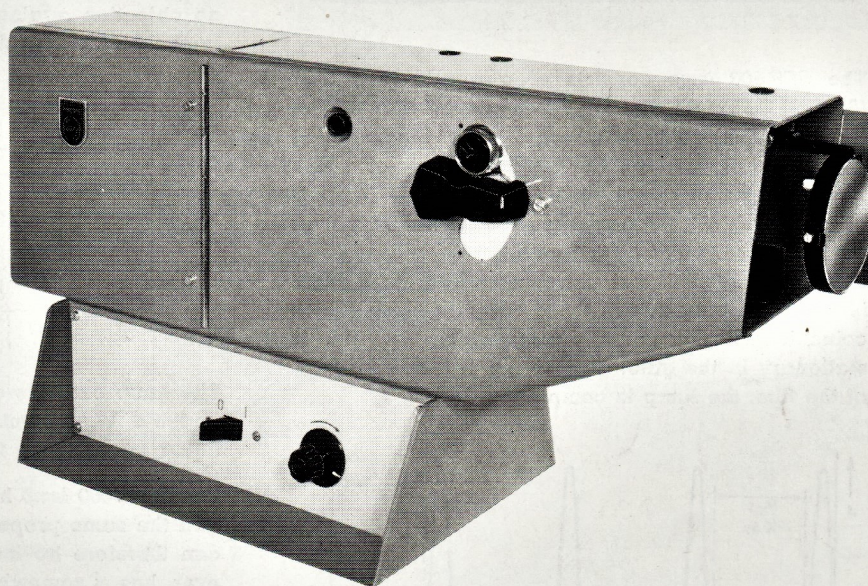


# PHILIPS

## **SPP Lamphouse EL 4465**



This lamphouse has been designed specially for replacement of the arc lamp of older projectors by a pulsed discharge (SPP) lamp, thus modernizing the equipment and providing it with many of the special features of the modern Philips FP 20 S projector, viz.:

- High luminous flux at low power consumption.
- Flicker-free projection.
- No smoke, no dust, no gas development.
- Minimum heating of the film.
- Very simple operation.
- Suitable for remote control and/or automation.
- Low running cost.

Although the lamphouse has been designed originally for replacing the arc lamp of the Philips FP 5, FP 6, FP 7, FP 56 and DP 70 projectors, its dimensions are so small that it can also be adapted easily to many other makes of projectors, matching parts being supplied on request.

*Cinema*

**SPP Lamphouse EL 4465**

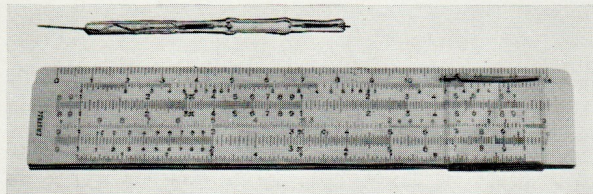
Catalogue sheet A-II-24-E



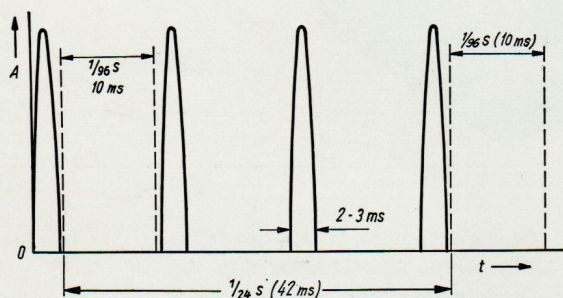


## Pulsed discharge lamps SPP 800 and SPP 1000

The SPP pulsed discharge lamps, specially designed for cinema projection, are very small:



The SPP 800 lamp consists of a quartz tube  $3\frac{1}{8}$ " (80 mm) in length and with a maximum diameter of  $\frac{7}{32}$ " (5.6 mm). The discharge takes place inside a thin capillary tube, the luminous part of which has a length of about  $1\frac{1}{16}$ " (17 mm). The lamp is operated by a pulsating direct current of 72 pulses per second (3 pulses per frame), each with a duration of between 2 and 3 ms (see diagrams). Light is produced only during these current pulses, which coincide with the time during which the film is stationary in the gate. During the pull-down period of the film, the lamp is completely dark.



