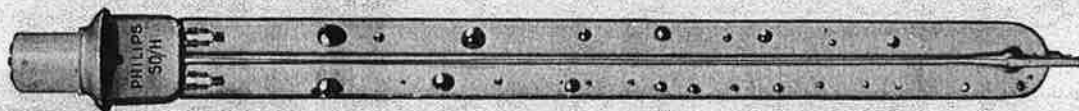
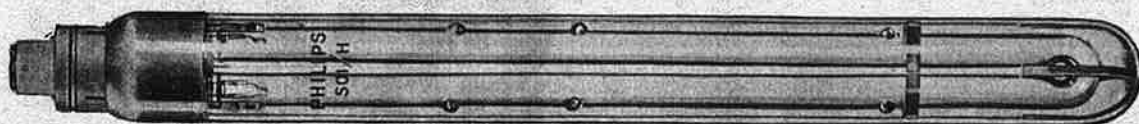


PHILIPS

SODIUM LAMPS



THE first street lighting installation in Great Britain to use sodium lamps, was lit in December, 1932. The lamps used in that historic moment were made by Philips. Since then, Philips have made and supplied more sodium lamps than all other manufacturers in the world taken together. It is thus easy to see why the name of Philips is synonymous with sodium lighting.

These lamps when used on the highway, mean safe, economically lit roads. The efficiency of these amber sources is some five times that of ordinary lamps of equivalent ratings, and their long life and excellent light maintenance complete the trio of economy.

Their monochromatic output makes driving easy—even under bad conditions e.g. fog and rain. By their use, contrast and visual acuity are much enhanced; these facts make them the most popular light sources for all road-users, and in particular for motorists.

Sodium lamps are not only used for street lighting! Wherever high efficiency and economy are required without colour discrimination these sources are to be recommended.

Philips leadership in sodium lamp production and development has led to the types currently available described in this leaflet, including the world's most efficient lamps. All these lamps are now fitted with yet another exclusive Philips development—triple coil electrodes for even greater reliability, longer life and reduced depreciation.

1932

1960



SO/H LAMPS

These consist of a U shaped discharge tube filled with rare gases at low pressure, and containing a fixed quantity of sodium. In use the lamps burn red after first switching on, but as the sodium vapourises the familiar amber colour appears.

For this to occur with maximum efficiency, a high operating temperature is necessary—around 280° C. This is achieved by using a double walled vacuum jacket which is detachable. This jacket will last for some 4-6 'inners'; when it needs replacing the lamp will 'burn red' and fail to run up to full output.

The 'Bamboo' 140w lamp with reticulations is ideal where burning cap down to a maximum of 20° is likely.

SOI/H LAMPS

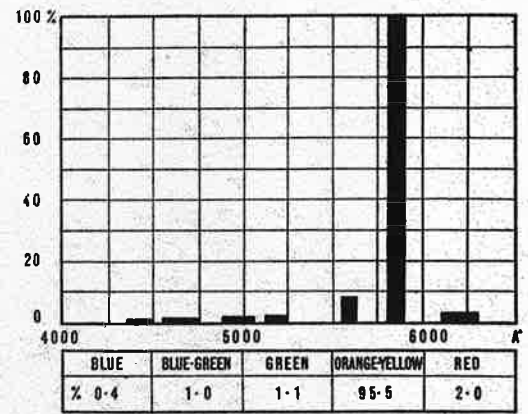
This class, having integral jackets, provide greater reliability where atmospheric conditions are bad. They have a special 'dimple' construction ensuring optimum performance during their long trouble-free life.

This new range from 45w to 200w gives increases in efficiency from 25% (140w) to 40% (45w). Non-staining glass and sodium retention by the 'dimples' ensure only a maximum 12% fall in output during 4,000 hours.

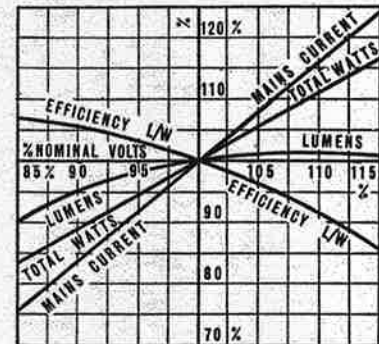
The 200w is the first standard lamp in the world to achieve 20,000 Lumens Average Through Life, and this range is the most efficient in the world.

