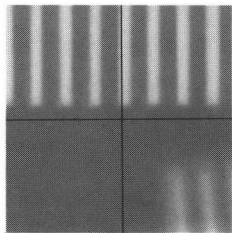
Fig. 9
Lamphousing 103 Z

1. Centering aid
2. Filter holder
3. Lamp height adjustment control
4. Lamp horizontal adjustment control
5. Collector adjustment control

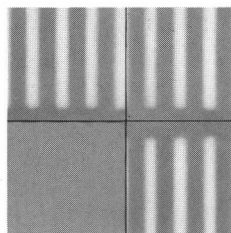




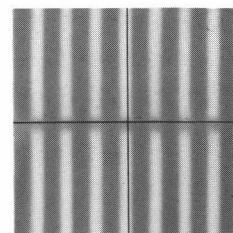
Move the collector to its frontmost position using the focus control (9.5). Position the image of the filament over the vertical marking line of the centering aid by means of control (9.3).



Adjust control (9.4) until the filament image is in the center of the focusing screen.



Focus the mirror image of the filament using control (6.2), then adjust control (6.1) until the mirror image is just under the horizontal marking line.



Move the filament mirror image using control (6.3) until it is directly under the direct image.

3.3 Inserting the 50 W maximum pressure mercury lamp

Open the lamphousing cover (7.1) by loosening screws (6.5) with the supplied screwdriver.

Insert the non-labeled pin of the lamp into the clamp (10.1) and tighten the screw (10.2), after making sure that the seal point will not be in the light path to the microscope.

Loosen the grub screw (10.3) in the mount and insert the second (labeled) pin. Re-tighten the screw, then move the collector to its frontmost position by means of control (9.5).

Insert the lamp mount into the lamphousing and tighten the screws (10.4). When closing the lamphousing, make sure that the pins on the cut-out plug (6.4) engage in the sockets. Tighten the lamphousing cover clamp screws (6.5). Push the cut-out plug in as far as the stop, mount the lamphousing on the microscope and connect the cable to the transformer. After use, the lamphousing should not be opened until the lamp has had time to cool down (around 15 minutes) as otherwise the danger of the lamp exploding exists. The cover (5.5) fits over the filter holder when no filters are in use.

Fig. 10
50 W maximum pressure Hg lamp in its mount

1. Clamp
2. Clamp screw
3. Grub screw for lamp pin
4. Lamp mount clamp screws

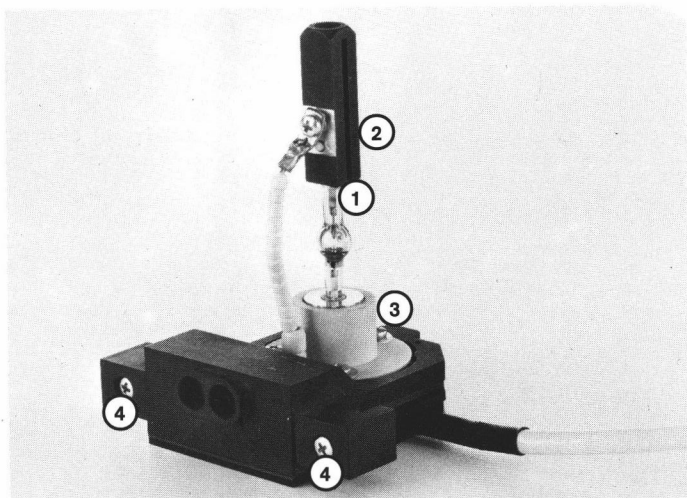
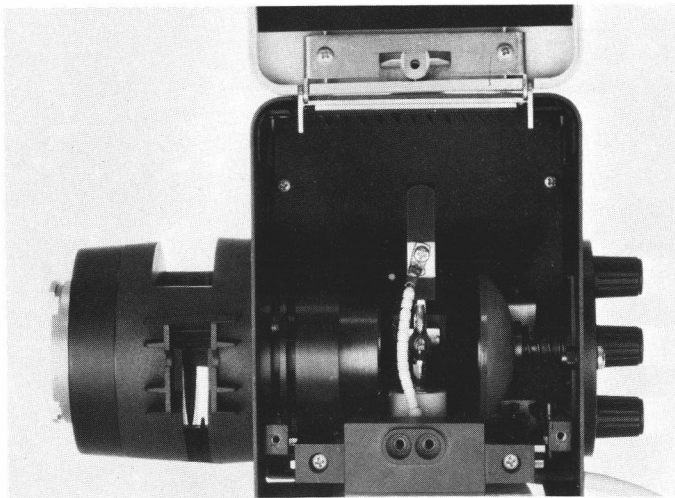


Fig. 11
Lamphousing 103 Z with 50 W maximum pressure Hg lamp.



