lampcatalogue

PHILIPS

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LAMPCATALOGUE

1955


PHILIPS
PHILIPS LAMPEN

FOREWORD

This catalogue has been compiled to show buyers and sellers of lighting equipment the range of lamps produced by the Philips Works throughout the world.

It has proved impossible to incorporate all lamp types, for to describe the innumerable quantity of types regularly in production would result in a clumsy and mammoth edition.
Therefore it only describes the more popular types in a brief manner and it is meant to serve as a guide which can be of great help in determining the lamp that can best be used for a specific application.
In those cases where more extensive information on the lamp types presented is desired and when a certain required type can not be found in the catalogue it is advisable to apply to the nearest Philips branch or agent.
In order to avoid errors due to price alterations, no prices have been indicated. Philips branches, dealers and agents have the latest price lists at their disposal.

The photograph on the opposite page shows part of the Philips Works as they are today. It started back in 1891 in a village of only 5000 inhabitants, amidst unpaved and unlit streets. In the beginning the problems and difficulties seemed almost insurmountable. Now, 64 years later, it has grown to a concern employing over 120,000 people with affiliated companies, branches and agents all over the world.

Any indoor or outdoor lighting requirement can be met by Philips dependable light sources, whether they are incandescent, fluorescent, sodium or mercury types. Apply for further lighting advice to the nearest Philips Lighting Service Bureaux.

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INCANDESCENT LAMPS — A1-A56

General lighting service lamps – K lamps – Candle and lustre lamps – Daylight blue lamps – Decorative lamps – Mirrored lamps – Train, tram, boat and current-indicator lamps – Miniature lamps – Aeroplane interior lamps – Motorcar lamps – Projection lamps – Filmstudio lamps – Floodlighting lamps – Narrow gauge projection lamps – Microprojection lamps – Sound film exciter lamps – Lighthouse and beacon lamps – Aerodrome lamps – Flashbulbs – Photo lamps
Also incorporated in this group: Neon glow lamps and Infrared lamps

GAS-DISCHARGE LAMPS — B1-B20

Fluorescent mercury lamps – Mercury lamps – Blended light lamps – Sodium lamps – Water- and air-cooled mercury lamps – Lightprinting lamps – Blue actinic fluorescent lamps – Repro lamps – Blacklight lamps – Germicidal lamps – Spectral lamps – Neon tubes – Capacitors etc.

FLUORESCENT LAMPS

Standard "TL" fluorescent lamps – Circular fluorescent lamps "TL"E – Direct start fluorescent lamps "TL"M – Fluorescent lamps for DC mains and heavily fluctuating AC mains "TL"C – Instant self-starting fluorescent lamps "TL"S – Instant self-starting fluorescent lamps "TL"X – Instant self-starting fluorescent lamps "TL"R – Canned ballasts etc. — C1-C20

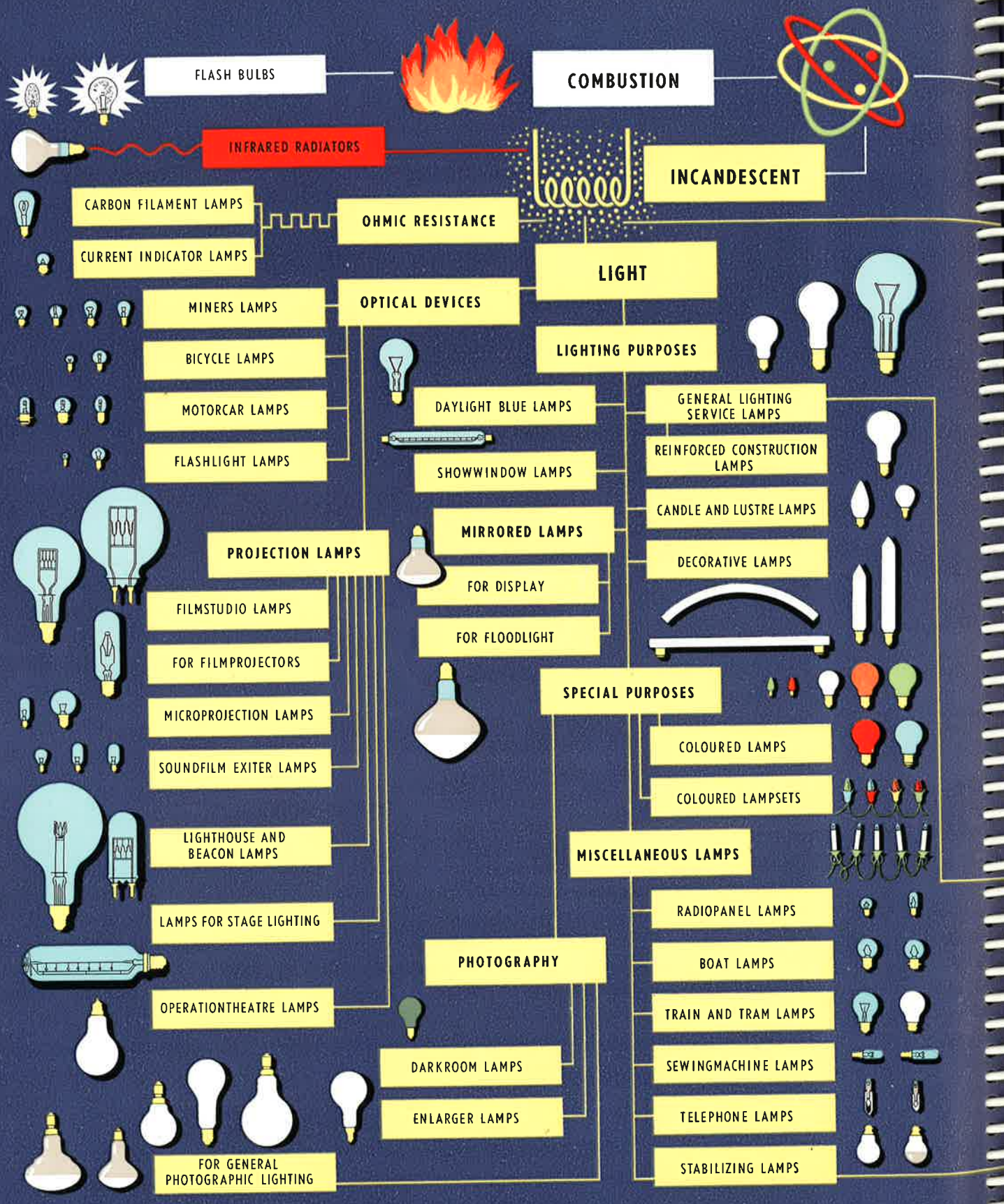
FITTINGS

For mirrored lamps – For bowl reflector lamps – For industrial lighting with incandescent, discharge or fluorescent lamps – For outdoorlighting with incandescent, sodium, mercury, fluorescent mercury or fluorescent lamps – For residential lighting with fluorescent lamps – Mounting channels for fluorescent lamps – Fittings for fluorescent lamps combined with stabilizing lamps – Mounting unit for circular fluorescent lamps — D1-D17

Furthermore small apparatus as: Ozonizer, "Troublelite", Tension indicators — E1-E3

NOTE

The lamps are mostly shown on approximately one-fourth of the actual size except for miniature lamps which are one-half and fluorescent lamps which are one-eight of the actual size.
The coloured lamps etc. are shown in colours as close to the actual as possible.
Dimensions are given in mm; for conversion into inches see page F 3.

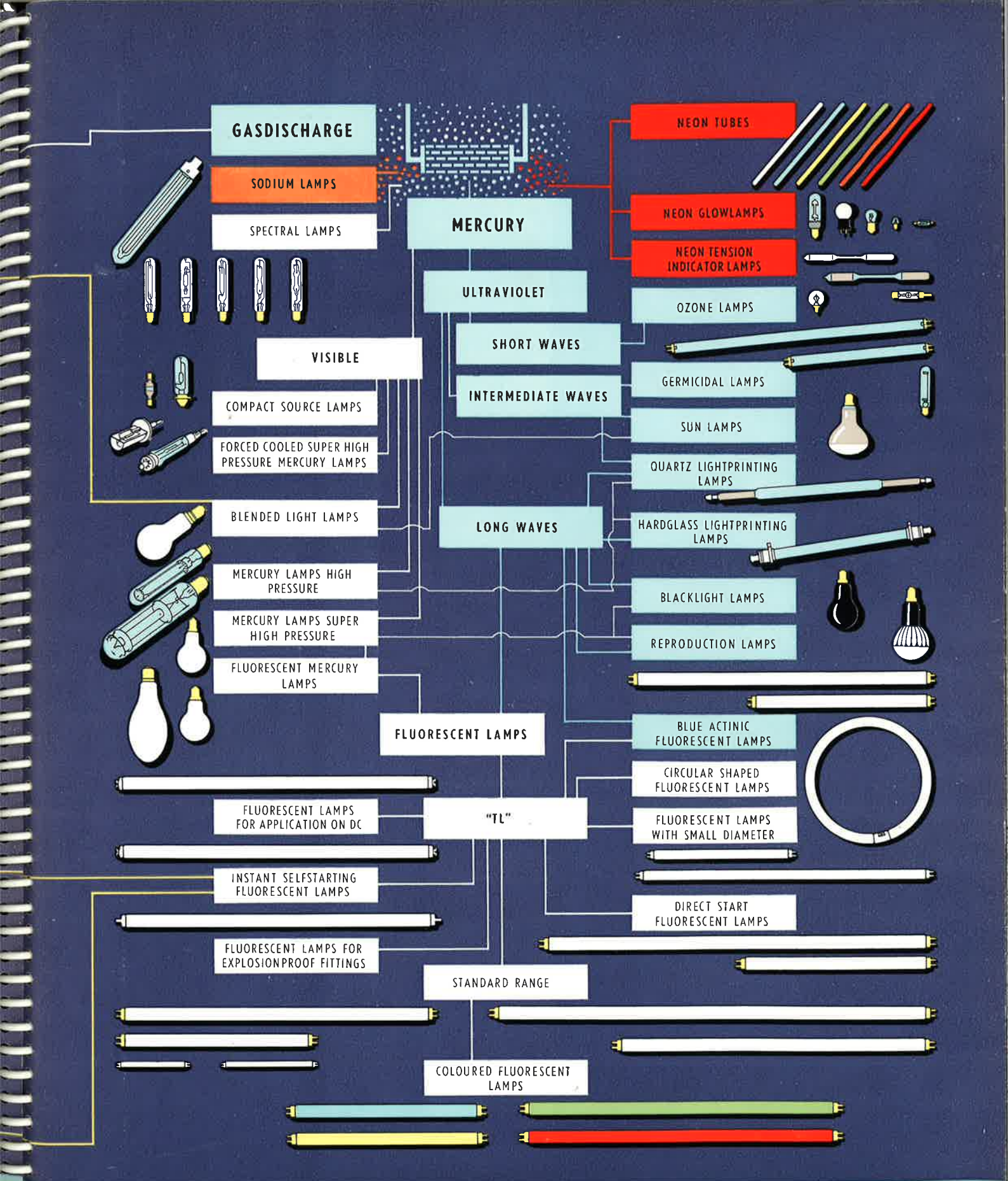


RELATIONSHIP IN THE ELECTRIC LAMP FAMILY

This chart gives an idea of the development of light sources since the first electric lamp came into being, and expresses the relation between the different lamp types. Three basic types from which all lamp types are derived are known:

1) Incandescent
2) Gas-discharge
3) Combustion .

The first attempts to produce an electric lamp date back to 1838 but it took until 1879 to invent a lamp that had a useful form and could be manufactured on a large scale.



This lamp was equipped with a carbon filament wire.
Extensive research was then begun to simplify lamp manufacture, and to increase the light output of the incandescent lamp. So, gradually, the tungsten filament was developed, which in the beginning was a straight wire (wire length of a 15 W lamp 750 mm), later on a single coil (1913), and still later on a coiled coil (1933). These developments premitted the manufacture of various types of incandescent lamps.
With the introduction of photo lamps the need was felt to produce a light source which would give the highest possible light output in the minimum time. And so, the "combustion" type was developed. The short filament wire is used to ignite the metal wire — inserted in the lamp — which produces the desired light.
The development of gas-discharge lamps started in 1934 with the introduction of the sodium lamp. Up to now a great number of different types has been developed, but the possibilities are still far from being exhausted. From the above it will be clear that the chart given can only indicate the situation as of today. All lamps represented are incorporated in this catalogue.

So many men...

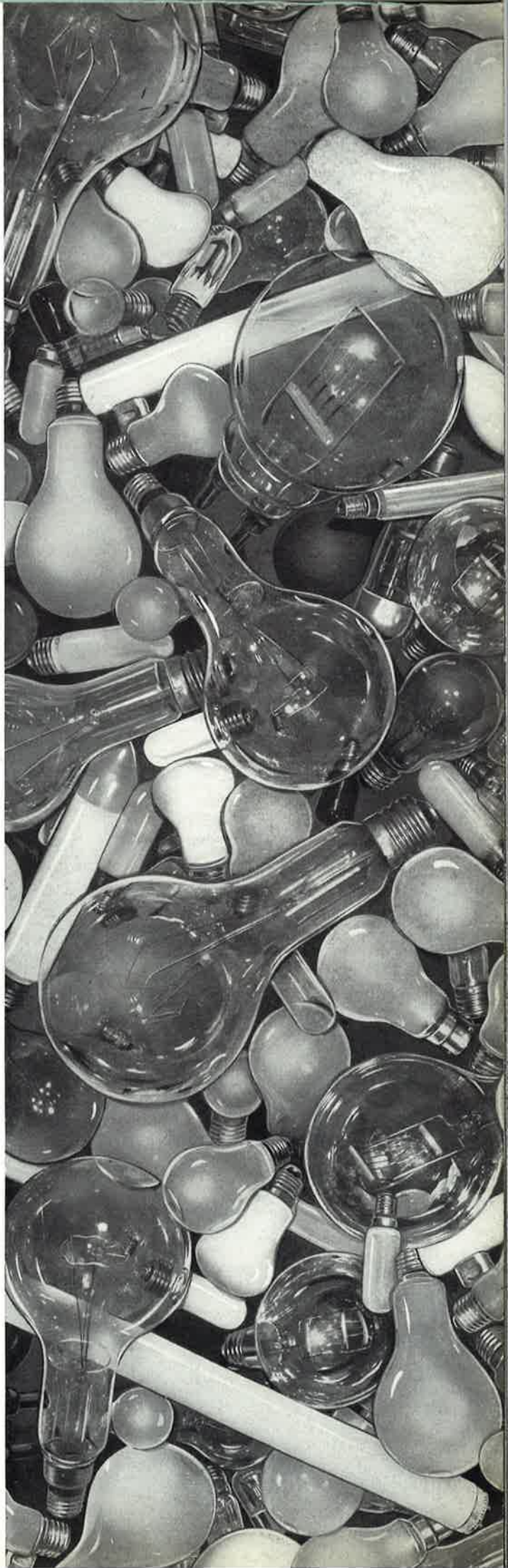
When Thomas Alva Edison in October 1879 made the first incandescent lamp nobody ever dreamt of the fantastic developments artificial light would go through in the years to come. For ages and ages mankind had been searching for a light source which would lengthen the days and shorten the dark hours of the night during which man was doomed to lie down and wait for the sun to rise. Now, looking back upon these times we dare say that the invention of the electric lamp changed the face of the world.

But only the genius of a few gave a push to this change and rang the bells for a century, the first half of which saw more happen than man will ever be able to comprehend. Among those leading the world in technical developments we find two men, named Gerard and Anton Philips, who started, back in 1891, with the manufacture of incandescent lamps in a small village in the South East of the Netherlands. It was there that the first attempt to produce a lamp which would bring light into the lives of the masses, was made. That was the sole desire of these two men who gave everything within the limits of their intelligence and energy to attain their goal. Their greatest merit was their success and to day the concern that bears their name can testify that from Manilla to Mexico and from Narvik to Wellington Philips lamps are performing

So many lamps!

their duty: to light the entire world. Since the beginning, Philips have supplied over 4 milliard (4.000.000.000) lamps to all parts of the world. This quantity even outnumbers the total world population.

However, more important is the fact that since the development of the first incandescent lamp an ever growing stream of new lamp types have left the factories. The extensive scientific research partly led by the desires and requirements of the users but mainly led by the inventive minds of scientists and technicians is responsible for these new lamp types which all have been designed for specific applications. Now a stage has been reached from which can be said that for any application there is a special lamp type available, which can be found in the Philips commercial range which consists of over 40.000 different lamp types.
Any man, no matter where his work leads him, will encounter some typical light application which belongs to the work to be done. For example, an aircraft pilot relies on the indicator lamps on the instrument panel and on the lamps marking the runway on which he has to land his plane; a miner depends on the mine lamps without which he cannot possibly do his work; a professional photographer relies on dark roomlamps when developing his films etc. etc.



INCANDESCENT LAMPS

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The splendour and importance of artificial light can clearly be seen from this aerial view of New York by night.

MANUFACTURING AND QUALITY

The prodution of over 40.000 different lamp types in huge quantities requires great skill in lamp design. Therefore when talking about manufacturing and quality it is essential to refer primarily to the scientific research laboratory and to the test laboratories which can be found everywhere in the Philips Works. In these laboratories great achievements are made viz. to keep the prominent place which Philips hold in the lighting field and to ensure the quality of the finished product.

Lamp making is not only a matter of blowing a bulb, fitting lead-in wires, a filament and a base, there is much more to it.

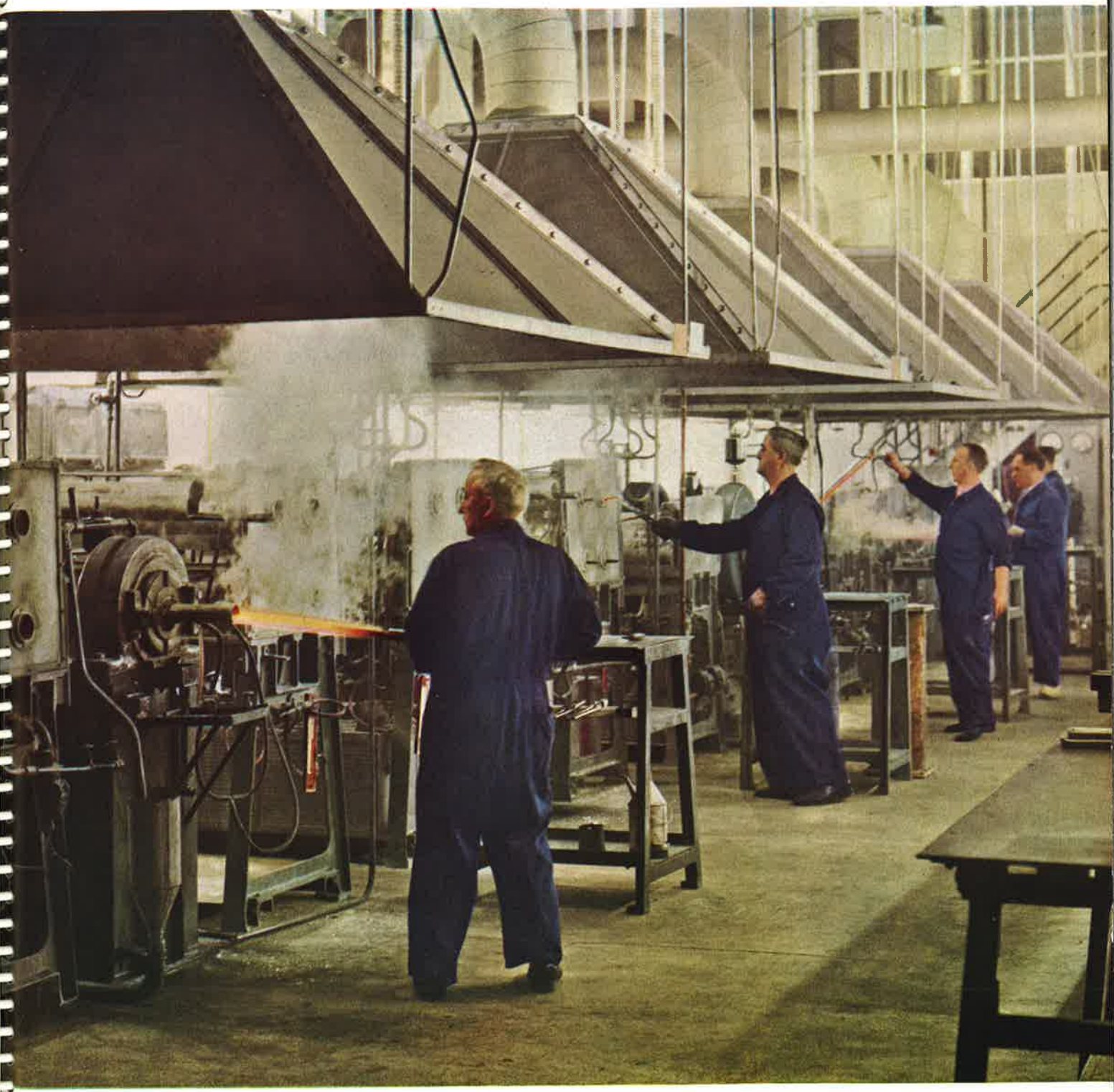
It all starts with the arrival of the raw materials which are thoroughly tested before they are released for production.