SOI/H 280W

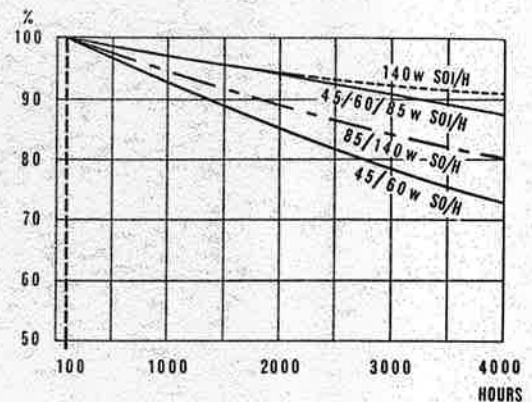
This incorporates two 'dimpled' discharge tubes. The resultant high light output makes this rating suitable for the higher illumination levels now required. It operates on two 140w ballasts.



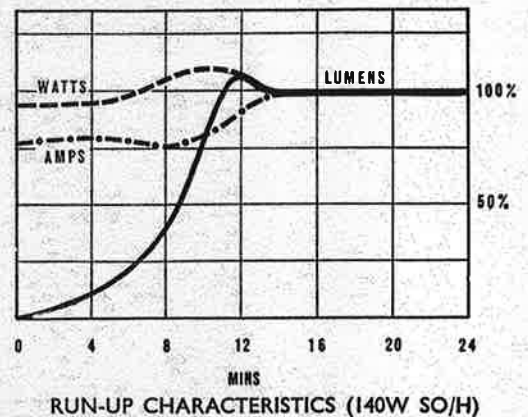
RELATIVE SPECTRAL LIGHT DISTRIBUTION



EFFECT OF MAINS VOLTAGE FLUCTUATIONS

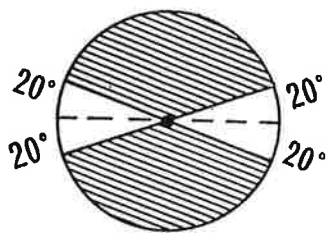


LIGHT DEPRECIATION THROUGH LIFE

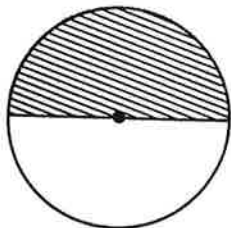


RUN-UP CHARACTERISTICS (140W SOI/H)

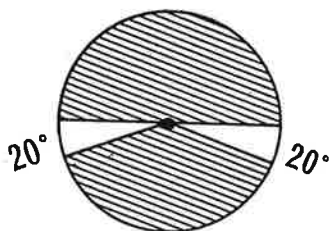
Burning Position



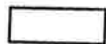
SOI/H 85, 140 & 200w
SOI/H 140w "BAMBOO"
SOI/H 280w



SOI/H 45 and 60w



SOI/H 85 and 140w



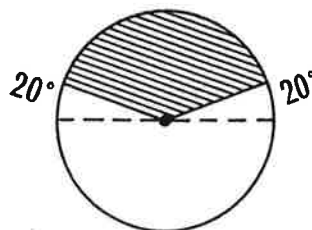
PERMISSIBLE



NOT PERMISSIBLE

The burning position of sodium lamps is important, for it influences their life. In the diagrams the centre of the circles represents the lamp cap.

The permissible angle includes any vibrational movement.

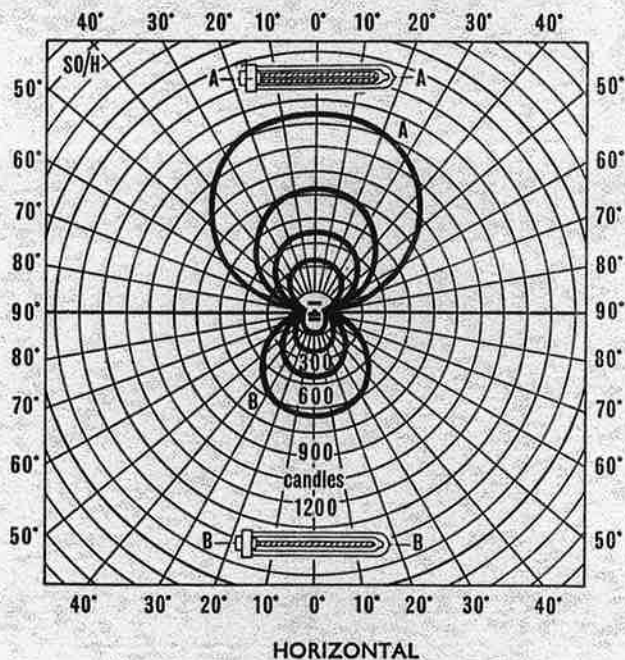
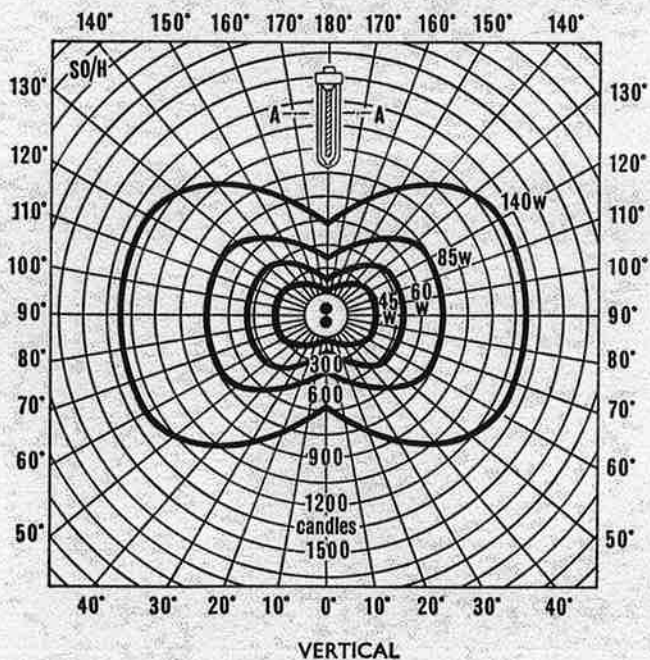