3.4 Inserting the 100 W maximum pressure Hg lamp

There are two different holders with transformer for this lamp:

- a) A simple holder with transformer without integrated starter. This version is not stabilized (Fig. 15).
- b) A lamp holder with integrated starter and stabilized transformer (Fig. 12).

The 100 W maximum pressure Hg lamp is inserted in the same way as the 50 W version described in section 3.3.

Note: Do not open the lamphousing until the lamp has had time to cool down (around 15 minutes) as the danger of explosion otherwise exists.

Fig. 12
100 W maximum pressure Hg lamp in holder
(with integrated starter)

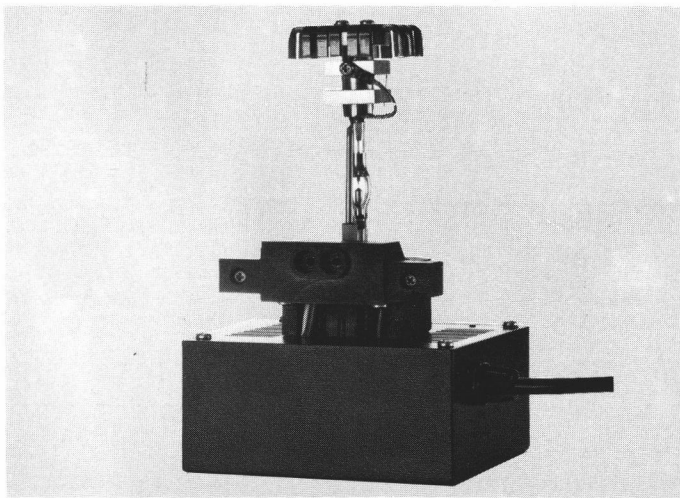
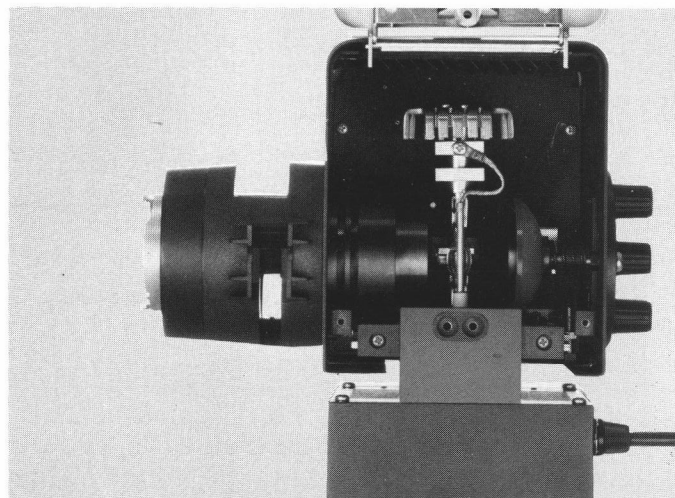


Fig. 13
Lamphousing 103 Z with 100 W maximum pressure Hg lamp



3.5 Applications for the lamps

Fig. 14

Lamps	Application
12 V 100 W halogen pre-centered	Microscopy
12 V 100 W halogen centerable	Photometry
50 W Hg 100 W Hg (without integrated starter)	Fluorescence
75 W Xenon 100 W Hg (with integrated starter)	Photometry
OSRAM spectral lamps (available from specialist dealers)	Incident light fluorescence

3.6 Centering the 50 W and 100 W maximum pressure Hg lamps

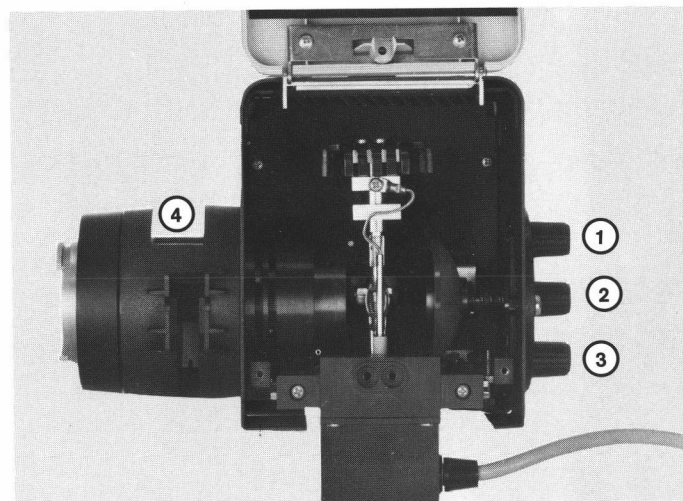
Remove any filters from the holder (15.4), and position the centering aid in the light path (horizontal position).

