

**PHILIPS SODIUM LAMPS**

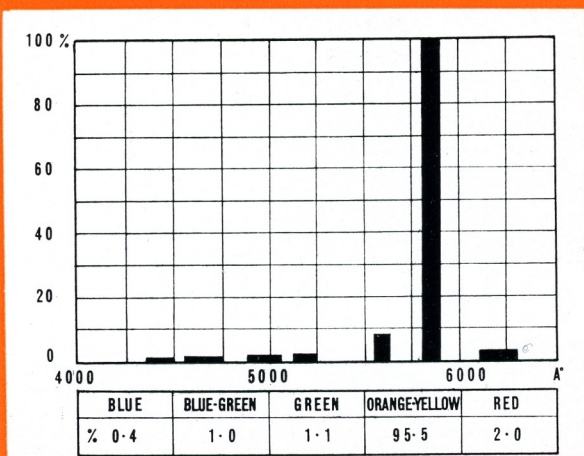
# SODIUM LAMPS

In December, 1932, the first street lighting installation using sodium lamps in Great Britain was put into operation at Purley Way, Croydon. For this memorable occasion Philips sodium lamps were used. Since then, Philips output of sodium lamps has been greater than the total production of all other manufacturers—an achievement which links the name Philips with sodium lamps throughout the world.

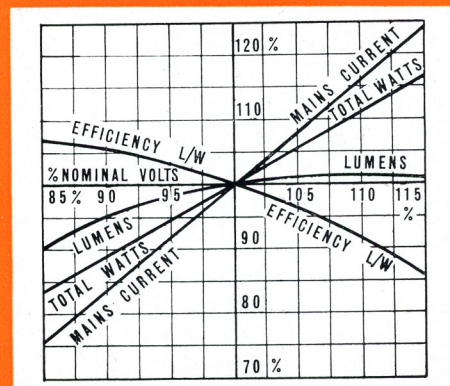
Sodium lamps consist of a U-shaped discharge tube filled with gases at low pressure and containing a quantity of sodium. The lamps burn red after switching on but as the sodium vaporizes the familiar amber colour appears. Sodium lamps are not only used for street lighting. Wherever high efficiency and economy are required without colour discrimination these sources are to be recommended.

The monochromatic output greatly improves contrast and visibility, even in bad conditions such as fog and rain, making sodium the most popular lighting for all road users—particularly motorists. All Philips sodium lamps are now fitted with *triple* coil electrodes for even greater reliability, longer life and reduced depreciation.

Philips leadership in sodium lamp developments has led to the production of the world's most efficient lamps. The types currently available are described in this leaflet.



RELATIVE SPECTRAL LIGHT DISTRIBUTION



EFFECT OF MAINS VOLTAGE FLUCTUATIONS

## CONSTRUCTION

Sodium lamps operate most satisfactorily when the lamp temperature approaches 280°C. This is achieved in SO/H lamps by using a separate double-walled vacuum jacket to retain the heat whilst a special infra-red reflecting inner sleeve is used in the SOI/H Integral lamps. These also use special non-staining borate coated glass with 'dimples' to retain the sodium. All lamps have BC caps and are fitted with special *triple*-coiled electrodes ensuring long life.

## STARTING

Run-up time (as shown in figure 3) to 80% of full light output varies between five and ten minutes (see data on back page). During starting the current is below that of the running condition. These lamps re-ignite immediately after a supply interruption and require no cooling time.

## VOLTAGE

Philips sodium discharge lamps are not voltage graded. The auxiliary ballast determines the suitability for the supply voltage.

## BURNING POSITION

The burning position influences the life of a sodium discharge lamp. The permissible angle (including any vibratory movement) is as follows:

SOI/H 45 & 60w. from 20° above horizontal (cap down) to vertical (cap up)

85, 140 & 200 w. from horizontal to 20° cap up or down

SO/H 45 & 60w. horizontal to vertical (cap up)

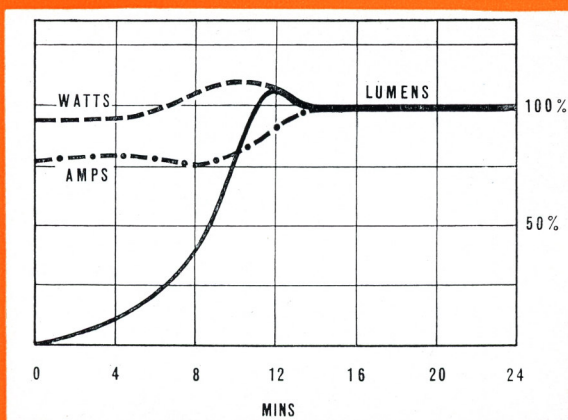
85 & 140w. horizontal to 20° below horizontal (cap up)

## LUMEN DEPRECIATION

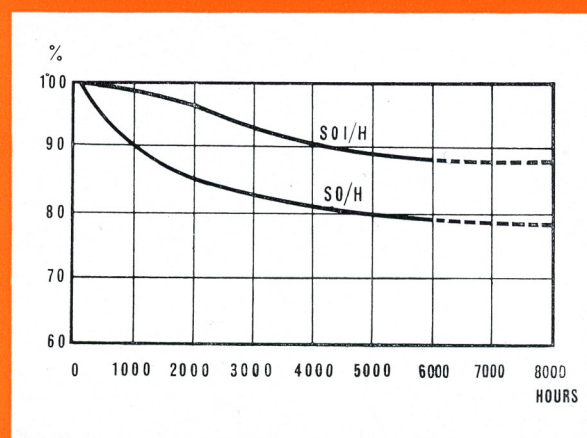
The graph in figure 4 shows the average depreciation in lumen output against lamp life. For lighting design purposes the average through life value shown overleaf is normally used.