SOI/H 45 and 60w

Reignition

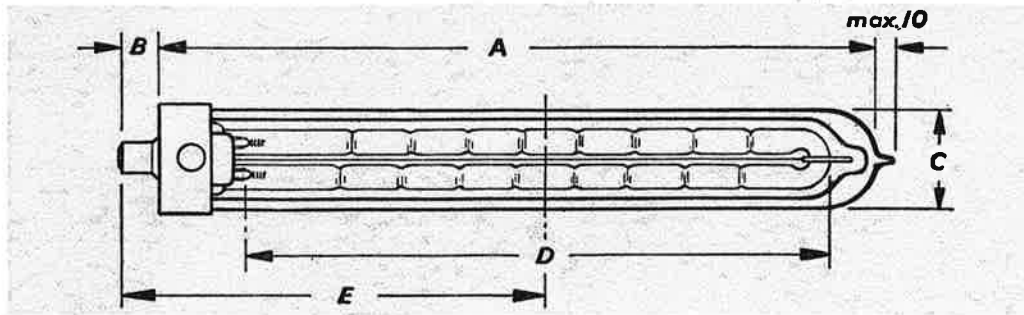
A useful property of sodium vapour lamps is that they reignite immediately after a voltage interruption. This is particularly valuable for industrial installations where heavy voltage drops occur.

POLAR DISTRIBUTION CURVES



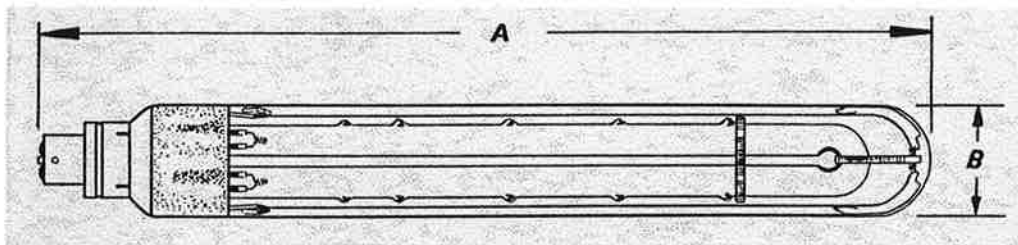
DIMENSIONS

SO/H

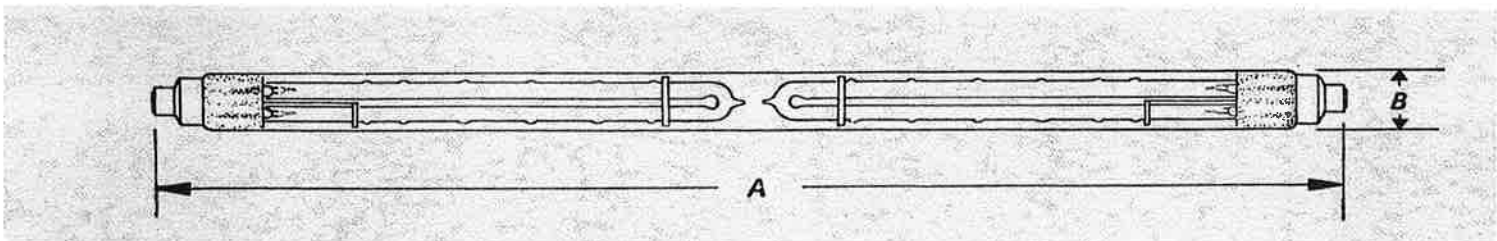


LAMP RATING		45W	60W	85W	140W
DIMENSION 'A'	mm.	205±2	267±2	382±2	486±2
'B'	mm.	30	30	30	24
'C'	mm.	50	50	50	65
'D'	mm.	130	189	305	400
'E'	mm.	135	170	230	280