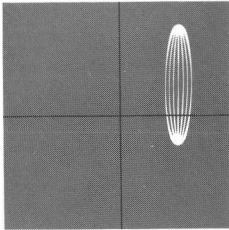
Center the lamp as described on p. 11.

When the centering procedure is complete, rotate the centering aid back to its 45° position, replace the filters in the holder and adjust the collector as described in section 2.2.

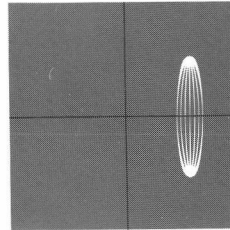
Fig. 15

Lamphousing 103 Z with 100 W maximum pressure Hg lamp (without integrated starter)

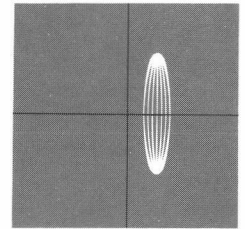




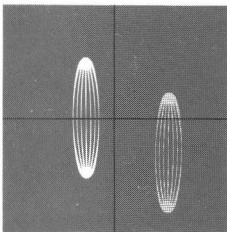
Move the collector to its frontmost position using the focus control (9.5).



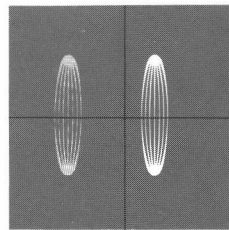
Move the image of the discharge arc to the correct height as shown above by means of the height control (9.3).



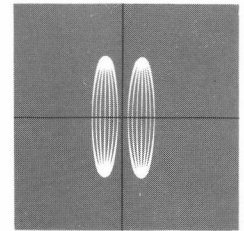
Adjust control (9.4) until the arc image is immediately next to the vertical marking line.



Focus the mirror image of the arc (control 15.2).



Adjust control (15.1) until the mirror image is at the same height as the direct image.



Use control (15.3) to move the mirror image until the two images are next to each other.

3.7 Inserting the 75 W high pressure Xenon lamp

When handling these lamps, a plastic face mask and gloves are necessary (both can be obtained from Leitz). We will not accept any liability for damage or injury caused by a lamp explosion.

The plastic protective sleeve must not be removed until the lamp is mounted in the lamphousing as it is under pressure even when cold. The lamp is inserted in the same way as described above for the Hg lamps (section 16.1) with the pin labeled “+” in the movable clamp. Carefully remove the sleeve (pull off the clip and remove the two-piece sleeve). Move the collector (17.1) to its frontmost position using control (5.3).

Slide the lamp holder into the slots in the side of the lamphousing and tighten the clamp screws (17.2). Close the lamphousing making sure that the cut-off plug pins engage in the corresponding sockets (17.3).

Do not open the lamphousing until the lamp has cooled down (at least 15 minutes) as otherwise the danger of the lamp exploding exists. When removing a lamp, a face mask and gloves must be used until the lamp is in its protective sleeve. Tighten the screws clamping the lamphousing cover. Push the cut-out plug in as far as possible. Mount the lamphousing on the microscope and connect to the transformer.

