


PHYWE Systeme GmbH & Co. KG  
Robert-Bosch-Breite 10  
D-37079 Göttingen

Phone +49 (0) 551 604-0  
Fax +49 (0) 551 604-107  
E-mail info@phywe.de  
Internet www.phywe.de

## Operating instructions

 The unit complies with the corresponding EC guidelines.

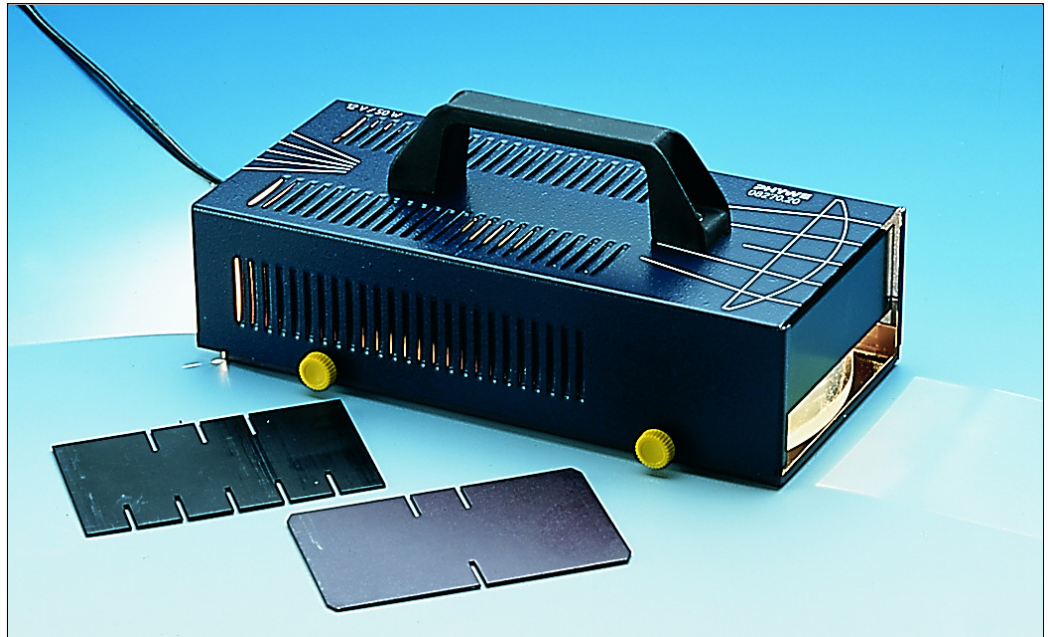


Fig 1: 08270.20 Lamp, Halogen, mag. held, 12 V / 50 W.

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### 10 WASTE DISPOSAL

- Do not cover the ventilation slots.
- Take care that no liquids or objects enter in through the ventilation slots.
- Only use the instrument in dry rooms in which there is no risk of explosion.
- Do not start up this instrument in case of visible signs of damage to it or to the line cord.
- Only use the instrument for the purpose for which it was designed.
- Check that the voltage and performance of the power supply unit used are suitable for the magnetic held halogen lamp, i.e. the power supply used must provide 12 V direct or alternating current with a current strength of 4.2 A. Do not use higher voltages or currents
- The lamp is only designed for operation in the vertical position.
- Only use replacement lamps of type:  
Halogen lamp, 12 V / max. 50 W with axial coiled filament.

## 2 PURPOSE AND CHARACTERISTICS

The intended use of the magnetic held halogen lamp 08270.20 is to demonstrate geometrical optics experiments so that they are clearly visible on magnetic board 02150.00 when it is attached vertically to this board.

The magnetic film on the bottom of the lamp enables it to be easily positioned on the magnetic board.

The magnetic held halogen lamp has two light outlet openings. The light emerging from one of these is made parallel by a lens whereas the other provides divergent light. With the parallel light beam, diaphragms enable 1, 2, 3 or 5 parallel beams, each at a 2 cm distance, to be masked out. In experiments with divergent light, the light outlet opening at the back is opened by pushing the diaphragm up. The light outlet



- Carefully read these operating instructions completely before operating this instrument. This is necessary to avoid damage to it, as well as for user-safety

openings are marked with printed symbols.