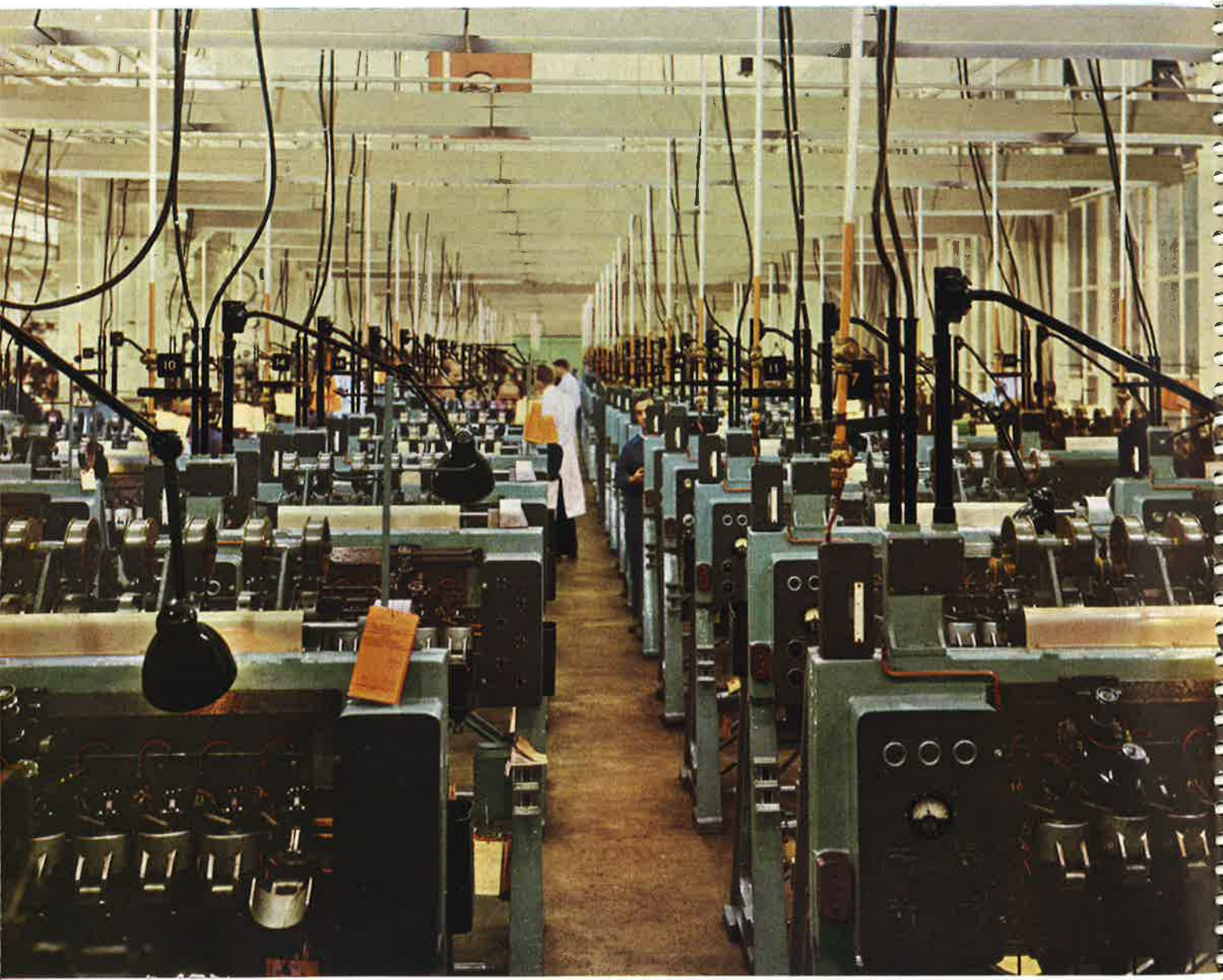
These materials are made into the parts from which the lamps are assembled.

In a great many factories thousands of skilled people are occupied in the performance of this work which calls for the greatest accuracy.

The incandescent lamps made by the Philips Works range from normal lamps for residential lighting to telephone lamps for application in telephone exchanges; from lighthouse lamps to exciter lamps and from neon glow lamps to film studio lamps.

As far as the production of incandescent lamps is concerned the Philips' factories are completely self-contained and so when touring these factories one will come upon the manufacture of products which seem utterly improbable.





Even the machines which are needed for the assembly of lamps are developed and manufactured within the concern. This independence of third parties was born of necessity back in 1916 when Philips was forced to build a special glass factory for the production of the bulbs which had previously been imported from Austria and other countries.
It proved a wise decision because the quality was improved thereby.

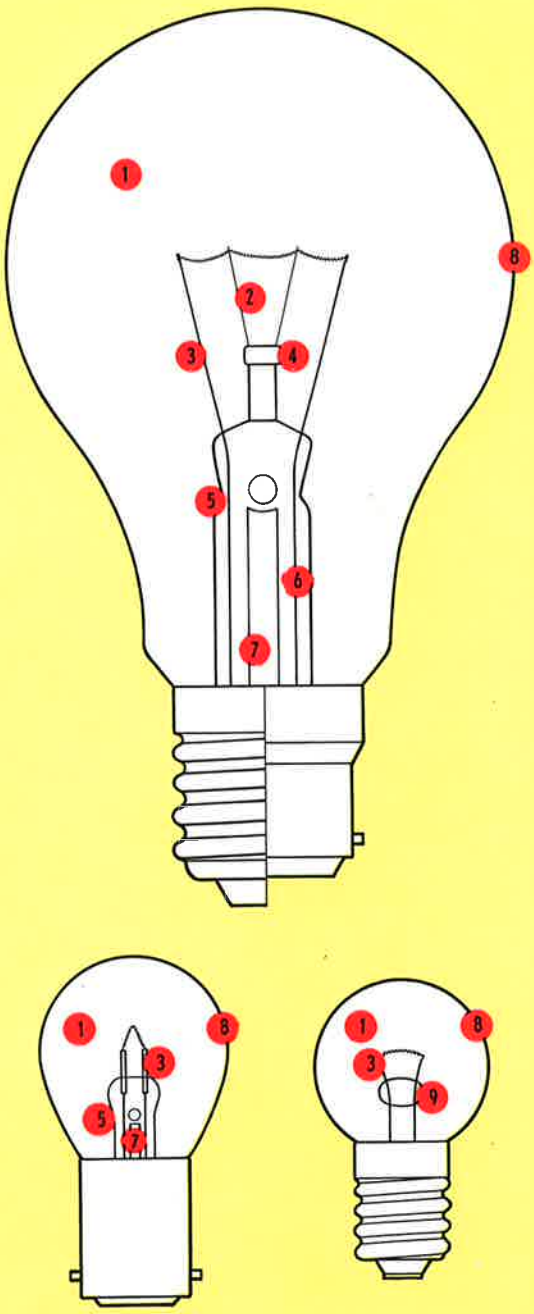
The quality of a lamp is entirely dependent on its design and the service it will render and the operation costs depend in turn on the many details of the design. Each type of Philips lamp has been designed for a special application and full attention is given to the conditions under which the lamp will operate.
All details are determined from close examination of the experience gained with the development and production of the many lamp types throughout the years. Mass production requires a sound manufacturing system ensuring full conformity of each lamp to its original design. A staff of Philips specialists translates the design details into production methods and the continuous research and work done by these men have ensured that Philips' lamps are of supreme quality.

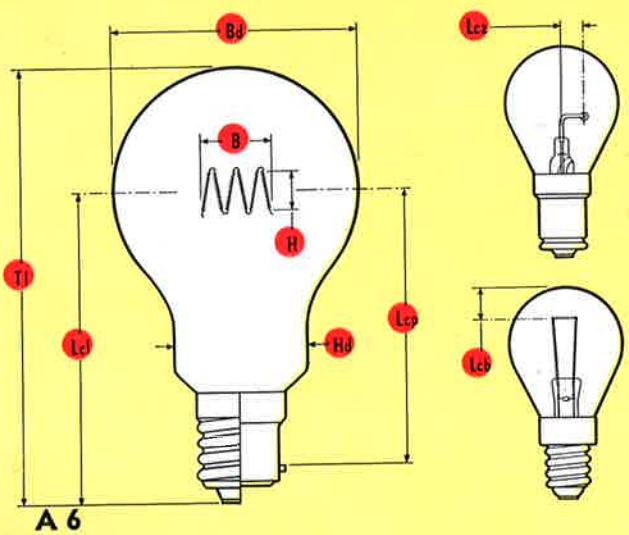
The quality standards set by the Philips Works require the most accurate precision in lamp design, construction and production.

We are proud that we can state that the total number of types in regular production completely covers the requirements which are set by today's world. But the fact that extensive research and careful manufacturing processes have caused Philips to become a great name in lamp manufacture is still more gratifying.
We know, however, that our consumers count on the fame of our name and so we will keep striving after still better products and we will do everything within the limits of the human power to always offer our users the best and the latest that money can buy.
Philips' lamp factories are established in all parts of the world and experiences are exchanged between the leading men in these factories. They meet regularly to discuss production methods and new developments, and they consider it their duty to search for and to find means and methods to advance even further the quality of Philips' lamps.

CONSTRUCTION OF LAMPS

1. **Gas**
   From 40 W upwards most lamps are gas-filled in order to prevent rapid evaporation of the filament and to permit higher temperatures. This results in higher efficiency. The gas normally used is a mixture of nitrogen and argon. Some special-purpose lamps, however, are filled with krypton.
2. **Support wires**
   The filament of a lamp is kept in place by molybdenum wires of which a minimum number is used in order to reduce heat losses.
3. **Lead-in wires**
   The current is led to and from the filament by the lead-in wires. They consist of three parts viz:
   from filament to stem press - nickel
   in the glass-pinch of a special alloy to form an airtight seal
   from glass-pinch to base - copper
4. **Button**
   The support wires are inserted into a glass button which is supported by a rod.
5. **Stem tube**
   This tube conducts the lead-in wires into the bulb. When the glass is melted the top end is pinched and an air-tight seal is formed.
6. **Fuse**
   The part of the lead-in wires in the stem tube serves as a fuse and this opens the circuit if the filament arcs.
7. **Exhaust tube**
   Through this tube the air is exhausted and the bulb is filled with gas. When this has been done the tube is sealed and the cap can be fitted.
8. **Bulb**
   This is the glass envelope which is supplied in different finishes. (see page 15)
9. **Glass Bead**
   Sometimes, instead of the stem tube, a glass bead is fused around the wires. This is mostly found with miniature lamps.

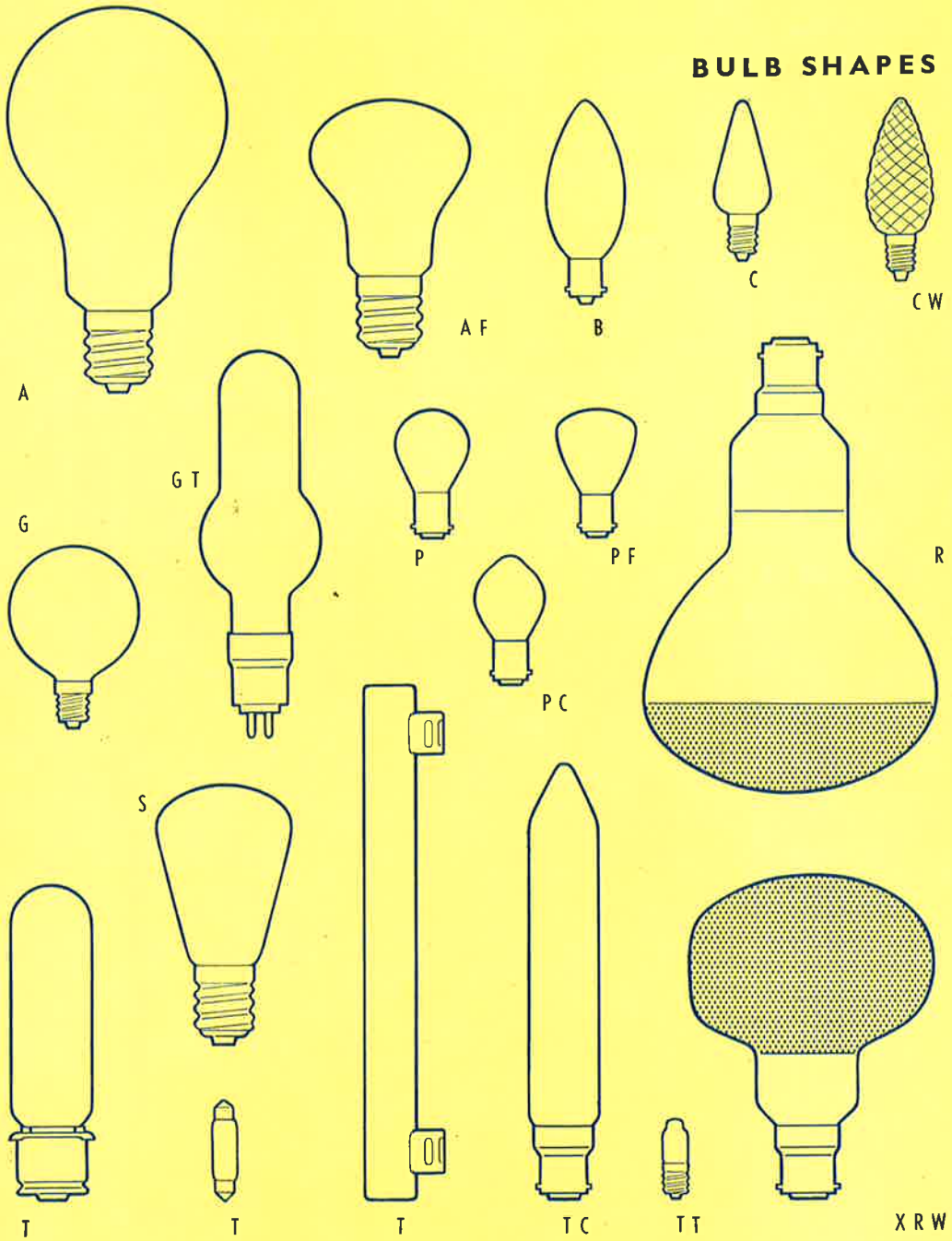




DIMENSIONS

For the main dimensions standard figures are used, a survey of which is given below:

Bd	Bulb diameter
Tl	Total length (Formerly Overall length, Ovl.)
Lcl.	Light centre length
Hd	Neck diameter
Lcp	Light centre length from the tops of the pins or wings
B	Width of filament
H	Height of filament
Lcz	Distance light centre-lamp axis
Lcb	Distance light centre-lamp to bulb crown



BULB SHAPES

On this page a survey is given of the general shapes of lamp bulbs of the incandescent lamp group. All models shown in this catalogue have been derived from these general shapes. The shapes are indicated by the letters shown. The diameter of the bulb is indicated in mm behind the letters representing the shape. For model combinations two figures are used. The first figure represents the largest diameter. Example GT 120–90.

BULB FINISHES

Lamp bulbs are available in different finishes. They are applied according to the requirements stipulated to obtain a desired control of light, to influence the quality of light and to produce a certain colour of light.
The most important finishes are: Argenta – inside frosted - clear – bowl reflector – coloured – natural coloured and mirrored. The various pictures are shown on the right.

BULB FINISHES

ARGENTA

INSIDE FROSTED

CLEAR

SILVER BOWL REFLECTOR

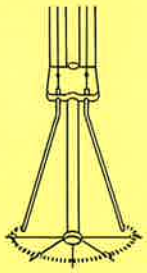
COLOURED

NATUREL COLOURED GLASS

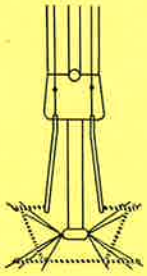
MIRRORED

FILAMENT SHAPES

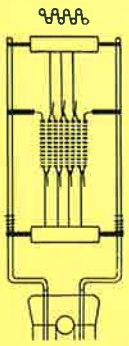
It will be clear that for all the lamp types from the Philips lamp range a great and varied number of filaments is required.
These pages contain a survey of the principal shapes manufactured to-day. All filament constructions answer the highest demands. In the Philips laboratories new developments take place and much work is done to further improve the quality of this vital part of any lamp.
Tungsten is generally used as filament material and the quality of the wire made from the raw material determines the quality of any lamp. In the Philips factories great care is taken to produce the best possible filament wire and even a diamond die factory was erected to improve production.
Three main filament types are distinguished, viz.: straight wire, coil and coiled coil.



A



AA



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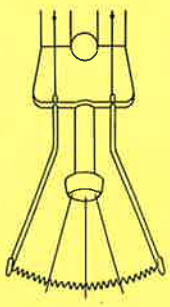

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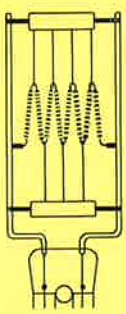
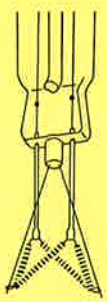
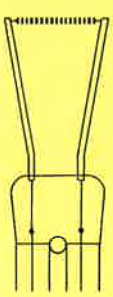


M



N

R 04



R 1

V 01

V 11

BURNING POSITION OF THE LAMPS

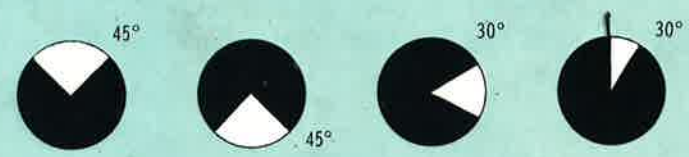


Fig. 1 Fig. 2 Fig. 3 Fig. 4

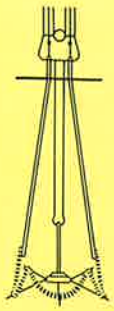
In this catalogue the lamp are shown in their normal burning position. In general other burning positions are also permissible.
When the burning position is not very important, no restrictions are placed on the normal burning position.
Such lamps can therefore be used in every position.
Other lamps, however, are constructed in such a way that they must be used in a certain position if they are to function properly. The limits of deviation from the normal burning position of these lamps are indicated by means of figures or letters.
In the figures the solid angle within which the axis of the lamp must fall is shown by the white sector. The base of the lamp is here assumed to be at the centre of the circle.
If the burning position is allowed to deviate equally on both sides, then the line representing the normal burning position will be the bisector of the angle formed by the two outer lines (fig. 1, 2 and 3).
If the burning position is only to deviate on one side, then the normal burning position is indicated by extending the boundary line with which the axis of the lamp in the normal burning position coincides outside the circle (fig. 4).

LETTERS

In place of the figures shown above, the burning position can also be indicated by letters plus the number of degrees as follows:

- S for standing position (fig. 1)
- H for hanging position (fig. 2)
- P for horizontal position (fig. 3)
- E this letter is placed after the letters S and H if the burning position is only allowed to deviate on one side (fig. 4).

It must be born in mind that in the burning position of lamps having D, E, L, M and P filaments, no sideways deviations in the plane of the filament are permitted.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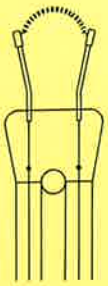
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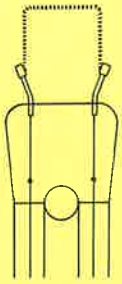
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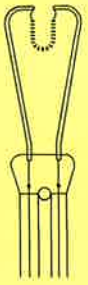
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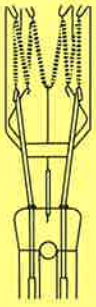
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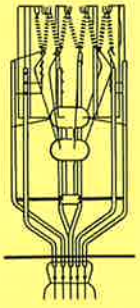
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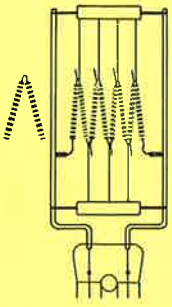
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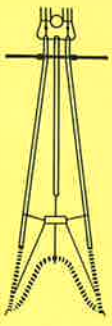
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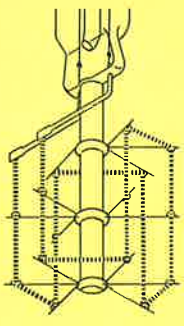
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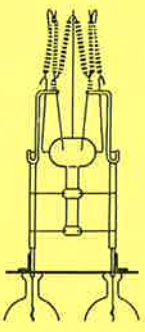
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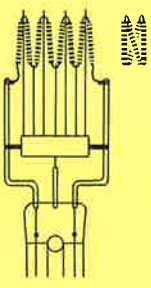
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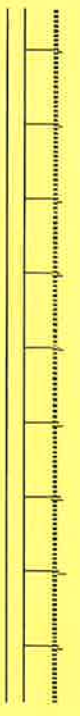
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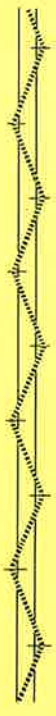
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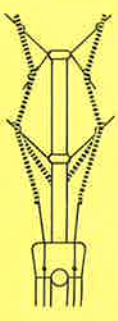
2 x RG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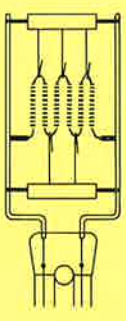
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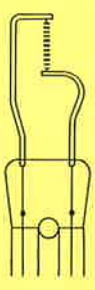
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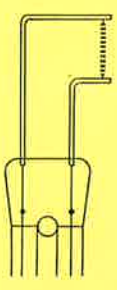
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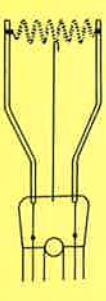
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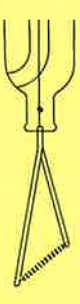
R 12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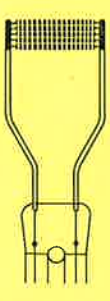
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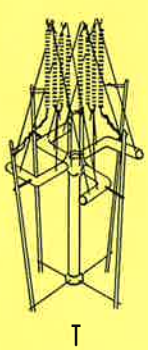
S T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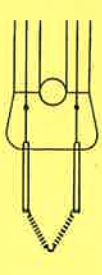
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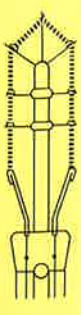
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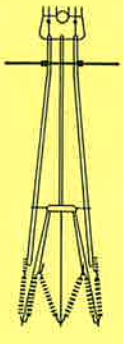
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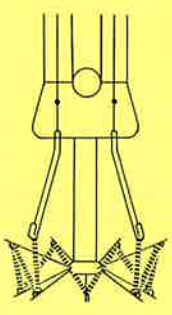
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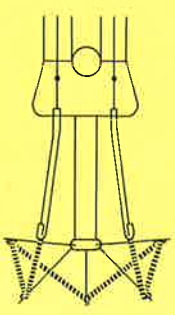
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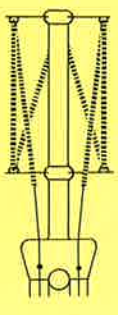

W W


Z 11

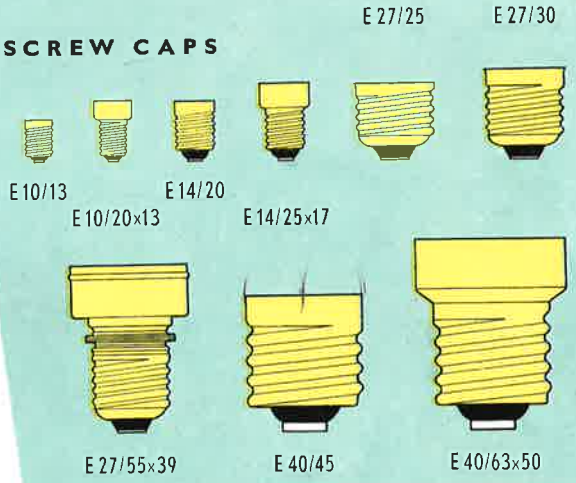
CAPS

These pages show pictures of all lamp caps which are featured in the tables supplying the necessary technical details of the Philips lamps incorporated in this catalogue. All caps are denoted with the standard designation, therefore it will be quite easy to gain a true impression of the cap with which a certain lamp is equipped.