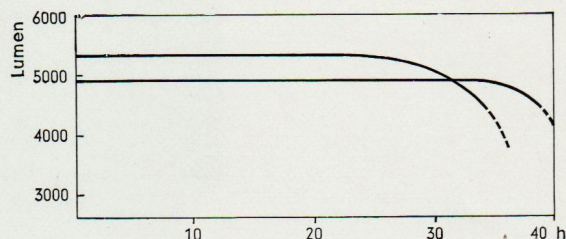
The dark periods are sufficiently long to permit of the use of a normal intermittent system with a 90° Maltese cross. No rotary shutter is required. All the light produced is completely utilised for projection instead of about half of it being lost because of the shutter. The lamp, operated at 800 W, produces the same luminous flux as a H.I.-arc of 60 A.

This lamp at last fulfils the old dream of the cinema technicians, viz. a light source which produces light only while required for actual projection, thus making the "light-devouring" shutter superfluous.

The use of the SPP 800 lamp is completely safe, as the capillary tube has a minute volume (about 3 cub. mm). Under operating conditions, the lamp is surrounded by a flow of cooling water, and when it is not on, the gas pressure is below that of the atmosphere.

In contrast to incandescent lamps or carbon-arc lamps, the light output varies no more than proportionally with the load. Moreover, the film is exposed to less heating, ultra-violet radiation being eliminated by an absorption filter contained in the lamp holder while the infra-red is absorbed by the cooling water.

As the luminous efficiency remains practically constant throughout the life of the lamps (see diagram) and the difference in luminous flux between individual lamps is only a few per cent, there is no objection against employment of an older lamp in one projector and of a new lamp in the other one.



The lamp can operate at any wattage between 600 and 800 W, a continuous control for this purpose being mounted on the lamphouse.

The SPP 1000 lamp has the same outside dimensions and the same properties as type SPP 800; the lamps can therefore be interchanged. The SPP 1000, however, has a somewhat shorter distance between the electrodes and it can be loaded up to 1000 W. For these two reasons its light output is about 50% higher than that of type SPP 800.

The maximum picture dimensions obtainable with the above lamps at a brightness of 140 asb (13 ft-lamberts) on a screen with a gain factor of 1.6 are:

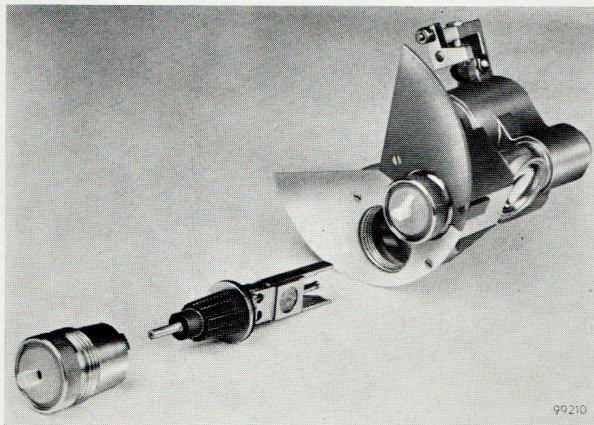
Kind of projection	Lens	SPP 800	SPP 1000
35-mm CinemaScope	f/1.6	10.5 m x 4.5 m 34½' x 15'	13 m x 5.5 m 43' x 18'
	f/2	9.5 m x 4 m 31' x 13'	11.5 m x 5 m 37½' x 16½'
70-mm film	f/2	12 m x 5.5 m 39½' x 18'	15 m x 6.5 m 49' x 21½'

## Construction of the lamphouse

The lamphouse is equipped with a turret fitted with two lamps. Normally, the lower lamp is in operation. If it breaks down, the turret pivots *automatically* and the upper lamp takes the place of the lower one with practically no delay. The defective lamp



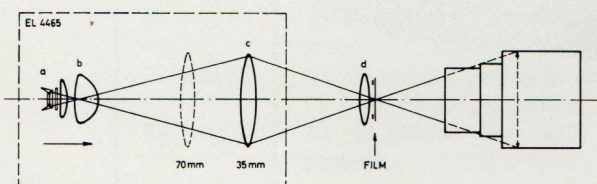
can be replaced, and the turret turned up again, during the performance, thus re-establishing the automatic stand-by for the lamp in operation.