The light must be glancingly incident to the board. This results in an approx. 7 cm dark zone at the start of the emergence of parallel light which, however, lightens up in the area between 1 cm and 5 cm after the emergence of light due to reflection by the cover of the lamp housing.

When used without slit diaphragm, the parallel light beam can be slightly convergent and have a red color in the edge zones, but this has no effect on the experimental results.

### 3 INTENDED USE

The magnetic held halogen lamp 08270.20 is intended for use when magnetically held to a magnetic board 02150.00 and with the housing closed

### 4 NOTES ON OPERATION

This high-quality instrument fulfils all of the technical requirements that are compiled in current EC guidelines. The characteristics of this product qualify it for the CE mark.

### 5 HANDLING

The permissible operating position is standing vertically, as magnetically held to a magnetic board.

When the position of the lamp is to be changed, we recommend that the lamp be canted a little to avoid too much stress on the board.

The lamp must be separated from the supply voltage before lamp replacement. Then unscrew the 4 milled screws on the two sides of the lamp and lift the cover up and off. Take care that the supply lead is not pinched when putting the cover back on.

Do not touch the bulb of the lamp with bare hands, as this would result in residues being burnt in when surface is hot.

Only use 12 V / max. 50 W halogen lamps with axial coiled filament, i.e. with filament lying parallel to the diaphragm slit.

### 6 TECHNICAL SPECIFICATIONS

Operating voltage	12 V
Power consumption	50 W
Current consumption	4.2 A
Dimensions (mm)	122 x 261 x 64
Weight	780 g

### 7 PARTS SUPPLIED

The Lamp (08270.20) contains:

- 1 Lamp
- 1 Screen with 1 and 2 slits (2 mm)
- 1 Screen with 3 and 5 slits (2 mm)
- 1 Halogen filament bulb 12 V / 50 W

### 8 LIST OF EQUIPMENT

Demonstration Board for physics	02150.00
Color filter set, add. color mixt.	09807.00
Color filter set, subtr. col. mixt.	09808.00
Cuvette, magnet held, 230 x 75 mm	08270.08
Plane mirror, magnet held	08270.13
Diaphragm with holder, magnet held	08270.10
Light box 12 V/20 W, with magnet base	09804.00
Model earth/moon, magnet held	08270.07
Opt. block, triangular, magnet held	08270.06
Light guide model, magnet held	08270.11
Opt. block, semicirc., magnet held	08270.01
Opt. block, planoconcave, magn. held	08270.03

Opt. block, planoconvex, magn. held	08270.02
Opt. block, trapeze, magnet held	08270.05
Optical disk, magnet held	08270.09
Concave/convex mirror, magnet held	08270.12
Light box accessories for colour mixing	09806.00

#### Replacement:

Halogen lamp, 12 V / 50 W	08129.06
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#### List of Power Supplies:

Multitap transf., 14 VAC/12 VDC, 5 A	13533.93
Power supply var. 15 VAC/12 VDC/5 A	13530.93
Var. transformer, 25 VAC/20 VDC, 12 A	13531.93
Var. transf. 25 VAC/20 VDC, w. displ.	13532.93
Var. transformer 36 VAC/30 VDC, 18 A	13537.93
Power supply 0 – 12 VDC/6 V, 12 VAC	13505.93
Power supply, universal	13500.93
Power supply, universal, analog display	13501.93
Power supply 0 – 30 VDC/20 A, stabil.	13536.93

### 9 NOTES ON THE GUARANTEE

We guarantee the instrument supplied by us for a period of 24 months within the EU, or for 12 months outside of the EU. Excepted from the guarantee are damages that result from disregarding the Operating Instructions, from improper handling of the instrument or from natural wear.

The manufacturer can only be held responsible for the function and technical safety characteristics of the instrument, when maintenance, repairs and alterations to the instrument are only carried out by the manufacturer or by personnel who have been explicitly authorized by him to do so.

### 10 WASTE DISPOSAL

The packaging consists predominately of environmentally compatible materials that can be passed on for disposal by the local recycling service.



Should you no longer require this product, do not dispose of it with the household refuse.

Please return it to the address below for proper waste disposal.

PHYWE Systeme GmbH & Co. KG  
Abteilung Kundendienst  
Robert-Bosch-Breite 10  
D-37079 Göttingen

Phone +49 (0) 551 604-274  
Fax +49 (0) 551 604-246