All caps meet with the international requirements. All materials used are of superior quality and great care has been bestowed on the finish.

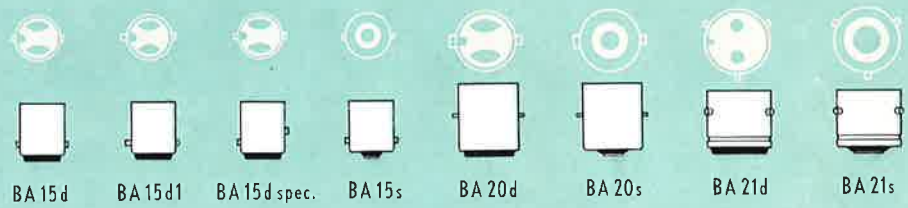
Scale 1 : 2.5

SCREW CAPS

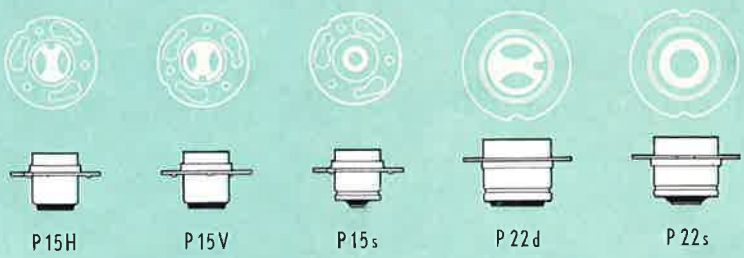


BAYONET CAPS

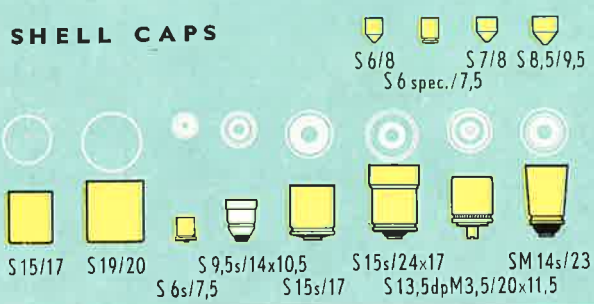
MOTOR CAR BAYONET CAPS



PREFOCUS CAPS



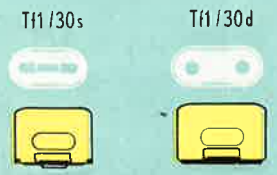
SHELL CAPS



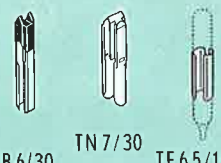
MINIATURE BAYONET CAPS

BAYONET CAPS FOR MINERS LAMPS

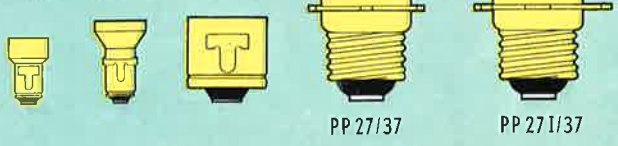
SIDE CONTACT CAPS

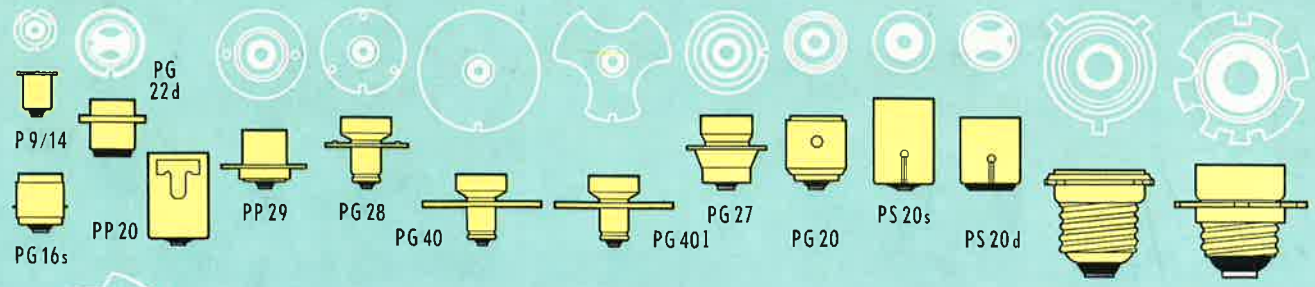


TELEPHONE CAPS

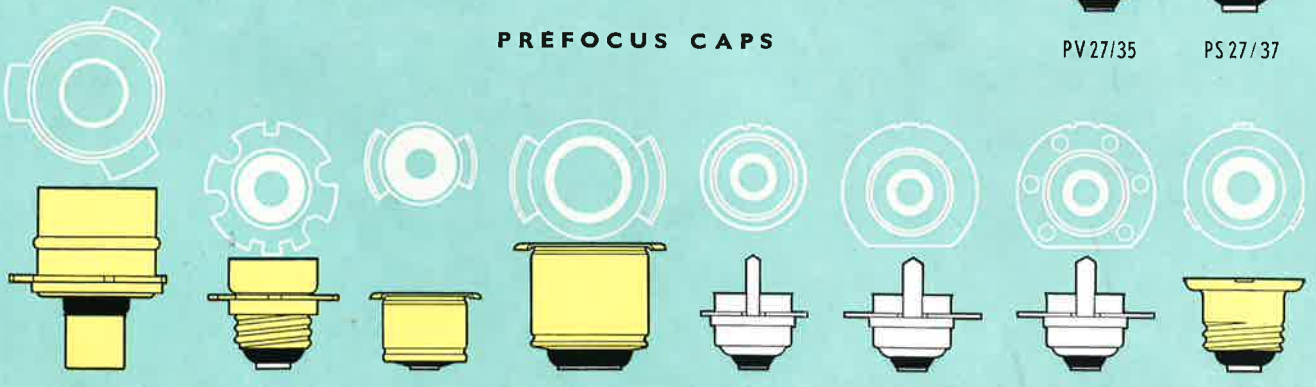


PATHE PREFOCUS CAPS

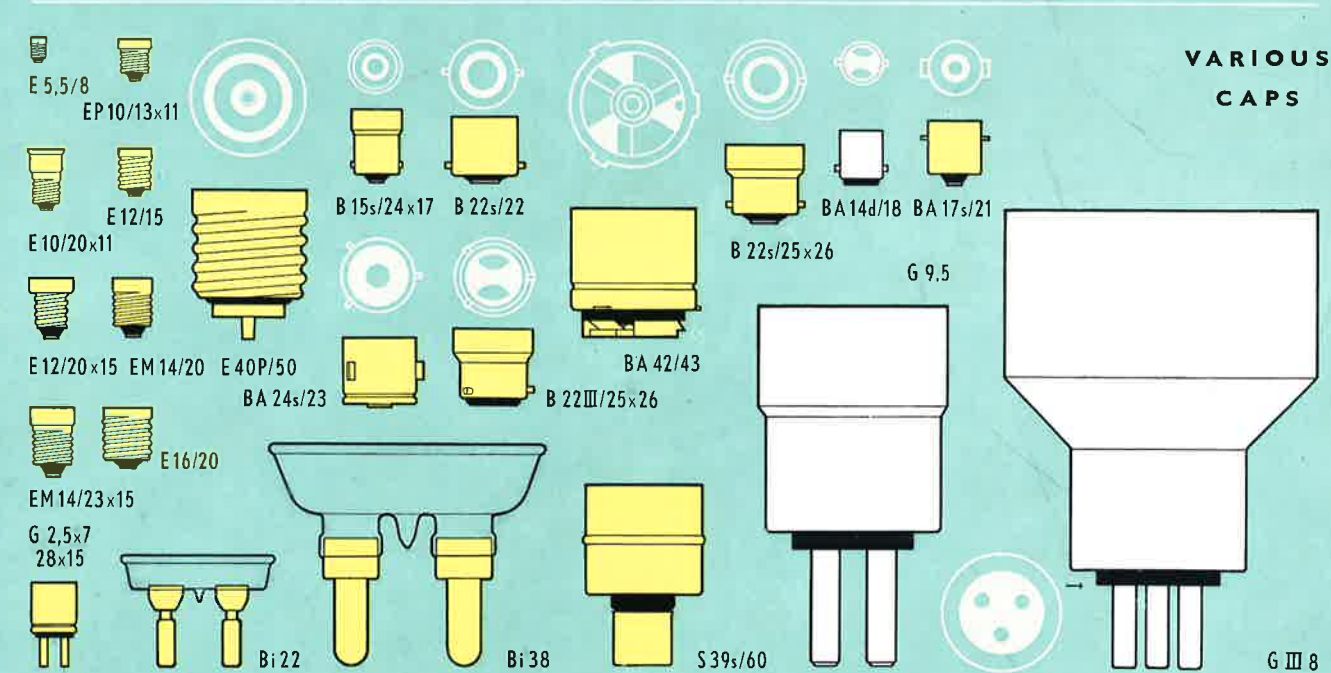




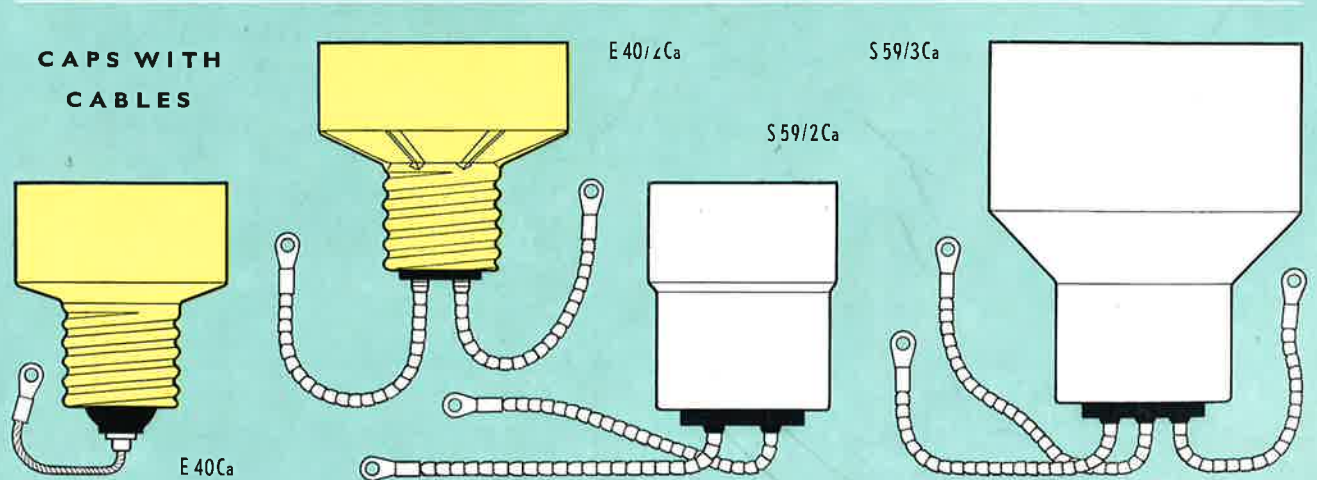
PREFOCUS CAPS



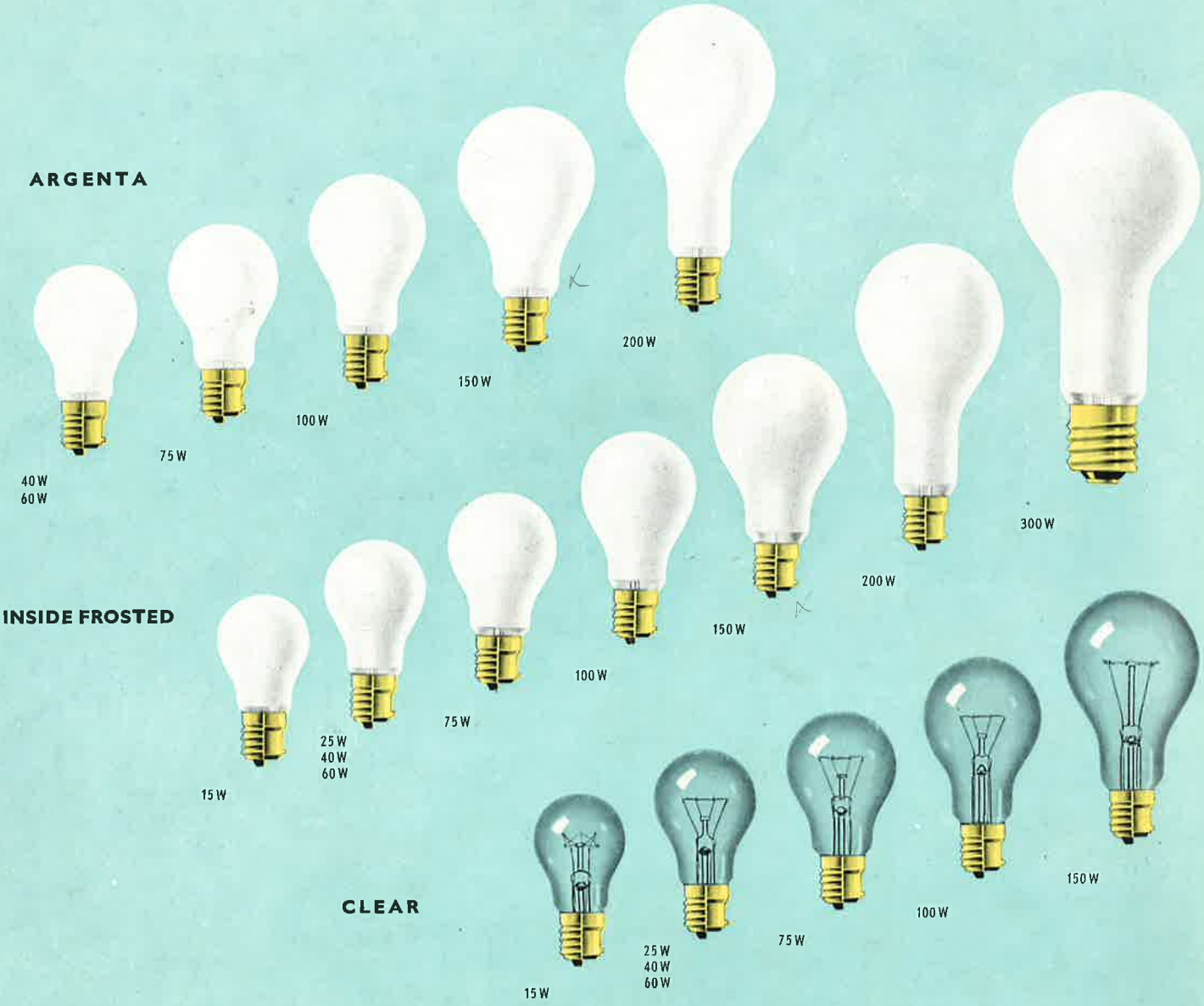
VARIOUS CAPS



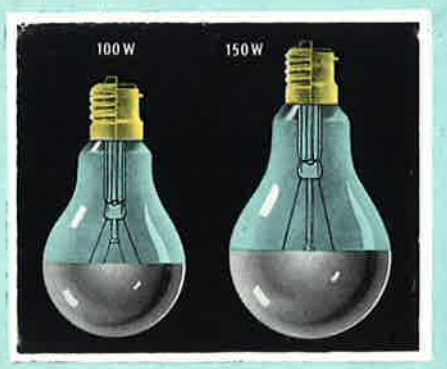
CAPS WITH CABLES



GENERAL LIGHTING SERVICE LAMPS

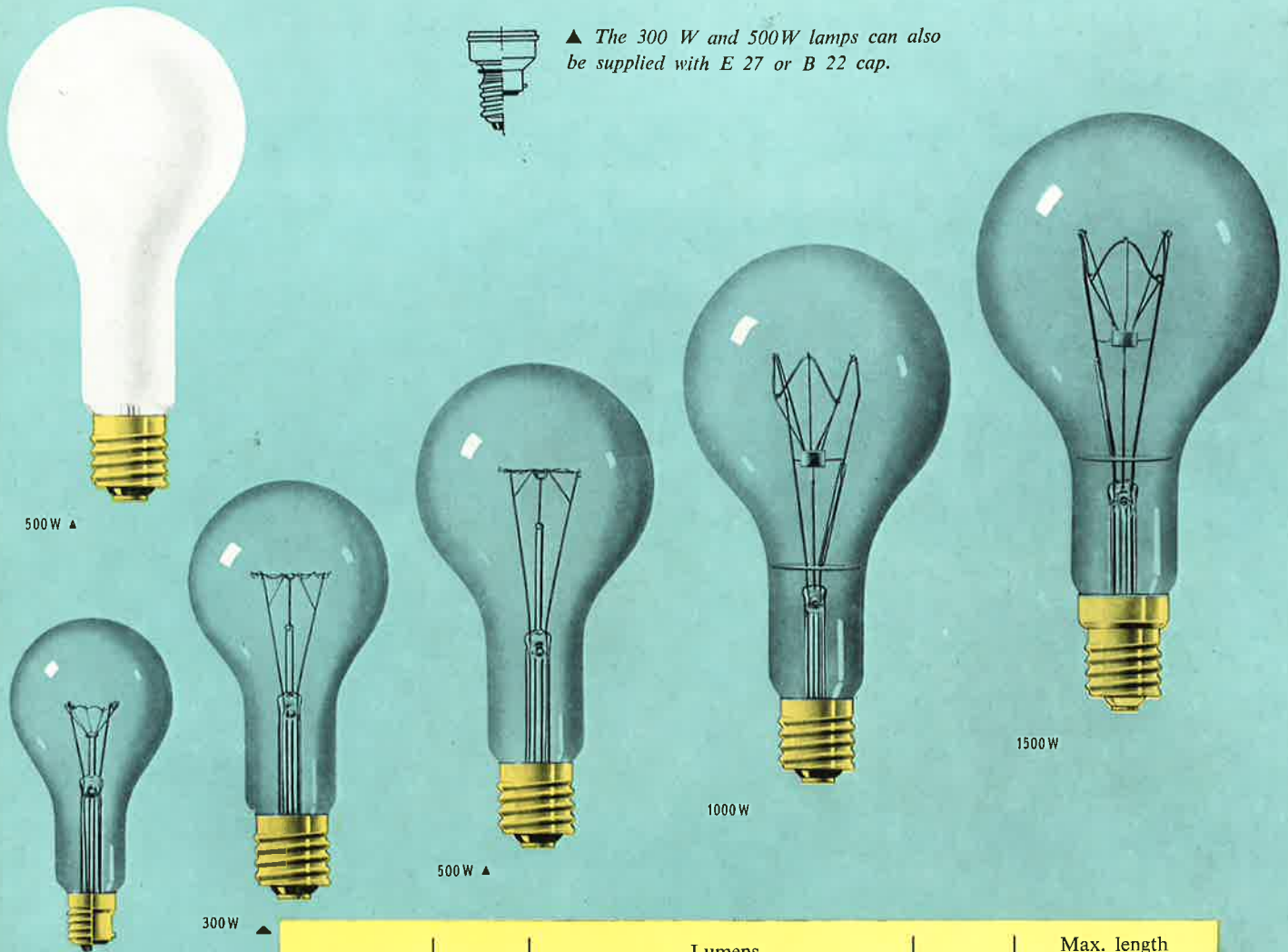


Up to 150 W these lamps are chiefly applied in the domestic sector whilst the higher wattages come in for use in the industrial field as well as in offices etc. Historically, the clear lamp was the first to find wide application among the incandescent types, but gradually there has come into being a strong tendency to use inside-frosted lamps. The Argenta is the latest development in artificial lighting. Its white coating ensures a soft and velvet light. These lamps will prove a pleasure to the eye, especially in home lighting. The most striking features of these lamps are: their perfect diffusion of light, the soft shadows and the absence of glare.



SILVER BOWL REFLECTOR LAMPS

These lamps are extremely popular for efficient indirect lighting as may be required in schools, shops, offices etc. In principle they are inside-frosted normal incandescent lamps which are equipped with a silver bowl. The latter shields the glaring lamp filament from view.