The lamphouse is equipped with an automatic water-flow relay and a magnetic water lock. The former prevents the lamp from being switched on when the water supply is insufficient, the latter closes the water circuit when the lamp is not in use, thus avoiding needless water consumption.

The water-cooling circuit of the lamp can be connected directly to the local water mains; the consumption is 5 litres (about 1.1 Imp. gallons) per minute. If the water pressure fluctuates greatly or if the water contains too many impurities, a closed cooling system with adequate pump and tank can be used.

### Optical system



The cylindrical mirror "a" and the aspherical lens "b" form an image of the lamp in the field lens "c", which in its turn forms an image of the lighted lens "b" on the film. The condenser lens "d" in the gate aperture of the projector focuses the light on the projection lens "e".

### Pulse generator

The pulse generator consists of a disc, with three equally spaced slots in its rim, and a coil with magnetic core. The disc has to be mounted on the shutter shaft of the projector instead of the two-blade shutter with a speed of 1440 r.p.m., which for the SPP lamp is superfluous.

Each slot when passing the coil produces a voltage pulse which controls the current pulses for the lamp. As the position of the slotted disc with respect to the intermittent sprocket is fixed, perfect synchronism between the light pulses and the intermittent movement of the film is guaranteed.

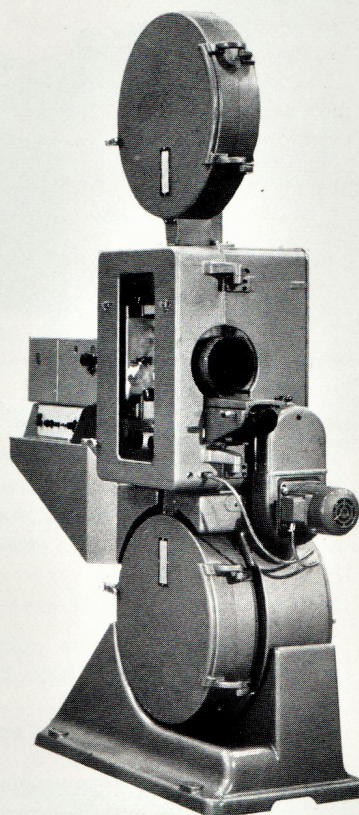
The slotted disc, the pulse coil, and the aperture condenser ("d") are supplied with the lamphouse.

### Slide attachment

The lamphouse can be equipped with a device for projecting lantern slides of  $3\frac{1}{4}'' \times 4''$  (83 x 100 mm) or of  $3\frac{1}{4}'' \times 3\frac{1}{4}''$  (83 x 83 mm). The light is supplied by the same lamp as for film projection. For deflecting the light on to the slide attachment a mirror system is inserted into the light beam.

### Special model for DP 70 projector

Thanks to the complete freedom from flicker and the perfectly uniform light distribution, the SPP lamp is ideal for the projection of 70-mm film in smaller theatres. With the SPP-lamphouse for use on the DP 70 projector, a special support for replacement of the heavy mounting table of the arc lamp is supplied, as well as the pulse generator; the type number of the entity is EL 4465/70.