SOI/H



LAMP RATING		45W	60W	85W	140W	200W
DIMENSION 'A'	MAX. mm.	257	319	424	525	785
'B'	MAX. mm.	52	52	52	62	62



LAMP RATING		280W
DIMENSION 'A'	mm.	943
'B'	mm.	50

LAMP TYPE		SO/H	SO/H	SO/H	SO/H		
LAMP RATING	W	45	60	85	140		
LAMP CURRENT	A	0.6	0.6	0.6	0.9		
LAMP VOLTAGE	V	80	110	165	165		
TOTAL POWER INCLUDING BALLAST	W	65	80	105	165		
NOMINAL INITIAL LUMENS	lm	2610	4020	6200	10250		
AVERAGE THRO' LIFE	lm	2250	3420	5525	9100		
RUN-UP TIME TO 80% OUTPUT	Mins.	5	6	10	10		
LUMINANCE	Sb	10	10	10	10		
LIFE	Hrs.	4000	4000	4000	4000		
LAMP CAP		B.C.	B.C.	B.C.	B.C.		
	LIST PRICE	£2 0 0	£2 5 0	£3 0 0	£3 5 0		
VACUUM JACKETS	LIST PRICE	£1 1 9	£1 4 6	£1 9 3	£1 13 0		
LAMP TYPE		SOI/H	SOI/H	SOI/H	SOI/H	*SOI/H	SOI/H
LAMP RATING	W	45	60	85	140	200	280
ALL ELECTRICAL DATA AS SO/H. 280W LAMP REQUIRES 2 SETS OF 140W GEAR							
NOMINAL INITIAL LUMENS	lm	3300	4900	7900	13000	21500	25200
AVERAGE THRO' LIFE	lm	3100	4700	7400	12200	20000	22400
	LIST PRICE	£2 17 0	£3 2 6	£3 16 0	£3 19 0	£5 10 0	£7 18 0

*200w SOI/H
Lamp Voltage 240v
Lamp Current 0.9A

All discharge lamps must be operated with current limiting devices in circuit. Philips leak-transformers for sodium lamps are given below. The 'Polyester Filled' L 4045 and L4200 are now available and this technique will soon be applied to the 140w ballast.

All inductive circuits have a low power factor. This can be raised and

the running costs of the lamps and cable costs reduced by using the appropriate power factor correction capacitor.

Ballasts and capacitors below are for 50c/s 200/250v. Details on request of units for other supplies.

LAMP RATING		45w, 60w and 85w	140w	200w
BALLAST CAT. No.		L 4045	L 3637	L 3644
BALLAST TYPE OR FILLING		Polyester	Protected	Bitumen
BALLAST LENGTH	ins.	7 $\frac{5}{8}$	8	8 $\frac{1}{8}$
BREADTH	ins.	3 $\frac{3}{8}$	4 $\frac{1}{8}$	4 $\frac{3}{8}$
DEPTH	ins.	3 $\frac{3}{8}$	5	4 $\frac{7}{8}$
WEIGHT	lbs.	9 $\frac{1}{2}$	14 $\frac{1}{2}$	16 $\frac{1}{2}$
VOLTAGE RANGE	v.	200/250	200/250	190/260
	LIST PRICE	£6 1 0	£6 6 8	£7 3 0
POWER FACTOR CORRECTION CAPACITOR		L 4592 or L 4593	Use	L 4594
CAPACITOR LENGTH	ins.	3 $\frac{3}{8}$	L 4592	5 $\frac{5}{8}$
BREADTH	ins.	2 $\frac{1}{8}$	for 60w	2 $\frac{1}{8}$
DEPTH	ins.	3 $\frac{1}{8}$	and 85w	3 $\frac{1}{8}$
			only	
	LIST PRICE	£1 13 0	£1 16 8	£2 1 0
280w SOI/H REQUIRES 2 SETS OF STANDARD 140w BALLASTS AND CAPACITORS				

SOI/H Lamps Made in Holland



PHILIPS ELECTRICAL LTD

Lamp & Lighting Group, Century House, Shaftesbury Avenue, London, W.C.2

PL 5743/1 7/60