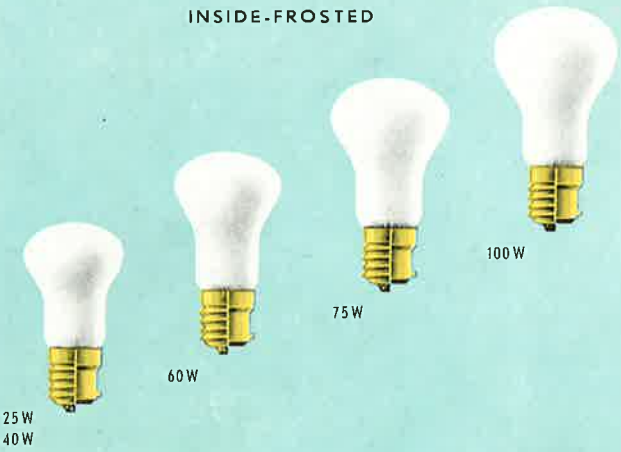


▲ *The 300 W and 500 W lamps can also be supplied with E 27 or B 22 cap.*

	Voltage	Watts	Lumens 100–128V	Lumens 130–165V	Lumens 170–225V	Lumens 230–250V	Diam.	Max. length with cap E 27	Max. length with cap B 22	Max. length with cap E 40
ARGENTA	100–250	40 [1])	460	440	410	400	60	110	109	—
		60 [1])	780	740	690	680				
		75 [1])	1010	980	900	880				
		100	1470	1400	1310	1280	70	128	124	—
		150	2220	2130	2000	1900	80	148	144	—
		200	3100	2900	2800	2650	90	184	179	—
INSIDE FROSTED	100–250	15	140	135	125	120	55	103	102	—
		25	260	250	235	230				
		40 [1])	490	460	430	420	60	110	109	—
		60 [1])	820	780	730	720				
		75 [1])	1070	1030	950	930				
		100 [1])	1550	1480	1380	1350	70	128	124	—
		150	2340	2250	2100	2000	80	148	144	—
		200	3260	3070	2950	2800	90	184	179	196
		300	5100	4900	4850	4650	110	250	233	240
		500	9250	9000	8450	8200	130	285	268	275
CLEAR	100–250	15	140	135	125	120	55	103	102	—
		25	260	250	235	230				
		40 [1])	490	460	430	420	60	110	109	—
		60 [1])	820	780	730	720				
		75 [1])	1070	1030	950	930				
		100 [1])	1550	1480	1380	1350	70	128	124	—
		150	2340	2250	2100	2000	80	148	144	—
		200	3260	3070	2950	2800	90	184	179	196
		300	5100	4900	4850	4650	110	250	233	240
		500	9250	9000	8450	8200	130	285	268	275
		1000	21000	20000	19000	18000	150	—	—	309
		1500	32000	31000	30500	30000	170	—	—	344
BOWL REFLECTOR	100–250	100	—	—	—	—	70	128	124	—
		150	—	—	—	—	80	148	144	—

[1]) With coiled coil filament

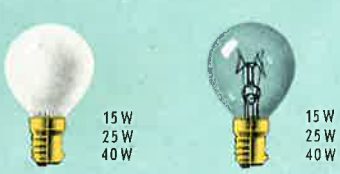
K-LAMPS



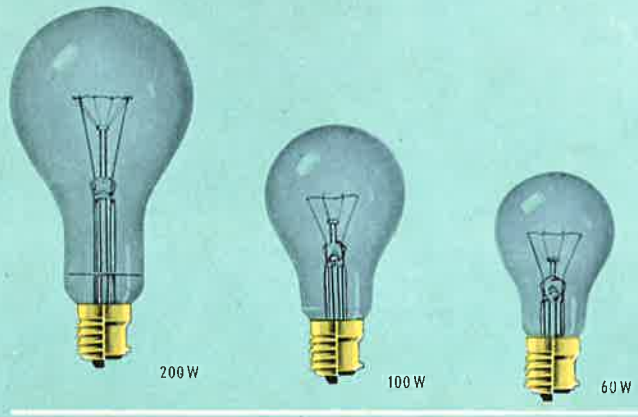
Finish	Voltage	Watts	Lumens				Diam.	Max. length with cap	
			100–128V	130–165V	170–225V	230–250V		E 27	B 22
Argenta	100–250	25	235	220	190	185 }	50	92	91
		40	450	430	400	390 }			
		60	760	720	680	670	55	98	97
		75	1000	960	880	860	60	105	104
		100	1440	1380	1280	1250	65	112	111
Inside-frosted	100–250	25	255	240	210	205 }	50	92	91
		40	490	460	430	420 }			
		60	820	780	730	720	55	98	97
		75	1070	1030	950	930	60	105	104
		100	1550	1480	1380	1350	65	112	111

In view of developments in fitting design it became necessary to produce a lamp with smaller dimensions than the normal bulbshaped incandescent lamp. As a consequence the K-lamp was introduced. In a relatively short time this type has gained enormous popularity because the smaller dimentions do not detract from the high light output characteristic of the Philips lamp. The K-lamp is available in inside-frosted and inside-white (Argenta) finish.

CANDLE AND LUSTRE LAMPS



Type	Finish	Voltage	Watts	Diam.	Max. length with cap			
					E 14	E 27	B 15	B 22
Candle	Argenta	100–250	25	34	101	97	100	96
			40	38	107	102	106	101
			40	54	—	131	—	127
	Inside-frosted	100–250	15	34	101	97	100	96
			25	38	107	102	106	101
			40	54	—	131	—	127
	Clear	100–250	15	34	101	97	100	96
			25					
Lustre	Argenta	100–250	25	45	79	80	78	76
			40	50	83	84	82	80
	Inside-frosted	100–250	15	45	79	80	78	76
			25					
			40					
	Clear	100–250	15	45	79	80	78	76
			25					
			40					



DAYLIGHT BLUE LAMPS

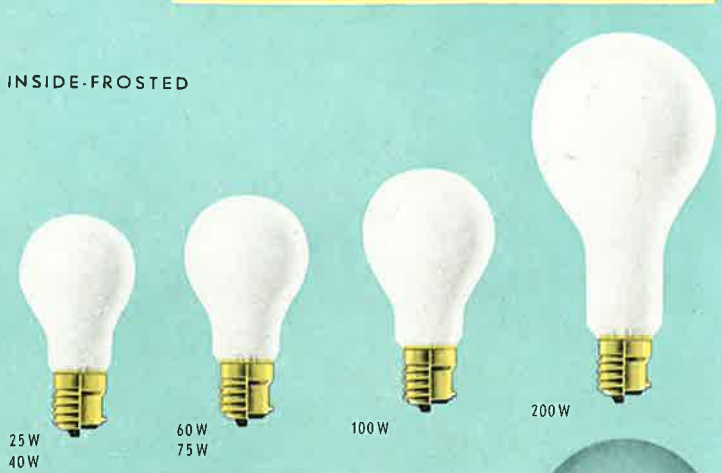
Where colour discrimination is of vital importance, this lamp offers an ideal solution; specially where a true reproduction of average daylight is essential. Recommended for sorting tobacco, cigars, textiles etc.

Finish	Voltage	Watts	Diam.	Max. length with cap	
				E 27	B 22
Natural coloured glass	100–250	60	60	110	108
		100	70	128	123
		200	90	183	179

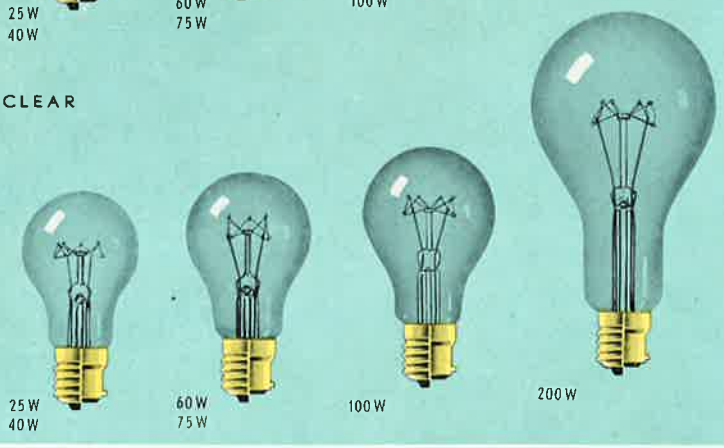
REINFORCED CONSTRUCTION LAMPS

This type lamp has been constructed for those places where the lamps must be strong enough to withstand excessive shock sudden bumps and/or considerable vibration. Recommended to use in garages on long extension cords, in industrial plants, on ships in engine rooms, near rotating machinery, in elevators etc. The lamp has extra strong filament construction and special filament wire is used.

INSIDE-FROSTED



CLEAR

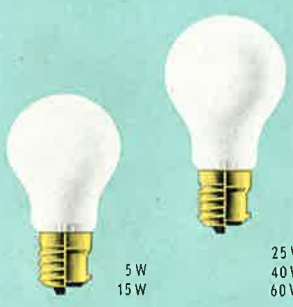


Finish	Voltage	Watts	Diam.	Max. length with cap	
				E 27	B 22
Inside-frosted	100–250	25 40	60	110	108
		60 75	65	121	116
		100 200	70 90	128 183	123 179
Clear	100–250	25 40	60	110	108
		60 75	65	121	116
		100 200	70 90	128 183	123 179

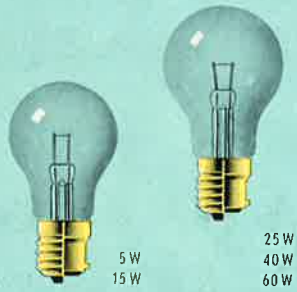
LAMPS FOR INDEPENDENT HOUSELIGHTING PLANTS

In rural areas and in isolated places the necessary power has often to be generated by battery-generator sets or other private houselighting plants. For these purposes special low voltage lamps ranging from 6–32 V are manufactured.

INSIDE-FROSTED



CLEAR



Finish	Voltage	Watts	Diam.	Max. length with cap	
				E 27	B 22
Inside-frosted	6–12	5 15 25 40 60	55	103	101
	6-12-24-32		60	110	108
	12–24–32				
Clear	6–12	5 15 25 40 60	55	103	101
	6-12-24-32		60	110	108
	12–24–32				

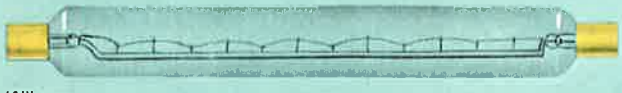
SHOW WINDOW LAMPS


25 W


25 W


25 W


25 W


40 W


40 W

This tubular two cap lamp is available in clear finish or with inside mirror. With its small diameter and high light intensity it is very effective in show cases etc. Preferably mounted in such a way that its light is equally distributed in the required direction, whilst the lamp itself remains screened from the eye.

Finish	Voltage	Watts	Diam.	Max. length with caps	Cap
Clear	100-250	25	21	221	S 15
		25	30	260	S 19
		40	38	310	S 19
Half-silvered	100–250	25	21	221	S 15
		25	30	260	S 19
		40	38	310	S 19

TUBULAR LAMPS


15 W


15 W 25 W

SEWING MACHINE LAMPS


20 W 25 W


20 W 25 W

PILOT LAMPS


15 W

Finish	Voltage	Watts	Diam.	Max. length with cap			
				E 14	E 27	B 15	B 22
Tubular lamps							
Clear	100–250	15	25	89	—	88	—
		15 / 25	28	104	101	103	98
Sewing machine lamps							
Inside-frosted	100–165	20	25	91	—	86	—
	170–250	25					
Clear	100–165	20	25	91	—	86	—
	170–250	25					
Pilot lamps							
Clear	100–250	15	28	65	62	64	58

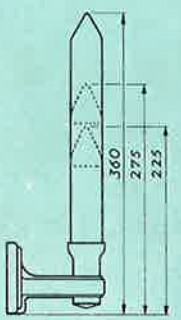
"COLORENTA"

The charming candle light effect of this lamp tends to enhance the beauty and atmosphere of any room. The lamp is made of opal glass giving a light which is extremely pleasant to the eyes.

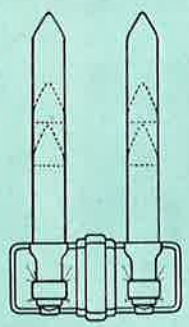
Finish	Voltage	Watts	Diam.	Max. length	
				E 27	B 22
Colorenta	100–250	40	38	319	315
Colorentina		25	38	232	227
Baby colorentina		25	30	149	147

"COLORENTINA"

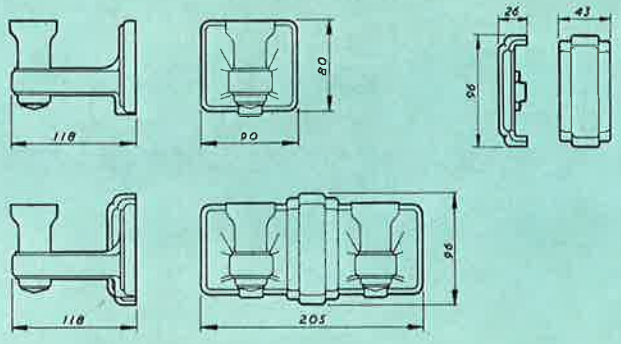
This lamp ressembles the "Colorenta" but has a frosted top, the lower part of the bulb is sprayed with ivory-coloured enamel.



"BABY COLORENTINA"



LAMPHOLDERS



Finish	Description	Cap	Catalogue number
Walnut "Philite"	Lampholder	E 27	65620 AB/00
		B 22	65620 AE/00
	Bracket	—	65620 AZ/90
Ivory sprayed "Philite"	Lampholder	E 27	65620 AB/02
		B 22	65620 AE/02
	Bracket	—	65620 AZ/92

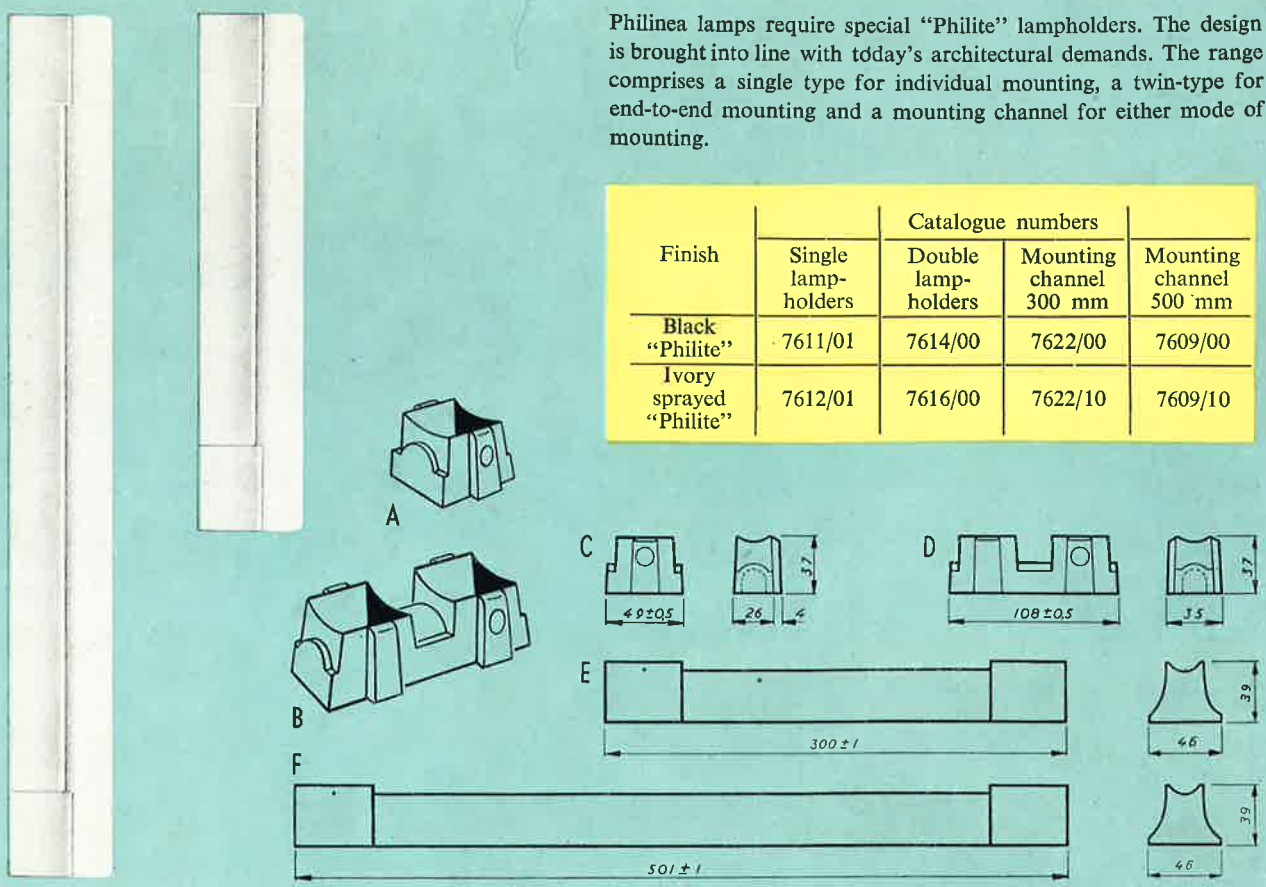
These inside-white enamelled tubular incandescent lamps supply a continuous line of light. They are therefore very well suited for built-in effects, especially when limited space is a factor. They can be mounted along ceilings and around door openings and will add character to any interior. Although generally considered to be for interior use they can, with suitable waterproofing of holders, be used externally.

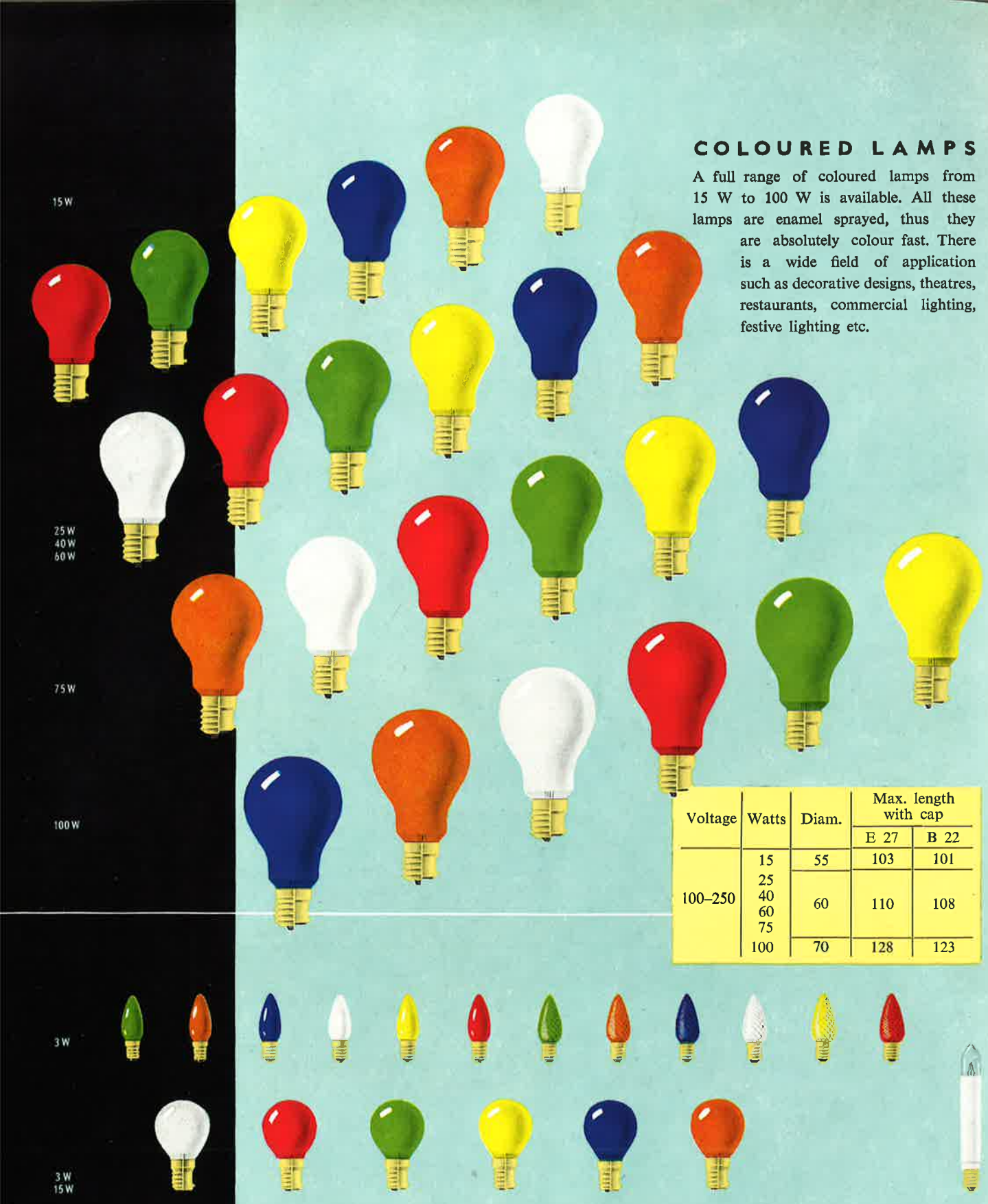
Finish	Voltage	Watts	Diam.	Max. length
Straight	100–250	25	30	300
		40		500
		80		1000
1/8th of a circle		40		500
1/4th of a circle		40		500

LAMPHOLDERS

Philinea lamps require special "Philite" lampholders. The design is brought into line with today's architectural demands. The range comprises a single type for individual mounting, a twin-type for end-to-end mounting and a mounting channel for either mode of mounting.

Finish	Catalogue numbers			
	Single lamp-holders	Double lamp-holders	Mounting channel 300 mm	Mounting channel 500 mm
Black "Philite"	7611/01	7614/00	7622/00	7609/00
Ivory sprayed "Philite"	7612/01	7616/00	7622/10	7609/10





COLOURED LAMPS

A full range of coloured lamps from 15 W to 100 W is available. All these lamps are enamel sprayed, thus they are absolutely colour fast. There is a wide field of application such as decorative designs, theatres, restaurants, commercial lighting, festive lighting etc.