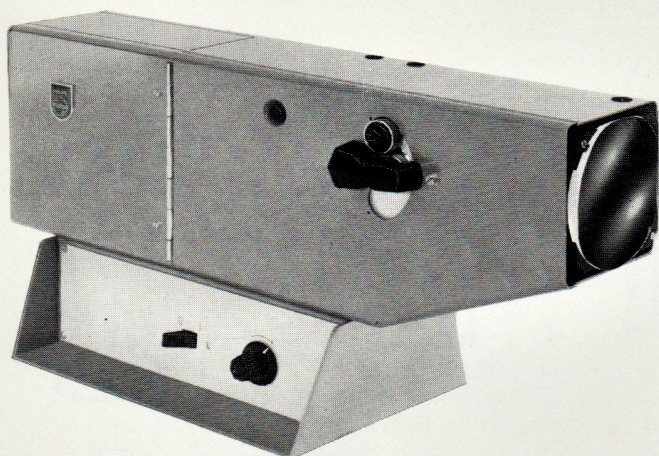




By means of a small handle, the field lens of the lamphouse can be placed in the position for 35-mm or for 70-mm film, as required.

As the DP 70 projector has a single-blade shutter which rotates at a speed of 2880 r.p.m., the slotted disc of the pulse generator is not mounted on the shutter shaft but on the flywheel of the intermittent unit.

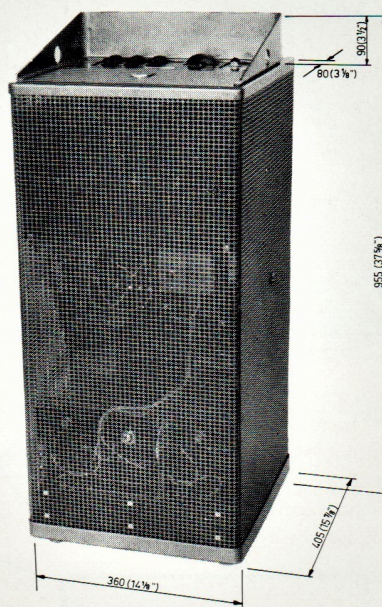
### **Special model, exclusively for slide projection**



This SPP-lamphouse (No. 101 508) is equipped with a special condenser system for the projection of slides of  $3\frac{1}{4}'' \times 3\frac{1}{4}''$  (83 x 83 mm), as used, for example, for publicity and for background projection. Maximum brightness is obtained with a Philips type

DSK projection lens,  $f/2$ , focal length 125 mm, designed specially for this purpose.

### **Pulsator**



One pulsator per lamphouse is used for the power supply of the projection lamp. Like the customary rectifier, it may be installed in an adjoining room. The consumption of the lamp is adjustable by means of a control on the lamphouse.