## LIFE

All Philips sodium lamps are guaranteed for 4000 hours and have an average life of 6000 hours.



RUN-UP CHARACTERISTICS

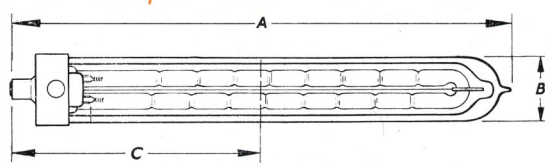
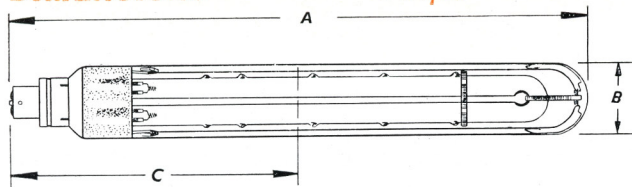


LIGHT DEPRECIATION THROUGH LIFE

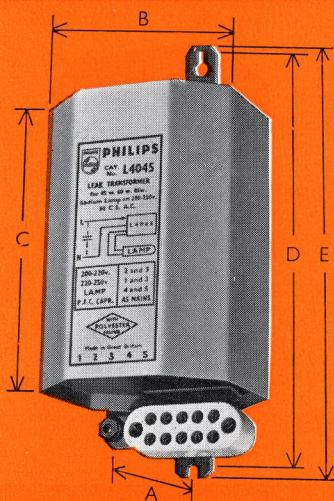
## DIMENSIONS

## SOI/H

## SO/H

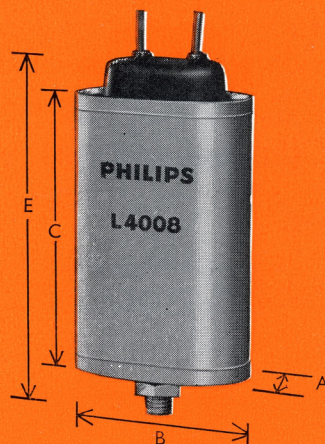


Rating	W	45	60	85	140	⊙200
Dimensions (mm)	A	238	300	415	518	—
SO/H ..	B	50	50	50	65	—
	C	140	170	230	280	—
	A	257	310	424	525	785
SOI/H ..	B	52	52	52	61	61
	C	160	190	240	290	420
	Lamp current	A	0.6	0.6	0.6	0.9
Lamp voltage	V	80	110	165	165	240
Luminance	Sb	10	10	10	10	10
Run up time to 80% output	Mins	5	6	10	10	10
Nominal initial lumens ..	SO/H	2610	4020	6200	10250	—
	SOI/H	3300	4900	7900	13000	21500
Average through life lumens .. ..	SO/H	2250	3420	5525	9100	—
	SOI/H	3100	4700	7400	12200	20000
List price .. ..	SO/H	£2. 0. 0	£2. 5. 0	£3. 0. 0	£3. 5. 0	—
	vacuum jacket	£1. 1. 9	£1. 4. 6	£1. 9. 3	£1.13. 0	—
	SOI/H	£2.19. 0	£3. 6. 0	£4. 2. 0	£4. 9. 0	£6. 0. 0



All discharge lamps must be operated with a current limiting device in circuit. Philips "Polyester Filled" ballasts are listed below.

**BALLAST**



The power factor can be raised (and the running and cable costs reduced) by using the appropriate power factor correction capacitor.

**CAPACITOR**

Lamp rating ... ..	W	45	60	85	140	200	
Ballast catalogue no. ...	A	L. 4045 92	L. 4045 92	L. 4045 92	L. 4140 112	L. 4200 116	
	B	90	90	90	110	110	
Dimensions (mm) ... ..	C	125	125	125	165	235	
	D	171	171	171	212	281	
	E	183	183	183	224	293	
	Weight ... ..	lbs.	10	10	10	17½	20
	Voltage range ... ..	v.	200/250	200/250	200/250	190/260	190/260
List price ... ..		£6 .1 .0	£6 .1 .0	£6 .1 .0	£7 .3 .0	£9.18. 0	
Capacitor cat. no. ‡ Ø ...		⊙L.4018	⊙L. 4015	⊙L. 4013	⊙L. 4020	Not required (included in H.P.F. Ballast)	
Dimension (mm) ... ..	A	57	57	38	57		
	B	75	75	55	75		
	C	86	71	124	99		
	E	151	151	149	151		

⊙ Made in Holland

‡ Prices on application

Ø Giving correction to > 0.8

**PHILIPS ELECTRICAL LIMITED** Lamp and Lighting Group  
 Century House · Shaftesbury Avenue · London, W.C.2. PL6830/1