Fig. 16
75 W high pressure xenon lamp in holder
1. Lamp holder

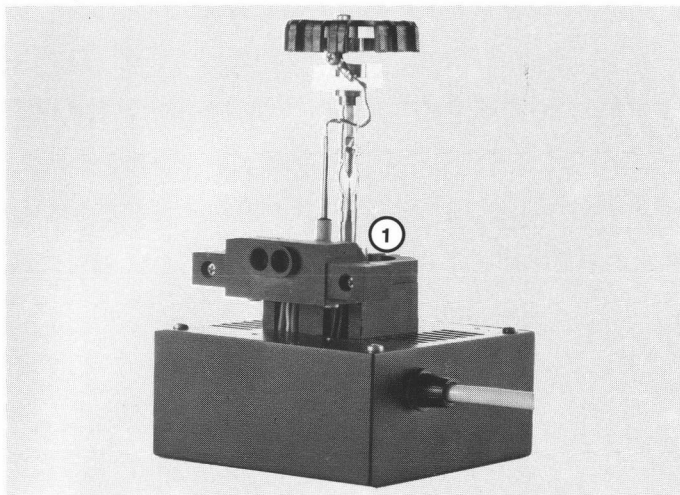
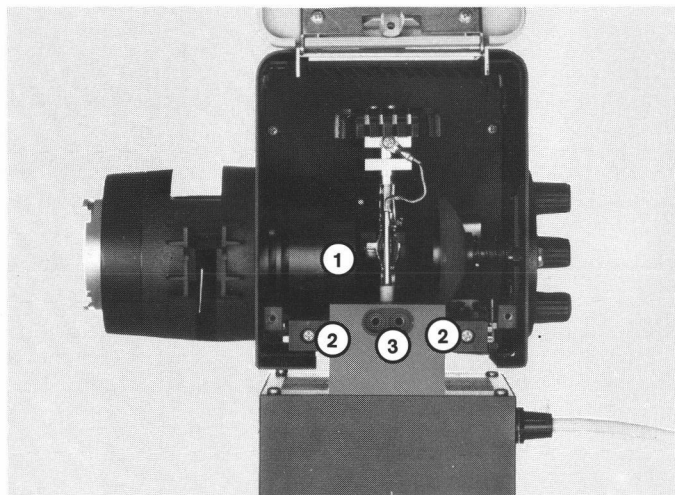


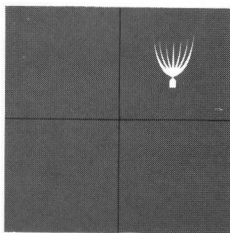
Fig. 17
Lamphousing 103 Z with 75 W high pressure xenon lamp



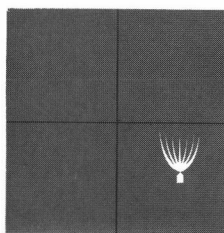
3.8 Centering the 75 W high pressure xenon lamp

Remove any filters from the holder (15.4), and position the centering aid in the light path (horizontal position). Center the lamp as described below.

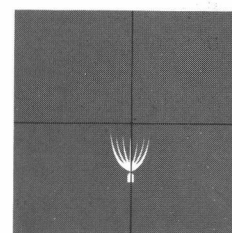
When the centering procedure is complete, rotate the centering aid back to its 45° position, replace the filters in the holder and adjust the collector as described in section 2.2.



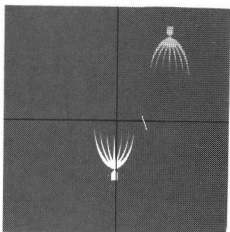
Move the collector to its frontmost position using the focus control (9.5).



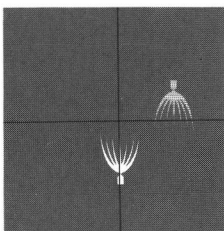
Using control (9.3), move the image of the lamp until it is under the horizontal marking line on the centering aid.



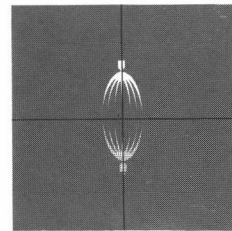
Adjust control (9.4) until the image is in the center, as shown above.



Focus the mirror image of the lamp (control 15.2).



Adjust control (15.1) until the mirror image is above the horizontal marking line on the centering aid.



Use control (15.3) to move the mirror image until the two images are next to each other as shown above.