### **Accessories**

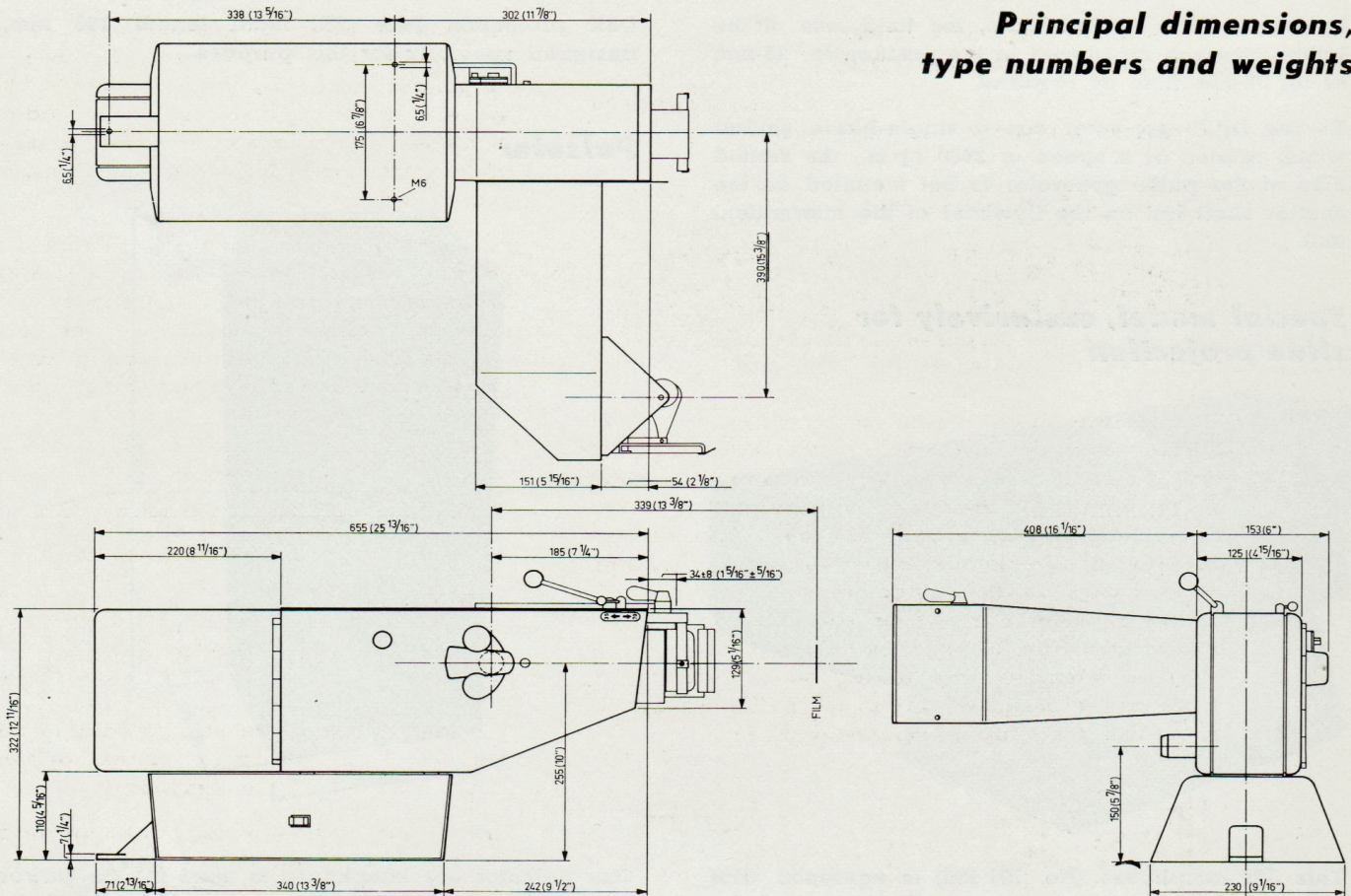
Type	Description
EL 4209/20 EL 4209/70	Change-over device for lamphouse EL 4465/56 *) Change-over device for lamphouse EL 4465/70 **)
EL 4217/00 EL 4217/01	Motor relay for remote control and/or automatic change-over with lamphouses EL 4465/56 As EL 4217/00, but for lamphouses EL 4465/70
EL 4226/00	"Hicor" filter in holder
EL 4819/01 EL 4821/01	Set of spare parts for type EL 4465 lamphouses Set of tools for type EL 4465 lamphouses

\*) EL 4465/56 = SPP-lamphouse for use on the FP 5, FP 6, FP 7 and FP 56 projectors