Voltage	Watts	Diam.	Max. length with cap	
			E 27	B 22
100–250	15	55	103	101
	25 40 60 75	60	110	108
	100	70	128	123

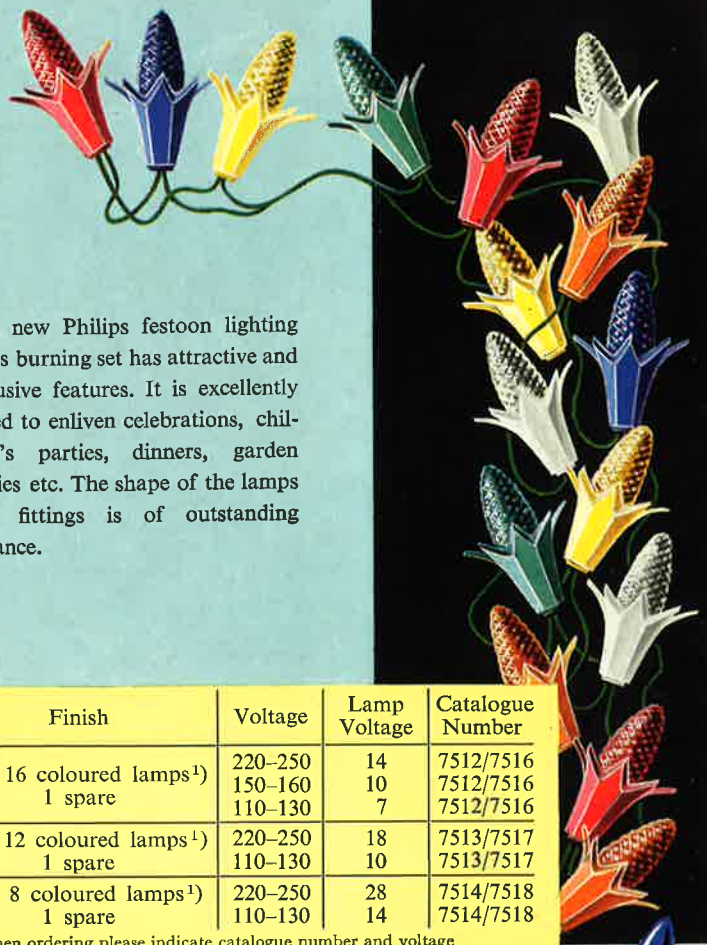
FESTIVE ILLUMINATION LAMPS

For festive illumination and ornamental lighting, Philips make coloured drop-shape and dwarf lamps of low wattage. They have to be mounted in series. The drop-shape lamps are also available for parallel burning.

Circuit	Shape	Voltage[1])	Watts	Diam.	Max. length with cap		
					E 10	E 14	B 15
for series burning	pine-apple	7 or 14	abt 1.5	18	51	—	—
	dwarf-olive	7 or 14	abt 3	17.5	50	—	—
	candle	7 or 14	abt 3	13.5	95	—	—
	drop	14	abt 3	45	—	79	78
for parallel burning	drop	100–250	15	45	—	79	78

[1]) Other voltages on demand

FESTOON LIGHTING SETS



This new Philips festoon lighting series burning set has attractive and exclusive features. It is excellently suited to enliven celebrations, children's parties, dinners, garden parties etc. The shape of the lamps and fittings is of outstanding elegance.

PLUGS

The lighting sets are equipped with a plug having a loose pin to break contact. American or British adaptors are supplied with each set in those areas where European standard plugs cannot be used.

Finish	Voltage	Lamp Voltage	Catalogue Number
with 16 coloured lamps [1]) 1 spare	220–250	14	7512/7516
	150–160	10	7512/7516
	110–130	7	7512/7516
with 12 coloured lamps [1]) 1 spare	220–250	18	7513/7517
	110–130	10	7513/7517
with 8 coloured lamps [1]) 1 spare	220–250	28	7514/7518
	110–130	14	7514/7518

[1]) When ordering please indicate catalogue number and voltage

CHRISTMAS TREE ILLUMINATION SETS

To-day these sets are commonly used to avoid risk of fire and damage caused by molten wax. The Philips set consists of 16 ivory-white plastic hol- ders each fitted with a dwarf candle lamp, either clear or coloured.

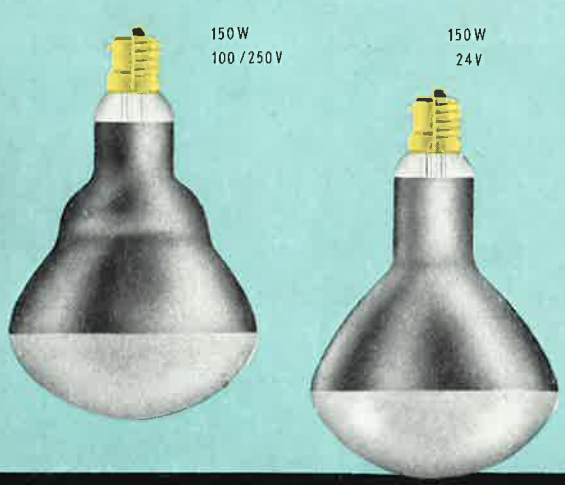
These lamps, just as the festive illumination lamps and festoon lighting sets, are fitted with a short-circuiting device.

Lamp diam. 15 mm
Length 41 mm
For 7V 1.5W and for 14V 3W

Finish	Voltage	Lamp Voltage	Catalogue Number
White plastic candles [1]) with 16 clear lamps and 2 spares	200–250	14	7511/7515
	150–160	10	7511/7515
	100–130	7	7511/7515
White plastic candles [1]) with 16 coloured lamps and 2 spares	200–250	14	7511/7523
	150–160	10	7511/7523
	100–130	7	7511/7523

[1]) When ordering please indicate catalogue number and voltage

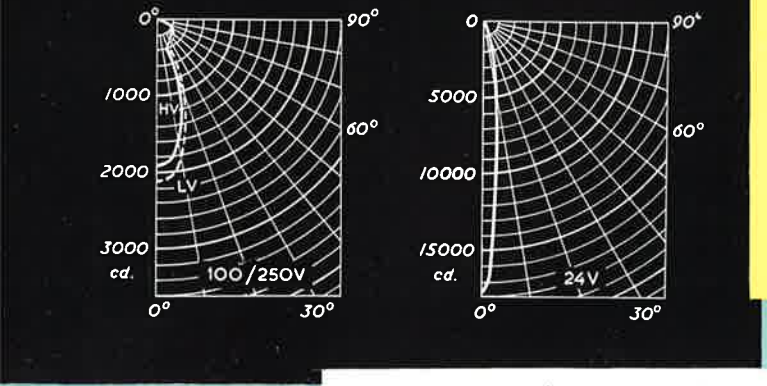
INSIDE MIRRORED LAMPS "ATTRALUX"



The crown of these lamps is satin frosted on the outside. "Attralux" lamps give an intense beam of light. A special 24 V lamp has an even higher luminous intensity which is often required in the display of "fabrics".

Voltage	Watts	Average life	Cap	Catalogue number
100–250	150	1000	E 27 B 22	13359 E/44 13359 B/44
24	150	1000	E 27 B 22	13371 E/44 13371 B/44

Voltage	Distance of lamp m	Width of beam cm	Light intensity in Lux	
			Centre of beam	Border of beam
100–250	2	120	ca 400	ca 200
	2,5	150	ca 250	ca 125
	3	180	ca 180	ca 80
	4	210	ca 100	ca 50
	5	300	ca 60	ca 30
24	2	48	ca 4500	ca 2250
	2,5	60	ca 3000	ca 1550
	3	72	ca 2000	ca 1000
	4	96	ca 1100	ca 550
	5	120	ca 720	ca 360

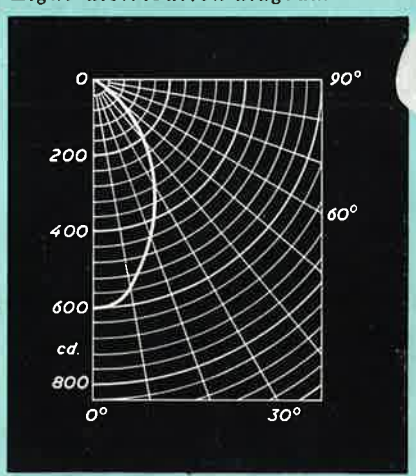


Light distribution diagrams

Data	Mains voltage		
	225 V	110/125 V	
		110 V	125 V
Mains current A	0.75	1.55	1.35
Losses W	19	20	19
Catalogue number	59500 CH/00	59500 BT/00	
Weight kg	3.1	3.1	

TRANSFORMER 220/24V or 110-125/24V

Light distribution diagram



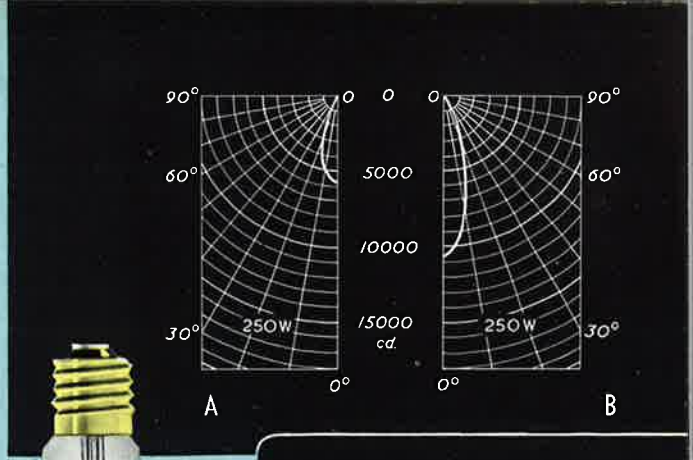
BABY SPOTLIGHT LAMP

A baby spotlight lamp is available for applications where a spotlight of small dimensions is required. It has an inside aluminium mirror and a satin frosted crown.

Voltage	Watts	Average life	Cap	Catalogue number
220–230	100	1000	E 27 B 22	13199 E/24 13199 B/24

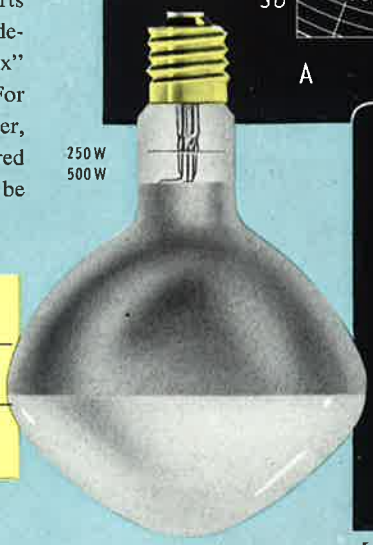
Distance of lamp	Light intensity in Lux
1	ca 600
2	ca 150

Light distribution diagrams
A = 250 W frosted
B = 250 W clear

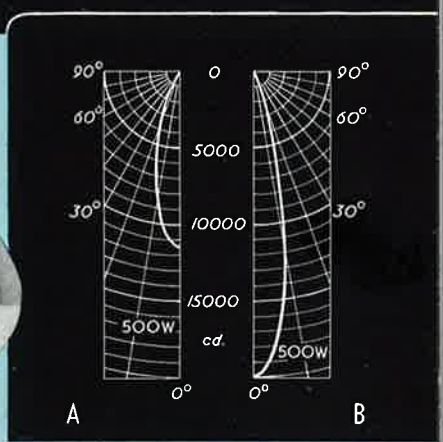


"ALTRILUX"

The 250 W and the 500 W "Altrilux" lamps supply a sharp beam of light and are particularly useful for floodlighting statues and trees and for fountain illumination and floodlighting of sports grounds. The "Altrilux" lamp can be supplied either with outside-frosted or with clear bulb. When used in the open air the "Altrilux" must be protected against raindrops and splashes of water. For fountain illumination the lamp must, when mounted above water, either be protected against water or must be continuously covered with a stream of water. In the latter case the lamp must not be switched on before the water stream is flowing.



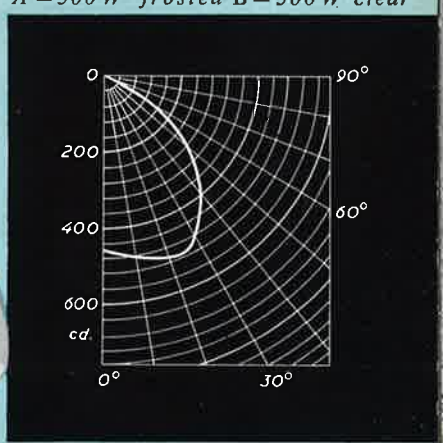
Voltage	Watts	Average life	Cap	Finish	Catalogue Number
100–250	250	1000	E 40	clear	13103 G/06
				frosted	13103 G/99
	500	1000	E 40	clear	13104 G/06
				frosted	13104 G/99



Light distribution diagrams
A = 500 W frosted B = *500 W clear*

"COMPTALUX"

The crown of the Philips "Comptalux" is satin frosted. This lamp produces an uniform, spread beam of light of high intensity. The "Comptalux" is excellently suited for use where a high illumination level is essential. In combination with "TL" fluorescent lamps especially they intensify the illumination level and their contrast effect brings liveliness to the surroundings.



Light distribution diagram

Voltage	Watts	Average life	Cap.	Catalogue number
100–250	150	1000	E 27	13110 E/24
			B 22	13110 B/24

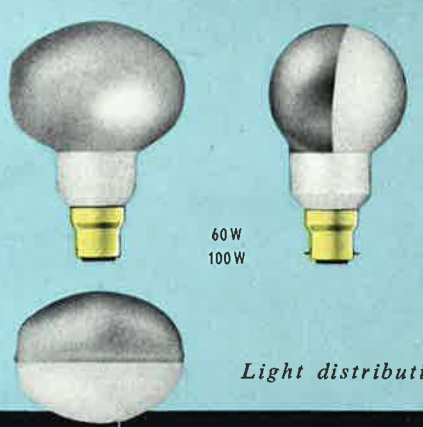
Distance from lamp	Width *) of beam m.	Light intensity in Lux
1	1.15	480
2	2.30	210

*) for 90% of axial intensity

"CORNALUX"

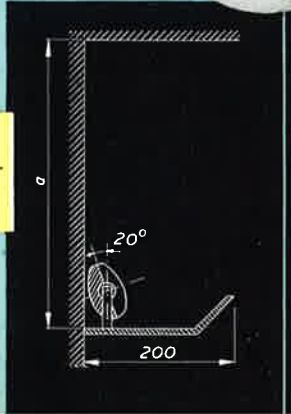
This lamp is egg-shaped with the bulb half-silvered on the inside and satin frosted on the outside. It has been specially designed for use in alcoves for indirect lighting and produces a fan-shaped beam of light with a high luminous intensity.

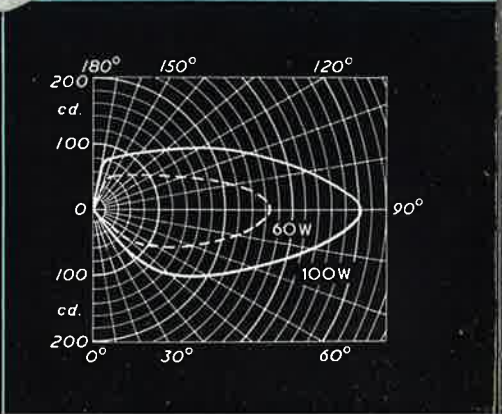
The bayonet cap B 22 facilitates mounting in cornices. It is recommended that a small screen should be placed above each lamp to prevent spots of high brightness on the wall above the cornice.

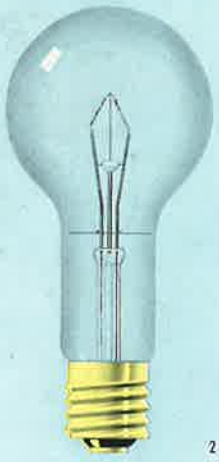


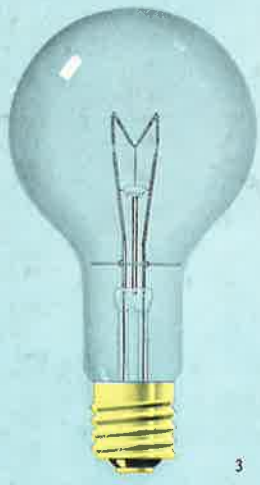
Light distribution diagram

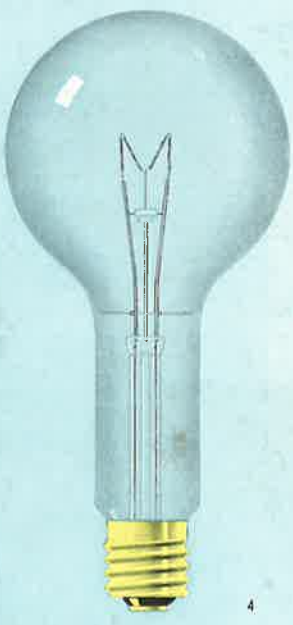
Voltage	Watts	Average life	Cap.	Catalogue number
100–250	60 100	1000	B 22	—

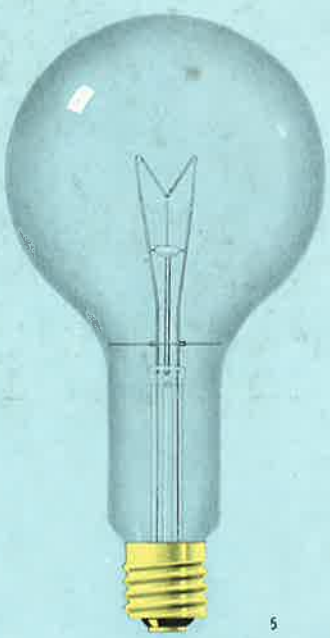












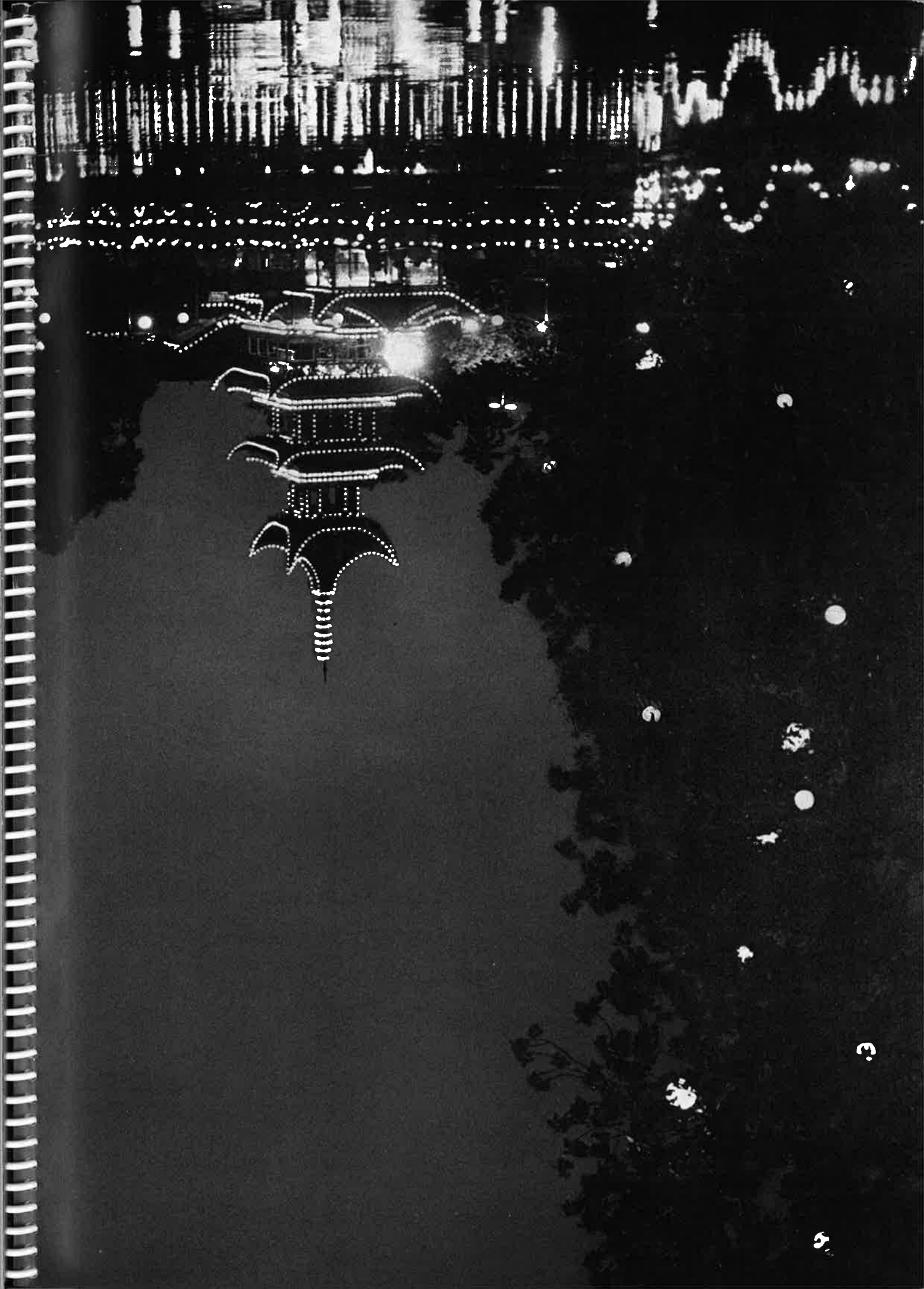
STREET SERIES LAMPS

Among the many lamps available for street lighting normal incandescent lamps hold a prominent place; the more so as side street lighting generally will not justify an elaborate and more expensive system. Throughout life street series burning lamps maintain their high light output in spite of a slow increase in wattage and filament temperature. The performance of any installation is strongly affected by current variations, so it is all important that street series burning circuits are adjusted as close to rated value as possible. For these lamps group replacement is strongly recommended. Depending on the number of burning hours of the street-lighting street series lamps should be replaced twice or three times a year.