3.9 Exchanging the collector and heat-absorption filter in lamphousing 103 Z

a) Collector

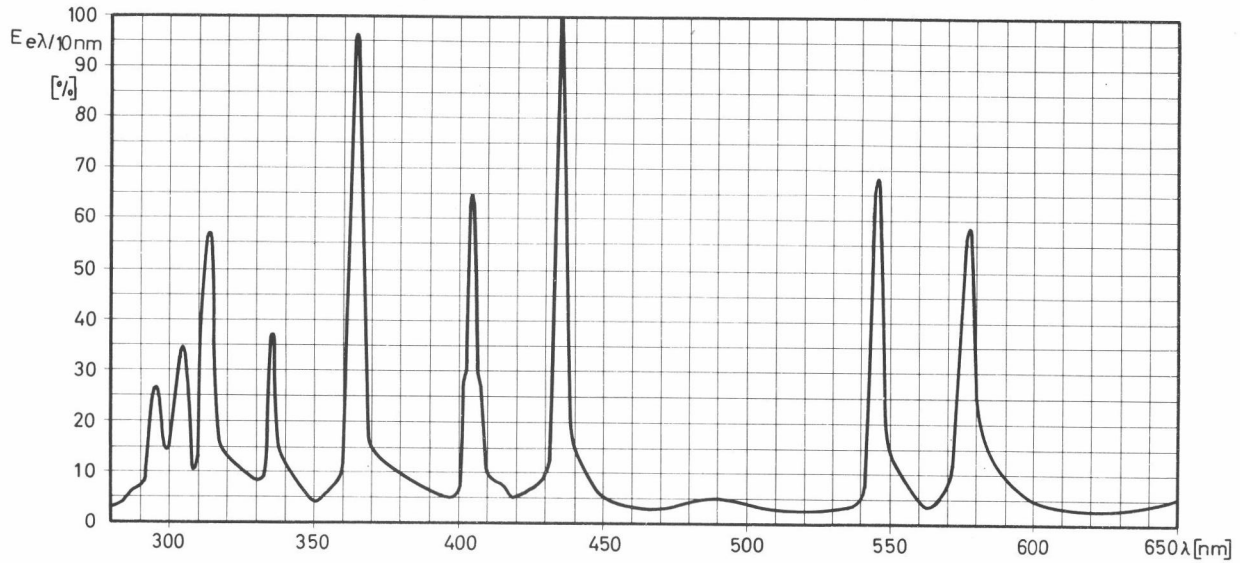
Move the mirror (7.3) to its rearmost position using control (6.3). Pull the collector (7.2) out from its holder after pulling out the adjustment control (5.3) a little.

The new collector is inserted in the same way until it clicks into place. The side of the collector with the heat-absorbing filter must face the outside. Finally, center the lamp as described above.

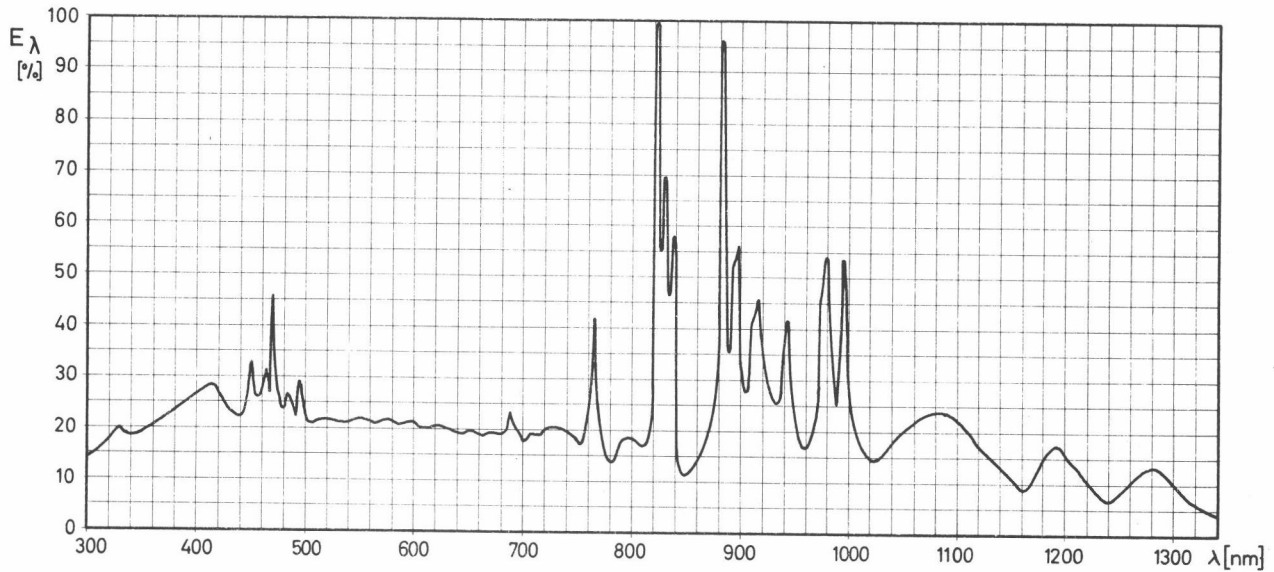
b) Heat-absorbing filter

Remove the collector as described above. Unscrew the filter from the collector and replace with a new one. Make sure that the coated side (marked by a facet) of the calflex filter for the 75 W Xe lamp faces towards the collector. Replace the collector.

Relative spectral radiant flux distribution for halogen lamps



Relative spectral energy distribution for xenon lamps





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