\*\*) EL 4465/70 = SPP-lamphouse for use on the DP 70 projector

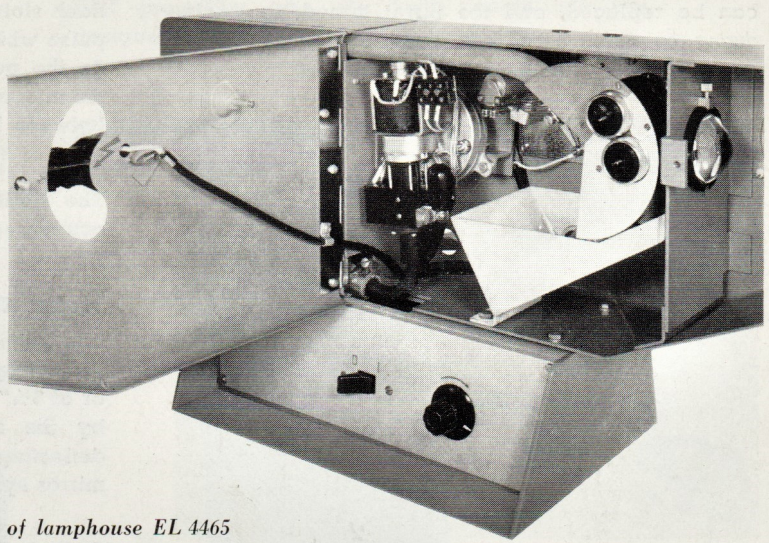


**Principal dimensions,  
type numbers and weights**

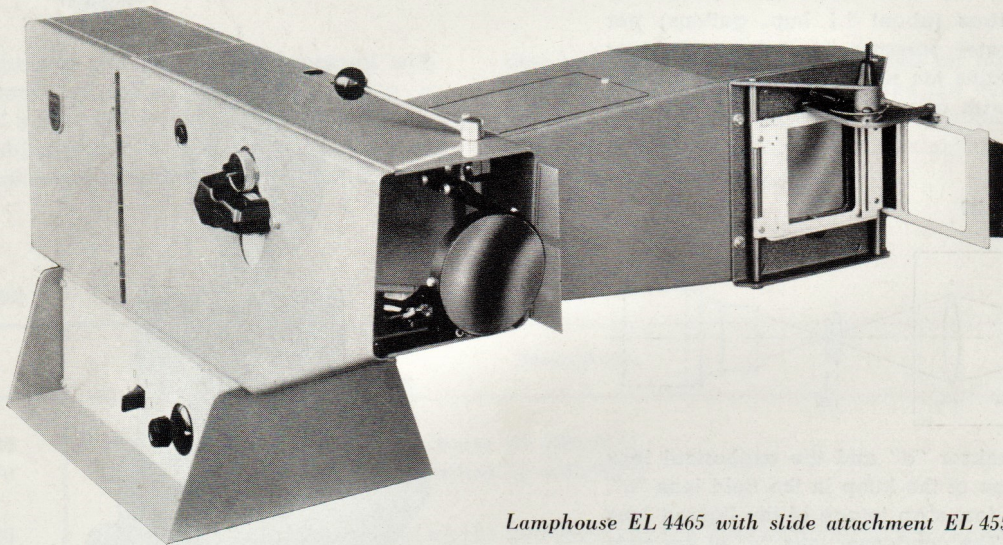


Type	Description	Net weight			Gross weight		
		kg	lb	oz	kg	lb	oz
EL 4465/03	SPP-lamphouse without parts for matching to the projector .....	21.5	47	7	35	77	—
EL 4465/56	As EL 4465/03, but with matching parts for the FP 5, FP 6, FP 7 or FP 56 projectors .....	22	48	8	35	77	—
EL 4465/70	As EL 4465/03, but with matching parts for the DP 70 projector .....	32	70	—	51	112	7
101 508	SPP-lamphouse exclusively for slide projection .....	20	44	2	47	103	10
EL 4550/05	Slide device without lens holder for lamphouse EL 4465/56 (centre distance film-slide: 13 3/8" = 340 mm) .....	6	13	4	8.5	18	13
EL 4550/06	Slide device without lens holder for lamphouse EL 4465/70 (centre distance film-slide: 15 3/8" = 390 mm) .....	6	13	4	8.5	18	13
EL 4550/15	As EL 4550/05, but with lens holder unit .....	6.5	14	5	9	20	—
EL 4550/16	As EL 4550/06, but with lens holder unit .....	6.5	14	5	9	20	—
EL 5207/01	Pulsator for the supply of one SPP lamp, suitable for connection to 3 x 190 - 3 x 220 - 3 x 230 - 3 x 330 - 3 x 380 - 3 x 400 V, 50 c/s mains .....	133	294	7	183	403	8
EL 5207/11	As EL 5207/01, but suitable for 60 c/s mains .....	133	294	7	183	403	8
EL 5252/00	Change-over switch for two pulsators .....	1.5	3	5	2.5	5	8
EL 5252/10	As EL 5252/00, but in box .....	6	13	4	8	17	10





*Interior view of lamphouse EL 4465*



*Lamphouse EL 4465 with slide attachment EL 4550*

**Data subject to change without notice**