Current A	Voltage V	Lumens	Diam.[1])	Max. length with cap E 40
6,6	5.6 6.5 8.1 9.3	500 600 800 1000	P77	176
	17.8 21.7 26 33.7 49.4	2000 2500 3000 4000 6000	A110	233
	82.4	10000	A130	243
7,5	5.7 7.1 8.2	600 800 1000	P77	176
	15.7 19.1 23 29.6 43.5	2000 2500 3000 4000 6000	A110	233
	71.8	10000	A130	243
9,6	6.4	1000	P77	176
	56 66.5 83.4	10000 12000 15000	A130	243
15	10.8 14 21	3000 4000 6000	A110	233
	34.1	10000	A130	243
20	10.25 15	4000 6000	A110	233
	25 37.5	10000 15000	A130	243
	48.7	20000	A150	316
	61 73	25000 30000	A170	326

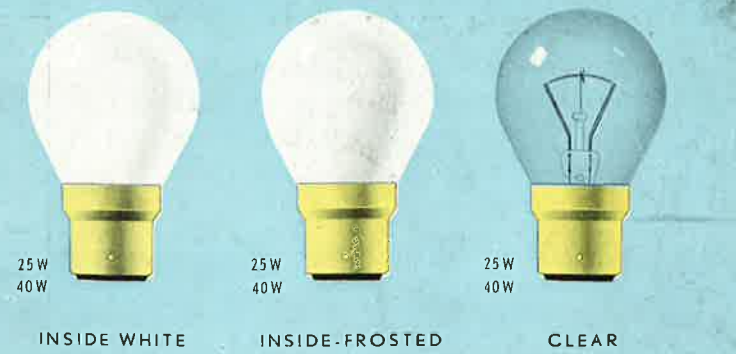
[1]) A = Normal bulbshape
P = Pearshape


model
POST



TRAINLAMPS

A range of lamps produced to withstand the severe vibration and shocks which occur in trains. It is essential that voltage regulating devices are adjusted to the voltage as marked on the lamp; otherwise the lamp life will be unfavourably affected.



INSIDE WHITE INSIDE-FROSTED CLEAR

Finish	Voltage V	Watts	Diam.	Max. length with cap B 22
Inside white	24	25 40	45	75
Inside-frosted	24	25 40	45	75
Clear	24	25 40	45	75

TRAMLAMPS

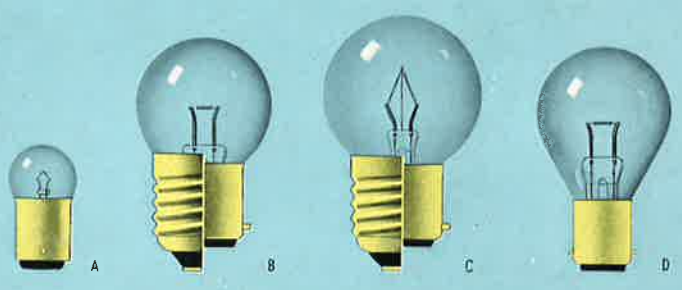
Also in streetcars lamps have to be used which can withstand vibration and shock. Apart from the measures taken to prevent unnecessary filament damage this type resembles a normal 40 W incandescent lamp.

INSIDE-FROSTED CLEAR

Finish	Voltage V	Watts	Diam.	Max. length with cap	
				E 27	B 22
Inside frosted	100–110	40	60	110	108
Clear	100–110	40	60	110	108

BOATLAMPS

In the Philips programme a range of incandescent lamps for marine applications is available. These lamps are constructed to give full satisfaction in steamships, motorboats, yachts etc.

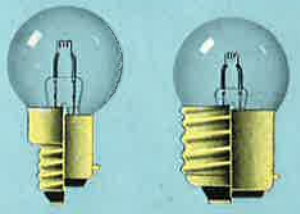


BOATLAMPS

Finish	Voltage V	Watts	Diam.	Fig.	E 27	B 22	B 15
Clear	6 or 12	5	18	A	—	—	35
		10	35	B	63.5	57.5	—
		10 15 25 35	40	C	68.5	62.5	—
	24	10	35	B	63.5	57.5	—
		10 15 25 35	40	C	68.5	62.5	—
	6–12	15 25 35	34	D	—	—	61.5
	24	15 25 35	34	D	—	—	61.5

CURRENT INDICATOR LAMPS

Often it occurs that an indicator on a certain control is essential to show whether current is on or off. For this purpose special current indicators are available in the Philips lamp programme.



CURRENT INDICATORLAMP

Current A	Voltage Ca.	Diam.	Max. length with cap			
			E 27	B 22	E 14	B 15
From 0.06 up to 10	1	30	52	50	55	50

MINERS LAMPS

A full range of miner's lamps is manufactured with caps adapted to the special requirements of all types of hand and cap lamp equipments.

Voltage V	Current A	Diam.	Average life	Max. length with cap E 14	Max. length with cap E 10	Max. length with cap B 15
2	0.85	15	500		29	
	0.85	18	1000			37
	0.85	22	1000			42
	0.9	22	1000	42		
	1.0	25	300	50		
2.4	0.6	15	500		29	
	0.8	17	500		30.5	
	0.85	15	500		29	
	1.0	17	500		30.5	
	1.0	25	500	50		48
	1.15	17	250		30.5	
	1.5	25	500	50		48
	1.75	25	500	50		48
2.5	0.5	15	500		29	
	0.7	15	500		29	
	0.75	25	500	50		48
	1.0	25	500	50		48
	1.0–0.75	25	500			48
	1.25	17	500		30.5	
	1.5	25	500			48
	1.75	25	500	50		48
2.6	0.5	15	500		29	
	0.5	25	300	50		48
	0.7	15	500		29	
	0.7	25	300	50		48
	0.9	25	300	50		48
	1.0	25	300	50		48
	1.2	25	300	50		48
	1.25	25	500			48
	1.35	25	300	50		48
	1.5	25	300	50		48
	1.75	25	500	50		48
3.6	1.0	17	500		30.5	
3.7/3.87	1.0/0.65	25	500			48
3.75	0.9	17	500		30,5	
4	0.46	11	200		23.5	
	0.5	17	500		30.5	
	0.55	15	500		29	
	0.8	17	200		30.5	

VACUUM CLEANER LAMPS

In many appliances such as mixers, vacuum cleaners etc. reinforced construction lamps are used to illuminate certain areas. Available in clear and inside-frosted finish.

Voltage	Watts	Diam.	Max. length with cap B 15
100–165 V	20	22	66
170–250 V	25		

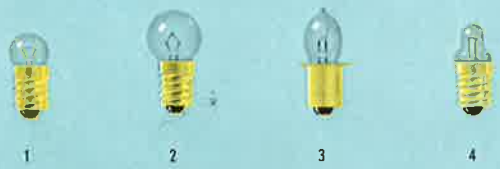
TELEPHONE LAMPS

In telephone switchboards generally several light points are incorporated, operating in conjunction with certain parts of the equipment. These lamps are specially designed for telephone installations.

Type	Voltage	Watts	Diam.	Max. length
Ericson	3–60 V	max. 3	5.5	45
Bell			6	45
N.A.W.I.			6	46

MINIATURE LAMPS

For flashlight and prefocus flashlight lamps 16 different lamp types are made ranging from 1.2 V to 6.2 V. Flashlight lamps are made for torches and hand dynamos, prefocus flashlight lamps for spotlight type reflectors. In these the filament is most accurately positioned and provides a highly concentrated beam of light.



1 2 3 4

FLASHLIGHT

Catalogue number	Voltage	Amp.	Bead-colour	Bulb	Cap	Diam. mm	Ovl. mm	Fig.
7111 D	2.5	0.1						
6890 D	2.5	0.2						
6891 D	3.5	0.2	—	G 3½	E 10	11	24	1
7135 D	2.5	0.3						
7138 D	3.8	0.3						
7145 D	6.2	0.3		G 4½		14	28	2

PREFOCUS FLASHLIGHT

PR 2	2.4	0.5	blue					
PR 3	3.6	0.5	green					
PR 4	2.3	0.27	light-green					
PR 6	2.5	0.3	brown	B-3.5	P9	11	30.5	3
PR 7	3.8	0.3	pink					
PR 8	1.9	0.6	—					
PR 9	2.7	0.15	—					
PR 12	6	0.5	—					

LENS-END LAMPS

112	1.2	0.22	pink	TL 3	E 10	9.5/	23	4
222	2.25	0.25	white			6.3		

BICYCLE LAMPS

Catalogue number	Voltage	Amp. or Watts	Cap	Diam. mm	Ovl. mm	Fig.
7126 D	4	0.3 A				
7133 D	6	0.25 A				
7140 D	6	0.3 A				
7141 D	6	0.35 A	E 10	15	29	5
7142 D	6	0.45 A				
7143 D	6	0.50 A				
7185 D	8	0.45 A				
7193 D	10	0.45 A				
7121 D	6		E 10			6
7121 N	6	0.05 A	BA 9s	11	24	6
7181 D [4]	8—10		E 10			7
7181 N	8—10		BA 9s			7

FOR BICYCLES WITH AUXILIARY MOTOR

1002 D		3.4 W				
1003 D		3.7 W				
1004 D		4.0 W				
1005 D		4.4 W				
1006 D	6	4.8 W	E 10	15	29	8
1007 D		5.2 W				
1008 D		5.7 W				
1009 D		6.2 W				
1010 D		6.8 W				
1011 D		7.5 W				
1001 D [1]	6	1.5 W	E 10	11	24	6
1001 N			BA 9s			

1) With Cap BA 9s

BICYCLE LAMPS

Head- and tail lamps for bycicles and bycicles with auxiliary motor are part and parcel of the Philips' miniature lamp programme. To derive maximum results from these lamps the total consumption of the head- and tail lamps must correspond with the output of the dynamo.

5 6 7 8

Catalogue number	Voltage	Amp.	Appr. life in hrs.	Cap	Diam. mm	Ovl. mm	Fig.
8096 D	2.5	0.5	3000	E 10	10.5	30	9
8041 D	4	0.1	3000	E 10	10.5	30	9
8042 D	4	0.5	3000	E 10	10.5	30	9
8038 D	5	0.2	3000	E 10	10.5	30	9
8023 N	6	0.18	3000	BA9s	11	24	10
8000 D	6	0.21	3000	E 10	10.5	30	9
8001 D	6	0.4	1000	E 10	10.5	30	9
8002 D	6	0.5	1000	E 10	10.5	30	9
8043 D	6.3	0.09	3000	E 10	10.5	30	9
8073 D	6.3	0.1	3000	E 10	10.5	30	9
8006 D	6.3	0.1	1000	E 10	10.5	30	9
8008 D [1]	6.3	0.15	1000	E 10	10.5	30	9
8008 N [2]	6.3	0.15	1000	BA9s	10.5	30	11
8009 D [3]	6.3	0.25	3000	E 10	10.5	30	9
8009 N [4]	6.3	0.25	3000	BA9s	10.5	30	11
8024 D	6.3	0.3	3000	E 10	10,5	30	9
8024 N	6.3	0.3	3000	BA9s	10,5	30	11
8045 D	6.3	0.32	3000	E 10	10.5	30	9
8024 N	6.3	0.32	3000	BA9s	10.5	30	11
8091 D	6.3	0.64	3000	E 10	10.5	30	9
8025 D	6.5	0.45	3000	E 10	10.5	30	9
8025 N	6.5	0.45	3000	BA9s	10.5	30	11
8034 D	10	0.2	3000	E 10	10.5	30	9
8007 D	10	0.2	1000	E 10	10.5	30	9
8089 N	12	0.1	3000	BA9s	11	24	10
8089 D	12	0.1	3000	E 10	11	24	12
8003 D	12	0.1	3000	E 10	10.5	30	9
8004 D	15	0.2	3000	E 10	10.5	30	9
8005 D	18	0.1	3000	E 10	10.5	30	9
8097 D	19	0.097	3000	E 10	10.5	30	9

DIAL LAMPS

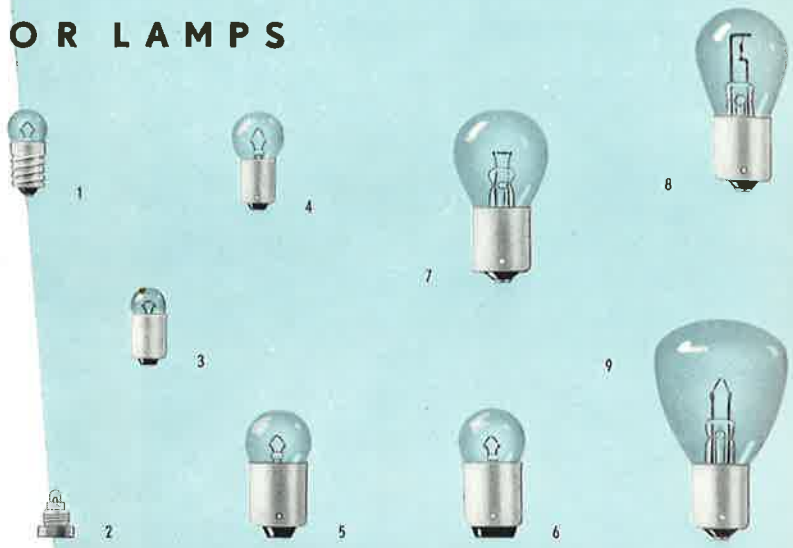
A good example of the application of dial lamps is to be found in to-day's radio sets which generally are equipped with two of those lamps. In the manufacture of dial lamps great care is given to the mounting of the filament so that with Philips' dial lamps noise due to the lamps is eliminated.

9 10 11 12

[1]) American equivalent type: No. 40.
[2]) American equivalent type: No. 47.
[3]) American equivalent type: No. 46.
[4]) American equivalent type: No. 44.

AEROPLANE INTERIOR LAMPS

The enormous development of aviation has created demands for a very wide variety of lamps of many types. Careful investigation in the Philips scientific laboratories of the problems encountered in aeroplane lighting and of the possible applications has lead to the introduction of a wide range of aeroplane interior lamps.



Catalogue number	Watts	Voltage	Amp	CP	Diam.	Lcl.	Ovl.	Cap	Fig.
7135 D		2.5	0.3		11.5		24	E 10	1
7135 D/37		2.5	0.3		11.5		24	E 10	1
D 150–26		3	0.2		4.5		13.6	Special	2
D 150–26/37		3	0.2		4.25		13.6	Special	2
6875 D	2	6			11.5		23.5	E 10	1
6875 D/37	2	6			11.5		23.5	E 10	1
6913 N	1.5	6			9.6		23.5	BA 9s	3
6910 N	2.4	6			14.5		28	BA 9s	4
6811 N	3	6			18.5		35	BA 15s	5
6812 W	3	6			18.5		35	BA 15d	6
6821 N	5	6			18.5		35	BA 15s	5
6401 N	15	6			25.5	27	45	BA 15s	7
6325 N	25	6			26	31.5	49.5	BA 15s	8
6211 N	25	6			35	31.8	56	BA 15s	9
6221	35	6			35	31.8	56	BA 15s	9
7121 D		6	0.015		11.5		24	E 10	10
8008 N		6.3	0.15		11		30	BA 9s	11
8025 N		6.5	0.45		11		30	BA 9s	11
12009 N		6–8	0.25		10.5		30	BA 9s	11
12913 N	1.5	12			9.6		23.5	BA 9s	3
D 115–00		12	0.2		15.5		29	BA 15s	12
12811 N	3	12			18.5		35	BA 15s	5
12812 W	3	12			18.5		35	BA 15d	6
12821 N	5	12			18.5		35	BA 15s	5
12822 W	5	12			18.5		35	BA 15d	6
12401 N	15	12			25.5	27	45	BA 15s	7
12325 N	25	12			26	31.5	49.5	BA 15s	8
12325 N/02	25	12			26	31.5	49.5	BA 15s	8
12326 W	25	12			26	31.5	49.5	BA 15d	13
12211 N	25	12			35	31.8	56	BA 15s	9
12875 D	3	12			11.5		23.5	E 10	2
12875 D/37	3	12			11.5		23.5	E 10	2
12211 N	25	12			25	31.8	56	BA 15s	9
12211 N/02	25	12			35	31.8	56	BA 15s	9
12221 N	35	12			35	31.8	56	BA 15s	9
12221 N/02	35	12			35	31.8	56	BA 15s	9
8072 D		12	0.1		11.5		24	E 10	1
8072 D/37		12	0.1		11.5		24	E 10	1
12008 D		12	0.025		15.5		28	E 10	14
12008 D/37		12	0.025		15.5		28	E 10	14
12104 N		12–16		50	35	31.8	56	BA 15s	9
12104 W		12–16		50	35	31.8	56	BA 15d	15
12002		12–16	0.1		10		30	BA 9s	16
8004 D		15	0.2		10.5		30	E 10	17
8004 N		15	0.2		10.5		30	BA 9s	16
D 115–50	3	24			10.5		31	BA 9s	18
13822	5	24			18		33	BA 9s	19
D 008–01		26	2.7		35	31.8	56	BA 15s	20
12000 N		28		3	15.5	17.5	34	BA 15s	21

PHILIPS for LIGHT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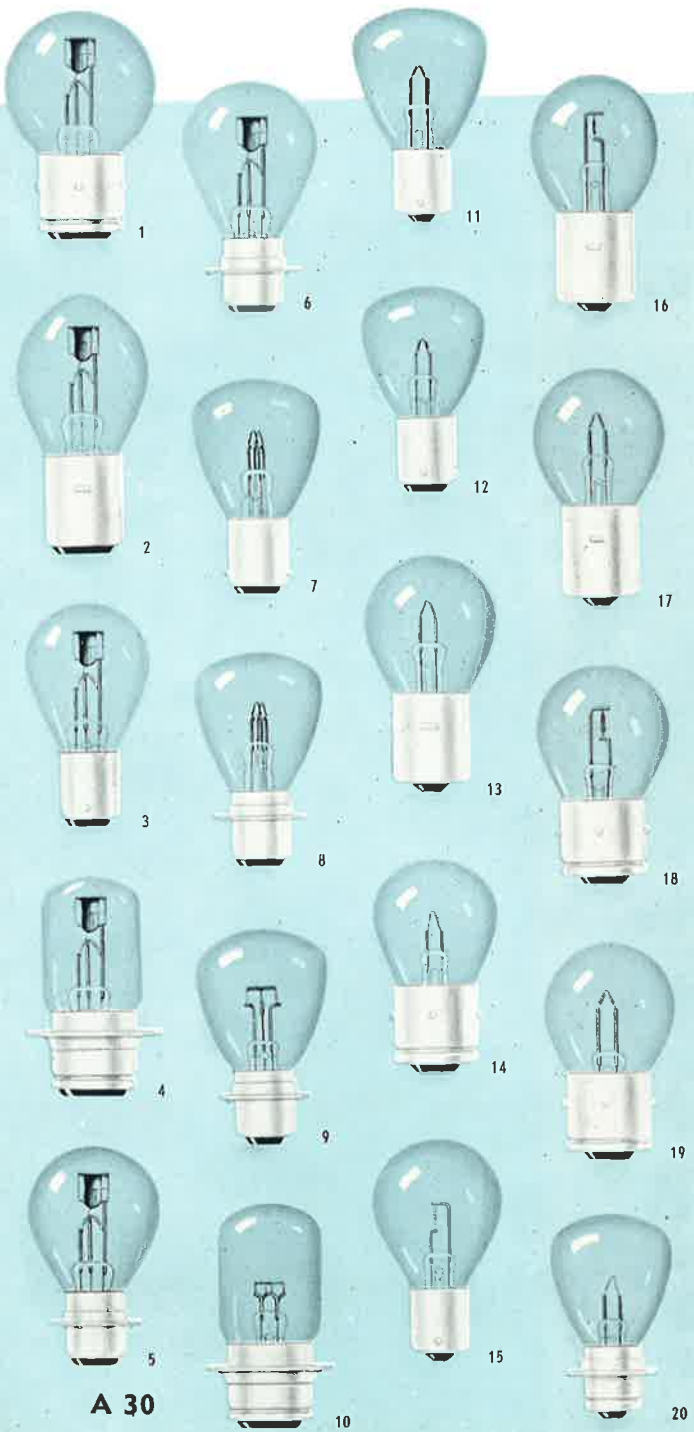
Catalogue number	Watts	Voltage	Amp	CP	Diam.	Lcl.	Ovl.	Cap	Fig.
12000 W		28		3	15.5	17.5	34	BA 15d	22
12001 N		28		6	18.5		35	BA 15s	23
12001 N/37		28		6	18.5		35	BA 15s	23
12001 N/07		28		6	18.5		35	BA 15s	23
12001 W		28		6	18.5		35	BA 15d	24
12100 N		28		15	25.5		50	BA 15s	25
12100 N/37		28		15	25.5		50	BA 15s	25
12100 N/21		28		15	25.5		50	BA 15s	25
12100 W		28		15	25.5		50	BA 15d	26
12101 N		28		21	25.5		50	BA 15s	25
12101 N/37		28		21	25.5		50	BA 15s	25
12101 N/02		28		21	25.5		50	BA 15s	25
12101 N/21		28		21	25.5		50	BA 15s	25
12101 W		28		21	25.5		50	BA 15d	26
12101 W/37		28		21	25.5		50	BA 15d	18
12101 W/21		28		21	25.5		50	BA 15d	26
12101 W/07		28		21	25.5		50	BA 15d	26
12101 N		28		32	35	31.8	59	BA 15s	27
12102 N/02		28		32	35	31.8	59	BA 15s	27
12102 W		28		32	25	31.8	59	BA 15d	28
12102 W/37		28		32	35	31.8	59	BA 15d	28
12102 W/02		28		32	35	31.8	59	BA 15d	28
12103 N		28		50	35	31.8	59	BA 15s	26
12103 N/37		28		50	35	31.8	59	BA 15s	26
12103 N/02		28		50	35	31.8	59	BA 15s	26
12103 W		28		50	35	31.8	59	BA 15d	27
12103 W/37		28	0.17	50	35	31.8	59	BA 15d	27
12006 N		28	0.17		10		30	BA 9s	18
12006 N/37		28			10		30	BA 9s	18
12004 N		28		3	18.5		35	BA 15s	23
12001 N		28		6	18.5		35	BA 15s	23
D 008–00		28		100	49	40	71.5	BA 15s	29
12004 N		28		3	18.5		35	BA 15s	23
12105 N/13	20	28			38	31.7	66.6	BA 15s	30
12005 N		28	0.035		10		30	BA 9s	18
12003 N		28	0.1		10		30	BA 9s	18
12007 D		28	0.1		15.5		28	E 10	14
8045 D			6.3	0.32	11	25	30	E 10	31
13210 X/45	4	24			38 ± 1		61.5	BA 15 d 2	32

/37 Red /21 Inside-frosted /07 Outside-frosted /02 Silver bowl

MOTORCAR LAMPS

Vehicle lighting is one of the most vital factors in road safety. We are confident that whatever the make of car suitable lamps will be found in the Philips range. Every Philips motor car lamp is made to the highest standards of reliability and efficiency. Special attention is drawn to the famous "Duplo lamps" which supply a strong and bright driving beam as wel as a passing beam that cuts off under the horizontal. These lamps incorporate an anti-dazzle device.



HEADLIGHT LAMPS "DUPLO"

TWIN FILAMENT WITH METAL CUP

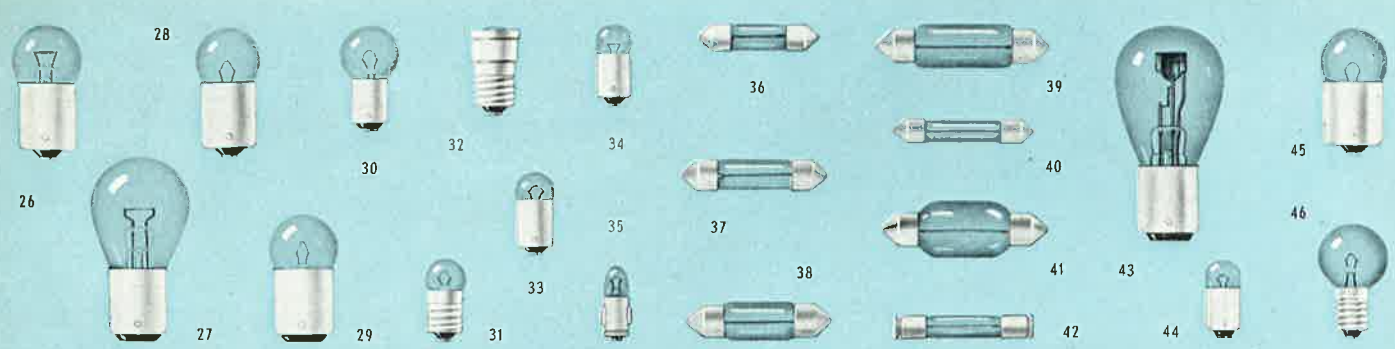
Catalogue number	Voltage	Watts	Cap	Diam.	Ovl.	Fig.	Service
6715 [2])	6	25/25	BA21d	41	63	1	Headlamps for French cars and lighting equipment [1])
6725	6	35/35					
12725	12	35/35					
13725	24	35/35					
6745	6	45/40					
12745	12	45/40					
13745	24	45/40					
6708	6	15/15	BA20d	35.5	70	2	Headlamps for Czechoslovakian Italian, German and Swedish cars and lighting equipment
6718	6	25/25					
6728	6	35/35					
13728	12	35/35					
6920	24	35/35					
6748	6	45/40					
12748	12	45/40					
13748	24	45/40					
6712	6	25/25	BA15d	35	60	3	Headlamps for American cars
6722	6	35/35					
12722	12	35/35					
6791 L	6	25/25	BA15d	35	60	3	Headlamps for British cars
6792 L	6	35/35					
12792 L	12	35/35					
13792 L	24	35/35					
6711	6	25/25	P 22d	29	62	4	Prefocus lamps for British cars [3])
6721	6	35/35					
12721	12	35/35					
13721	24	35/35					
6741	6	45/40					
12741	12	45/40					
13741	24	45/40					
6951	6	35/35	P15H [4])	35	62	5	Prefocus lamps for American cars
12951	12						
6953	6	35/35	P15V [4])	35	62	6	
12953	12						

TWIN FILAMENT WITHOUT METAL CUP

6612	6	25/25	BA15d	35	56	7	Headlamps for American cars
6622	6	33/35					
12622	12	35/35					
6902	6	35/35	P15H [4])	35	56	8	Prefocus headlamps for American cars
12902	12						
6905	6	35/35	P15V [4])	35	56	9	
12905	12						
12958 [5])	6	42/36	P 22d	29	62	10	Prefocus headlamps for British cars
12959 [5])	12						

SINGLE FILAMENT LAMPS

6211 [6])	6	25	BA 15s	35	56	11	Spot and Fog lamps
12211 [6])	12	25					
6221 [6])	6	35					
12221 [6])	12	35					
13221 [6])	24	35					
6212 [6])	6	25	BA15d	35	56	12	
12212 [6])	12	25					
6222 [6])	6	35					
12222 [6])	12	35					
13222 [6])	24	35					
6227	6	35	BA 20s	35	62	13	
12227	12						
13227	24						
6224	6	35	BA 21s	40	61	14	
12224	12						
13224	24						



SPECIAL SINGLE FILAMENT LAMPS

Catalogue number	Voltage	Watts	Cap	Diam.	Ovl.	Fig.	Service
6321 12321	6 12	35	BA 15s	35	56	15	Spot and foglight
6241 12241 13241	6 12 24	45	BA 15s	35	56	11	
6242 12242 13242	6 12 24	45	BA 15d	35	56	12	
6327 12327	6 12	35	BA 20s	35	62	16	
6247 12247 13247	6 12 24	45	BA 20s	35	62	17	
6324 12324	6 12	35	BA 21s	35	58	18	
6244 12244 13244	6 12 24	45	BA 21s	35	58	19	
6299 12299	6 12	35	P 15s	35	56	20	
6323 12323 12228	6 12 12	35 35 45	P 22s	29	26	21	
13318 12243	24 12	35 45	P 22s	29	62	22	

AUXILIARY LIGHTING

6401 12401 13401	6 12 24	15	BA 15s	25.5	45	23	Stoplamps
6402 12402 13402	6 12 24	15	BA 15d	25.5	45	23[7])	
6503 12503	6 12	20/5	BA 15d	26	48	24	Stop-taillamps
6500 12500	6 12	20/5	BA 15d spec.	26	48	25	
6410 12410	6 12	15	BA 15s	18.5	35	25	Signal-lamps
6413 12413	6 12	10					
6403 12403 13403	6 12 24	15	BA 15s	26	48	27[8])	Interior bus lighting
6404 12404 13404	6 12 24	15	BA 15d	26	48	27	
6811 12811	6 12	3	BA 15s	18.5	35	28	
6821 12821 13821	6 12 24	5					

AUXILIARY LIGHTING

Catalogue number	Voltage	Watts	Cap	Diam.	Ovl.	Fig.	Service
6812 12812	6 12	3	BA 15d	18.5	35	29	Indicator, Parking, Dashboard, Interior
6822 12822 13822	6 12 24	5					
6819 12819 13819	6 12 24	5 6 6	BA 9s	15.5	29	30	Indicator for British cars
6875 12875 13875	6 12 24	2 3	E 10	11.5	23.5	31	Dashboard Indicator
6876 12876 13876	8 12 24	2 3	E 10/20	12	22	32	
6910 12910 13910	6 12 24	2.4 3	BA 9s	11.5	23.5	33	Parking Dashboard Indicator
6913 12913	6 12	2	BA 9s	9.5	23.5	34	
6828 12828	6 12	0.6 1.2	BA 7s	7.5	20	35	Indicator Speedometer
6842 12842	6 12	3	S 7	8	31	36	Trafficator Interior Dashboard Parking
6843 12843 13843	6 12 24	3	S 7	8	36	37	
6844 12844 13844	6 12 24	5	S 8.5	11	39	38	
6864 12864 13864	6 12 24	5	S 8.5	11	44	39	
6849 12849 13849	6 12 24	3	S 6	6.5	37	40	
6866 12866 13866	6 12 24	10	S 8.5	15.5	44	41	
6850 12850 13850	6 12 24	15					
6851 12851	6 12	3	S 6 spec.	6.5	37	42	

LAMPS FOR MOTORCYCLES

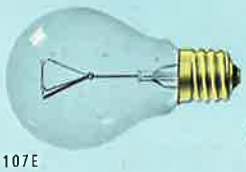
7030	6	15/15	BA 15d1	29	60	43	Headlamp
7006	6	22/22	BA 20d	35.5	70	2	

AUXILIARY LIGHTING

7099	6	3	BA 9s	9.5	22.5	44	Special lamps for light
7083	7.5	5	BA 15s	18.5	33	45	
7084	7.5	5	E 10	17.5	32	46	

[1]) Also for American cars if the sealed beam units are replaced by French or Belgian reflectors
[2]) Also for motor cycles
[3]) Also for American cars if the sealed beam units are replaced by British reflectors
[4]) Lamps with caps P15H and with cap P15V are not interchangeable Mind the position of the notch on the prefocus ring. For cap P15V the position of the notch in regard to the contacts is turned 90° as compared with cap P15H
[5]) These lamps should be distributed in countries where there are no regulations decreeing the use of "Duplo" lamps
Cat. Nr. 12958 C is **equivalent** to Lucas types 354 **(left traffic)**
Cat. Nr. 12959 C is **equivalent** to Lucas type 355 **(right traffic)**
[6]) If used in British head lamps write capital "L" behind the catalogue number
[7]) As fig. 23 however with cap BA 15d
[8]) As fig. 27 however with cap BA 15s

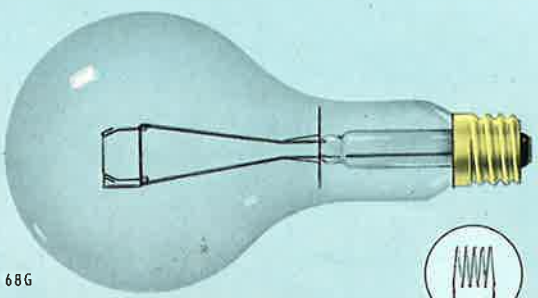
PROJECTION LAMPS (Horizontal)



107E

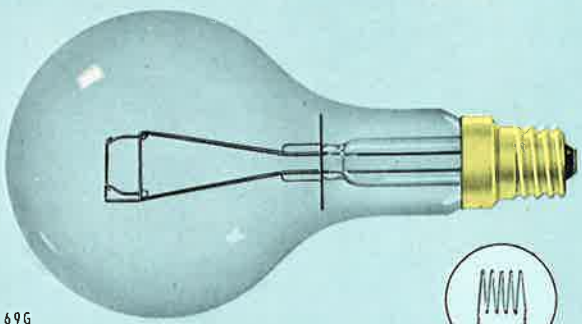
Topview filament

These lamps are specially constructed for use in flood-lighting fittings for stage spotlights, for buildings etc. It is essential that these lamps are used in the horizontal position and it is of the utmost importance that the part of the bulb marked "top" is uppermost. The fittings in which these lamps are used must be properly ventilated.



68G

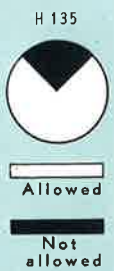
Topview filament

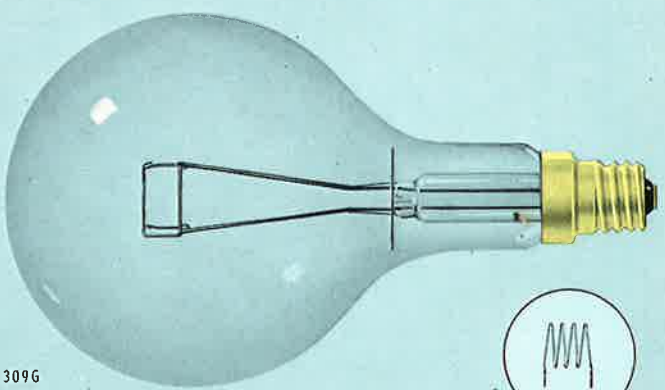


69G

Topview filament

BURNING POSITION

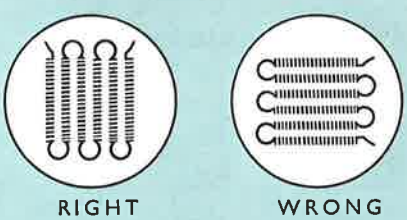




309G

Topview filament

POSITION OF FILAMENT



Topviews are given to make clear how the filament is situated

LAMP DATA

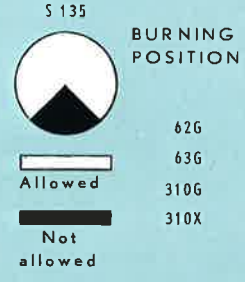
Catalogue number	Voltage	Watts	Lumens	Average [1]) life	Cap	Diam.	Ovl.	Lcl.
107 E	100–160 200–250	100	1250 1050	300	E 27	70	120	95
68 G	100–160 200–250	1000	20500 19500	300	E 40	150	300	235
69 G	100–160 200–250	1500	32500 29500	300	E 40	170	330	260
309 G	100–160 200–250	2000	44000 41000	300	E 40	200	360	275

[1]) Average life under laboratory conditions.

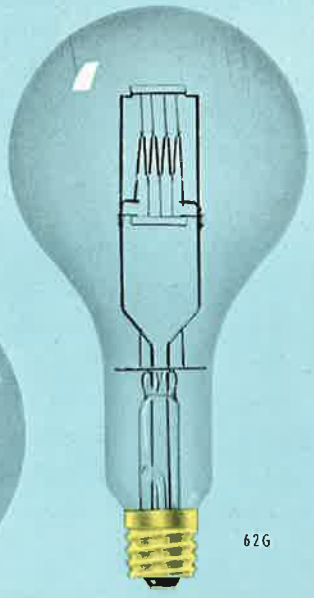
PHILIPS

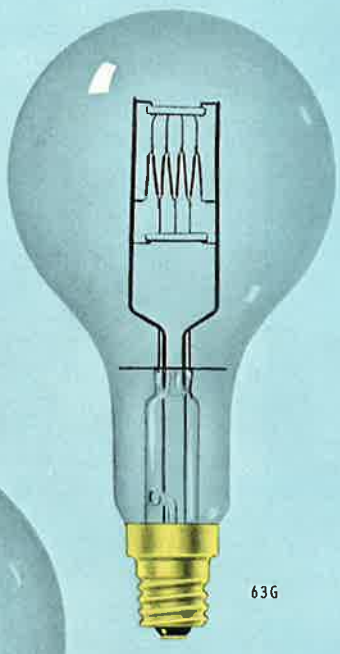
PROJECTION LAMPS (Vertical)

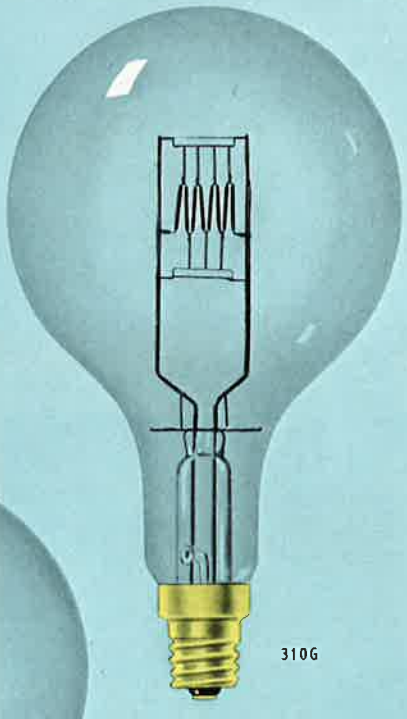
Used in the correct projectors these lamps supply a sharp and concentrated beam and are consequently very suited for stage lighting and similar purposes. The lamps are available without or with mirror. When ordering mirror type lamps, add 01 to the catalogue number. If lamps with mirror are used it is essential that the mirror is not above the filament. Projectors which are to be equipped with these lamps must be properly ventilated.

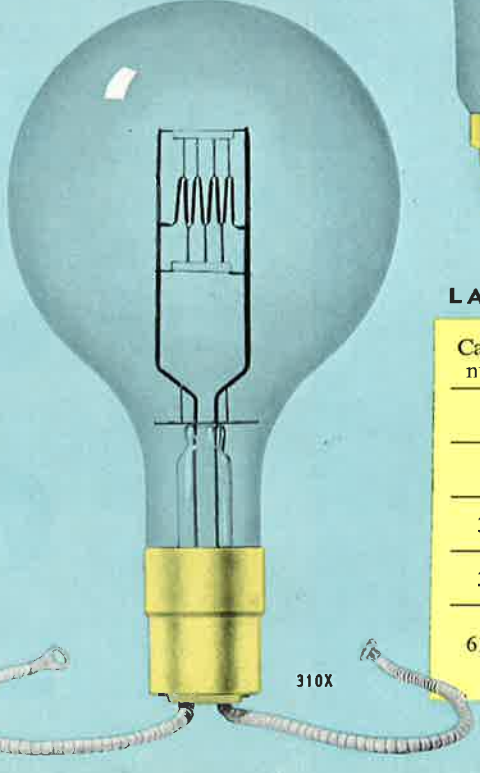


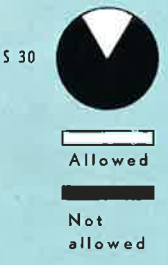
62G
63G
310G
310X

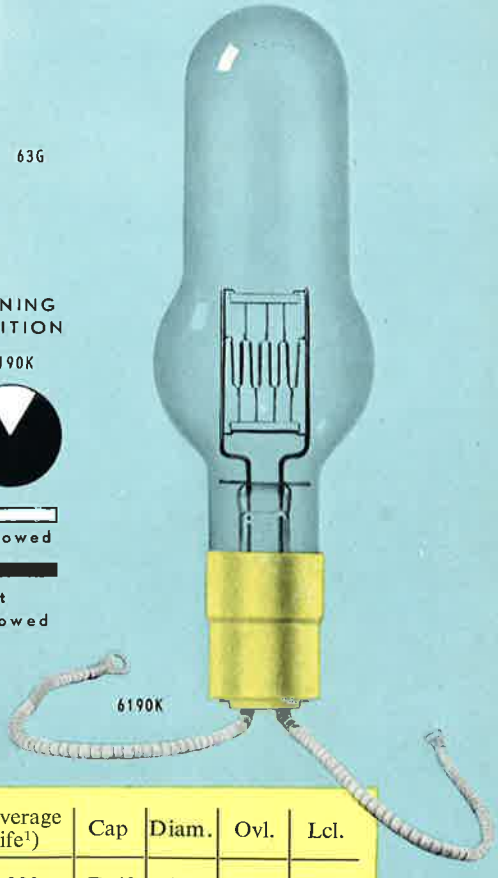

62G


63G


310G


310X




6190K

LAMP DATA

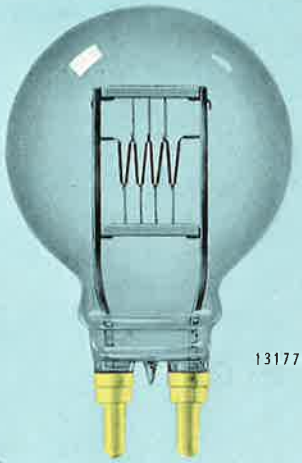
Catalogue number	Voltage	Watts	Lumens	Average life[1])	Cap	Diam.	Ovl.	Lcl.
62 G	100–160 200–250	1000	21500 21000	300	E 40	150	300	215
63 G	100–160 200–250	1500	34000 31000	300	E 40	170	330	235
310 G	100–160 200–250	2000	46000 43000	300	E 40	200	360	250
310 X	100–160 200–250	2000	46000 43000	300	G2K	200	360	240
6190 K	65 100–160 200–250	3000	80000 80000 75000	100	G2Ka	120	380	178

[1]) Average life under laboratory conditions.

FILMSTUDIO LAMPS 3200 °K

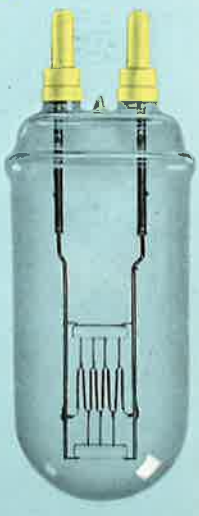
AND BLACK AND WHITE PHOTOGRAPHY

These lamps have high luminous intensity due to their compact filaments. Their great advantage over the arc lamps formerly used is the complete absence of noise which might interfere with the production of sound films. Moreover these lamps will not affect the parabolic mirror to such an extent as the arc lamp did. The filaments of bi-post lamps are most accurately centered with respect to the pins, consequently the lamps can be exchanged without any further adjustment.



13177P

6046G

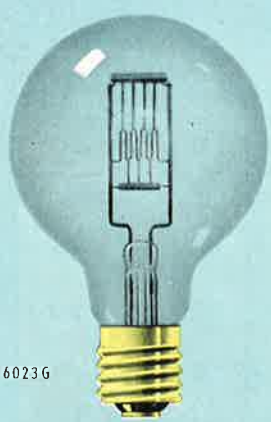


13180P

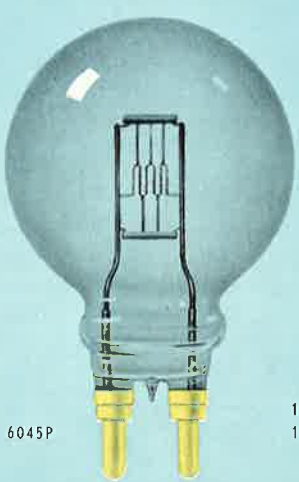
13190P

13176P

13174P



6023G



6045P

13179P
13171P

BURNING POSITIONS

S30

13190P 13174P

S45

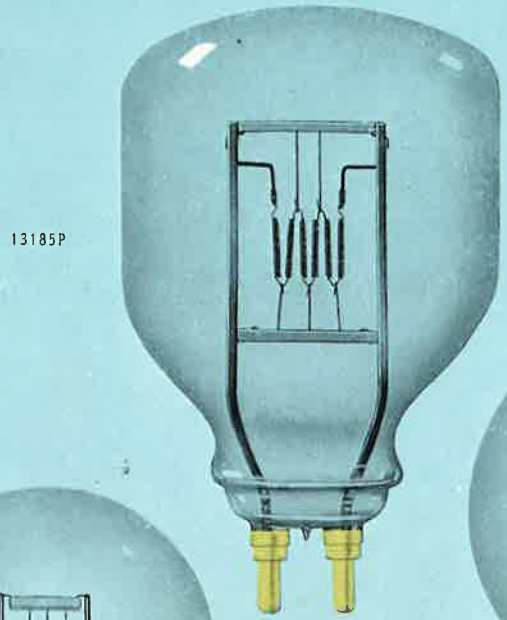
13176P 6023G
6046G 13177P
6039G 6040K
6038P 6043K
6045P 13185P

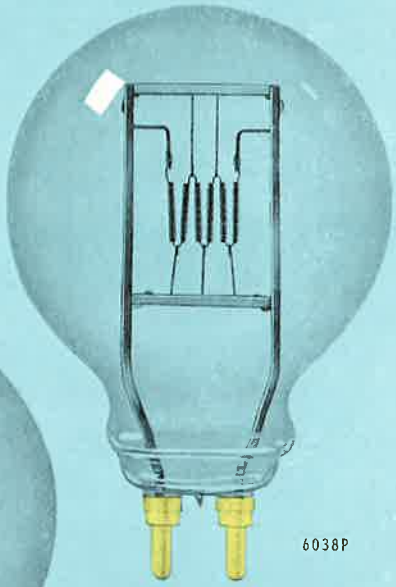
H15

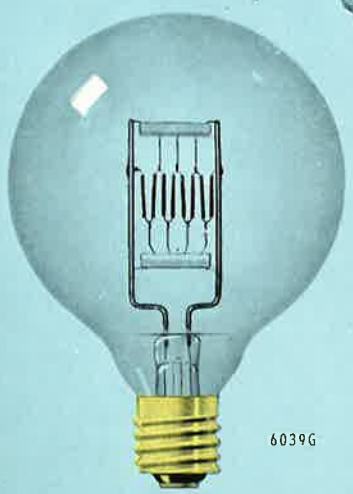
13171P 13179P
13180P

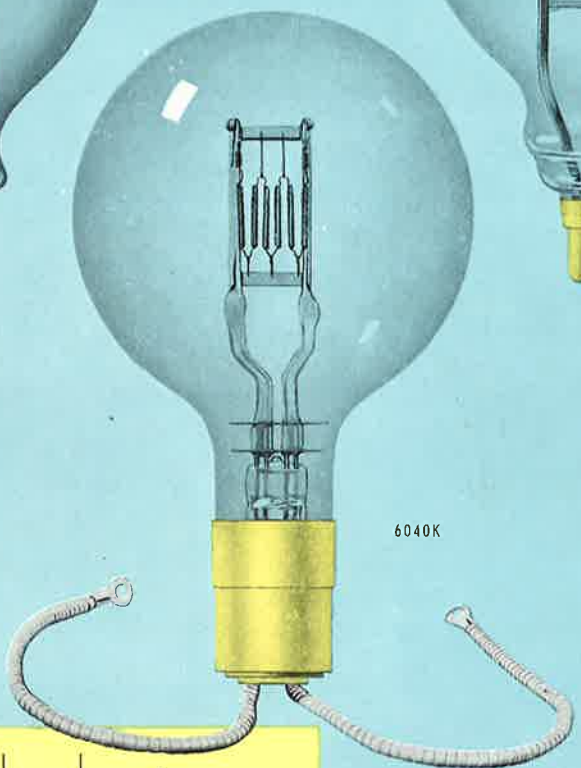
Allowed

Not allowed



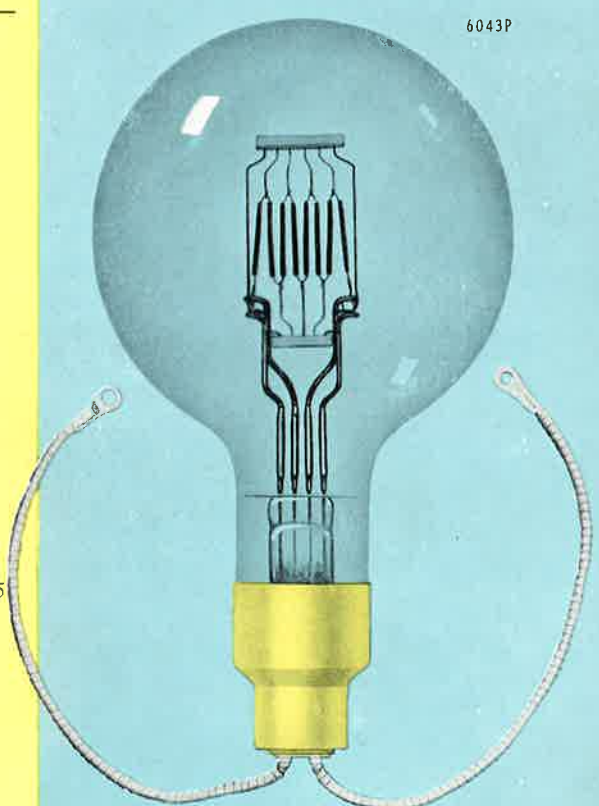




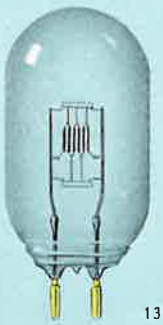


Catalogue number	Voltage	Watts	Lumens	Cap	Diam.	Ovl.	Lcl.
13190 P	100–160 200–250	500	13000 11000	Bi 22	63	165	63.5 ± 2
13176 P	100–160 200–250	500	12500 10500	Bi 22	95	140	63.5 ± 2
13174 P	100–160 200–250	750	19000 17000	Bi 22	75	165	63.5 ± 2
6023 G	100–160 200–250	1000	25000 23000	E 40	130	205	133 ± 5
6045 P	100–160 200–250	1000	25000 23000	Bi 38	150	230	127 ± 2
13171 P	100–160 200–250	1000	23000 21000	Bi 38	76	255	165 ± 2
13179 P	100–160 200–250	1500	35000 33000	Bi 38	76	255	165 ± 2
13180 P	100–160 200–250	2000	49000 45000	Bi 38	95	255	165 ± 2
6046 G	100–160 200–250	2000	53000 50000	E 40	150	220	133 ± 5
13177 P	100–160 200–250	2000	53000 50000	Bi 38	150	235	127 ± 2
6039 G	100–160 200–250	3000	80000 78000	E 40	170	247	150 ± 0.5
13185 P	100–160 200–250	5000	140000 135000	Bi 38	200	339	165 ± 2
6040 K*)	100–160 200–250	5000	140000 135000	S 59/2Ca	200	340	228 ± 8
6038 P	100–160 200–250	5000	140000 135000	Bi 38	200	300	165 ± 2
6043 K	100–160 200–250	10000	290000 275000	S 59/2Ca	270	475	305 ± 10

*) Evl. instead of cable pins. Catalogue number: 6040 S



13192P

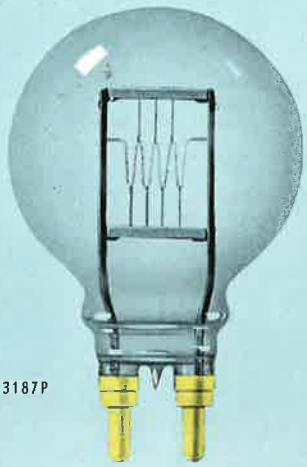


13172P

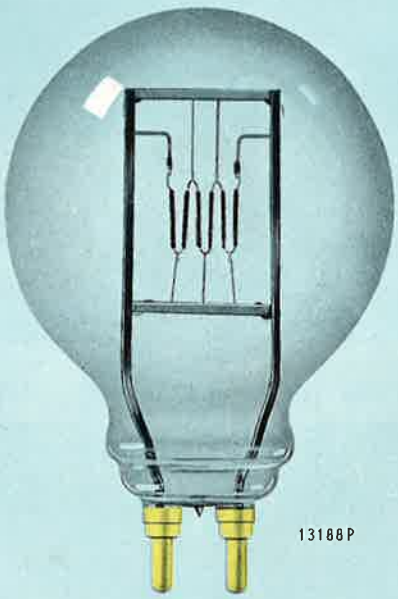
FILMSTUDIO LAMPS 3350 °K*

The lamps have the same characteristics as noted with the Filmstudio lamps 3200 °K. The main application of lamps with colour temperature 3350 °K* is with technicolor processes.

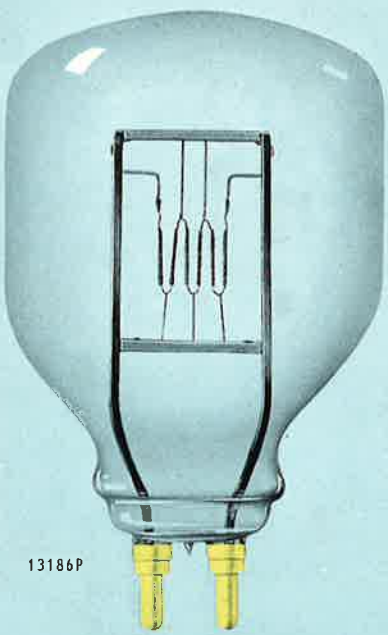
* Read for 3350 °K, **ca. 3250 °K**



13187P



13188P



13186P

BURNING POSITIONS

LAMPDATA

Catalogue number	Voltage	Watts	Lumens	Cap	Diam.	Ovl.	Lcl.
13192 P	100–130	500	—	Bi 22	63	165	63.5 ± 2
13172 P	100–130	750	—	Bi 22	75	165	63.5 ± 2
13187 P	100–130	2000	—	Bi 38	150	240	127 ± 2
13188 P	100–130	5000	—	Bi 38	200	302	165 ± 2
13186 P	100–130	5000	—	Bi 38	200	339	165 ± 2

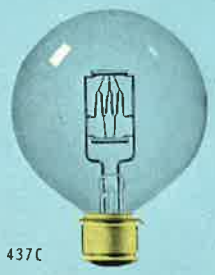
PHILIPS

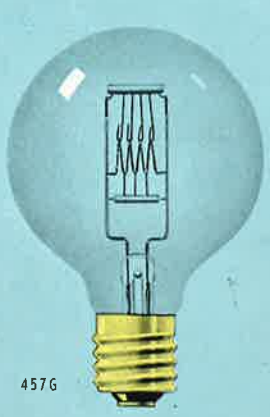
EPISCOPE LAMPS

These lamps are specially designed for use in episcopes which are mainly used in schools and universities for study purposes. The luminous output of episcope lamps is extremely high. They can be supplied without and with mirror. When ordering the latter type 01 is to be added to the catalogue number. The figures in the table giving the luminous flux values apply to lamps without mirror.


422 E


437 E


437 C


457 G

LAMPDATA

Catalogue number	Voltage	Watts	Lumens	Average[1]) life hrs.	Cap	Diam.	Ovl.	Lcl.
422 E	100–160 200–250	250	5500 4500	100	E 27	80	115	70
437 E[2])[3])	100–160 200–250	500	11500 10000	100	E 27	100	140	85
437 C	100–160 200–250	500	11500 10000	100	P 28	100	135	55.6 ± 0.5
457 G	100–160 200–250	1000	25000 23000	100	E 40	130	190	120

BURNING POSITION

[1]) Average life under laboratory conditions without mirror.
[2]) On special request. For Janus apparatus with E 27/46 × 38 with Lcl. of 94 mm. Cat. Nr. 437 X.
[3]) For Bausch and Lomb. Cat. Nr. 6006 E. Lcl. 97 mm. and Diam. 90 mm.

FILM VIEWER LAMPS

These lamps which are used in compact motion picture film viewers closely resemble projection lamps. Their filaments are well concentrated and they give high light output. The equipment in which these lamps are used being small in size and the fact that films are often left exposed for longer periods, are the reasons for the low wattage of these lamps.


7248M


7247M


7246M


7249M

LAMPDATA

Type	Voltage	Watts	Cap	Diam.	Ovl.	Lcl.
7248 M	100–250	6	E 12 *)	19	51	35 ± 3
7247 M	100–250	10	E 12 *)	21	48	32 ± 2
7246 M	100–160 200–250	15	E 12 *)	35	59.5	40 ± 2
7249 M	100–165 200–250	15	E 12 *)	34	66	45 ± 2

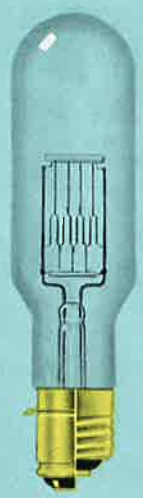
BURNING POSITION

*) Am. candelabra

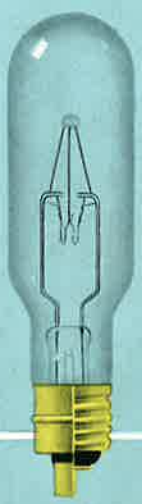
TUBULAR PROJECTION LAMPS

This series of projection lamps range from 500 to 1000 W and are specially manufactured for use in dia-projectors and epidiascopes in which lamps with a very high light output are required. These lamps can also be used in film projectors for smaller cinemas and theaters.

375C 375E



297C 297G



75S 75G

7203C

BURNING POSITIONS

Catalogue number	Voltage	Watts	Lumens	Average life[1])	Cap	Diam.	Ovl.	Lcl.
375 E	100–160 200–250	500	11500 10000	100	E 27	65	135	76
375 C	100–160 200–250	500	11500 10000	100	P 28	65	135	55.6±05
297 G	100–160 200–250	1000	24500 22000	100	E 40	63	237	120
297 C	100–160 200–250	1000	24500 22000	100	P 40	63	245	87 ± 0.5
75 G[2])	30	900	24500	100	E 40	63	237	120
75 S	30	900	24500	100	S 39s	63	250	110
7203 C[3])	110	1000	20000	100	PV 27	38	155	81 ± 0.5

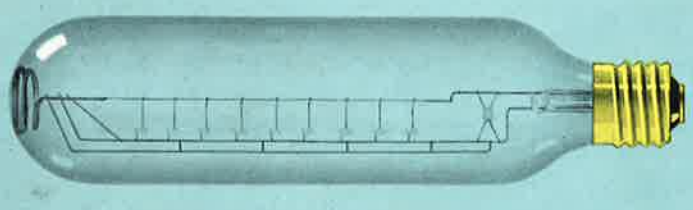
[1]) Average life under laboratory conditions. [2]) Mono-plane filament. [3]) Filament 4 mm exc.

LINEA LAMPS

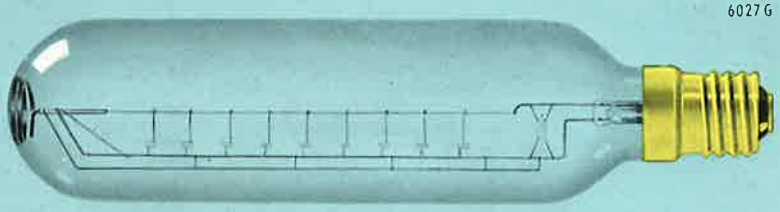
These tubular high capacity lamps of small diameter are very suitable for stage lighting, as foot-lights, and for all purposes where a sharp separation between light and dark is required. In the latter case it is essential that the filament runs parallel to the edge of the covering wall. When operating in horizontal or inclined burning position the metal rods must be situated straight underneath the filament. In vertical and inclined burning positions the cap must be kept down and it is advisable to support the top part of the lamp in horizontal burning position.

BURNING POSITION

6013G



6014G
6027G



Catalogue number	Voltage	Watts	Lumens	Average life[1])	Cap	Diam.	Ovl.	Lcl.
6013 G	100–160 200–250	500	9500 9000	500	E 40	90	365	—
6014 G	100–160 200–250	1000	21000 20000	500	E 40	100	400	—
6027 G	100–160 200–250	1500	32000 30000	500	E 40	100	400	—

[1]) Average life under laboratory conditions.

LAMPS FOR MEDICAL PURPOSES

In surgery, dentistry, opthalmology and many more medical fields special lamps are required to enable the physician to perform his often difficult task. With the requirements in this field in mind, a special line of lamps has been developed which will fit most kinds of instruments.
The lamps for operating theatres (see table) have a second filament for emergency purposes.


13975 B 13975 E


13276 G


13279 G / 88


13976 B 13976 E


13280 G / 88

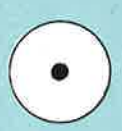
BURNING POSITION


13975•
13976•
13976 G
13280 G / 88


13279 G / 88
H 30

Application	Catalogue number	Voltage	Watts	Lumens	Average life	Cap	Diam.	Ovl.	Lcl.
Surgical Lamps	13975 E 13975 B	100–250	75	650	1000	E 27 B 22	75	145 140	—
	13976 E 13976 B	100–250	150	1700	1000	E 27 B 22	80	145 140	—
Lamps for operating theatres	13276 G	100–250 12/24	150 100	1900	1000	E 40p	90	180	100
	13279 G	100–250 12/24	150 100	1900	1000	E 40p	120	220	—
	13280 G	100–250 12/24	150 100	1900	1000	E 40p	120	220	—

BURNING POSITION




6008 E
6009 E


6215 E

LOCOMOTIVE HEADLIGHT LAMPS

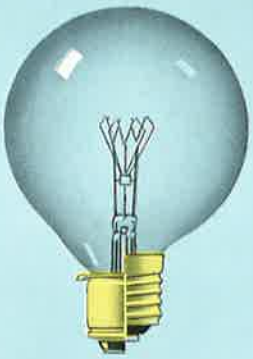
Locomotive headlight lamps have to give a strong beam of light and must be of very robust construction. The Philips range of lamps exactly fits these requirements.

Catalogue number	Voltage	Watts	Lumens	Average life	Cap.	Diam.	Ovl.	Lcl.
6008 E	24–26 32–36	100	1600 1550	500 *)	E 27	80	120	76
6009 E	24–26 32–36	150	2500 2400	500 *)	E 27	80	120	76
6215E	24–26 32–36	250		500 *)	E 27	80	120	76

*) At 25V or on 33.5 V

120 E

123 E



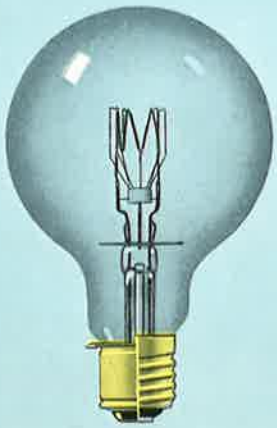
125 C 125 G

BURNING POSITION

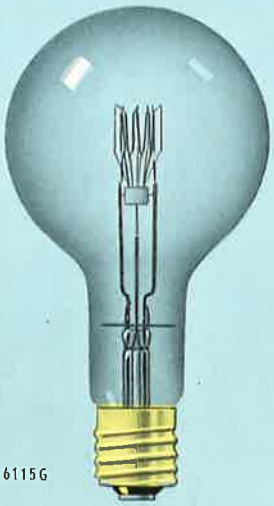
Allowed

Not allowed

504 G



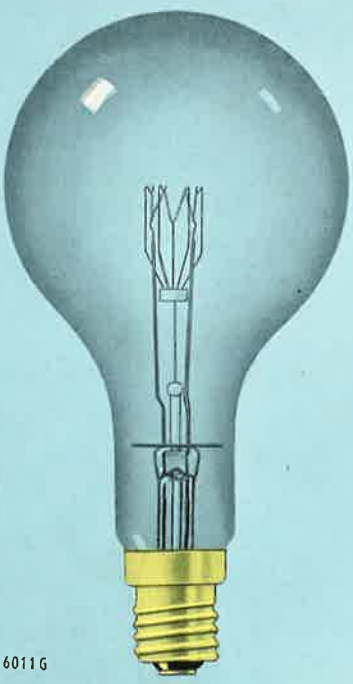
6036 C 6036 G



6115 G

500 hrs

Catalogue number	Voltage	Watts	Lumens	Average[1]) life	Cap	Diam.	Ovl.	Lcl.
120 E	100–160 200–250	100	1100 900		E 27	80	120	76
123 E	100–160 200–250	250	3800 3300		E 27	90	125	76
125 G	24 100–160 200–250	500	10000 9000 8000		E 40	120	175	108
125 C	24 100–160 200–250	500	10000 9000 8000		P 40	120	175	80 ± 0.5
6036 G	24 100–160 200–250	1000	22000 20000 19000	500	E 40	130	215	140
6036 C	24 100–160 200–250	1000	22000 20000 19000		P 40	130	215	100 ± 0.5
6115 G[2])	24 100–160 200–250	1000	22000 20000 19000		E 40	130	255	180
504 G	100–160 200–250	1000	20000 19000		E 40	130	185	108
6011 G	100–160 200–250	1500	30000 29000		E 40	170	345	235



6011 G

[1]) Average life under laboratory conditions.

[2]) For Philips Floodlight VC.

FLOODLIGHTING LAMPS

Used in the right equipments these lamps with their highly concentrated filaments supply an accurately controlled beam of light. Intended for floodlighting buildings, sports stadia, parks etc. they have long burning lives provided that they are correctly mounted in suitable fittings.

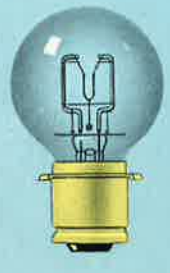
7093U 7093W

6031U 6031E

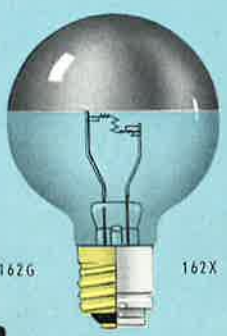
160X

C010/50

13301Y



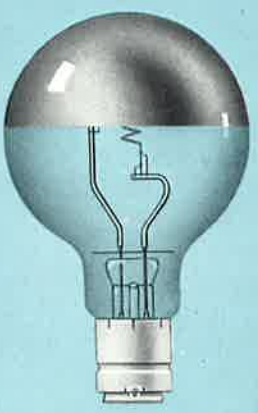
13300C



162G 162X

100 hrs

Catalogue number	Voltage	Watts	Lumens	Average life	Cap	Diam.	Ovl.	Lcl.
7093 U	12 24	100	2500 2000	100	BA 20d	50	75	33 ± 2
7093 W	12 24	100	2500 2000		B 15	50	76	42
6031 U	12 24	100	2500 2000		BA 20d	55	82	36,5±0,5
6031 E	12 24	100	2500 2000		E 27	55	92	58
160 X	24	200	4500		BA 24s	60	85	37 ±0,5
C 010	12 24	200	5100 4500		E 27	70	115	76
13301 Y	12 24	250	6400 6000		BA 42	80	150	95
13300 C	12 24	420	10000		P 40	80	132	43 ±0,5
162 G	24	500	12000		E 40	110	168	108
162 X	24	500	12000		BA 42	110	168	95
163 X	24	1000	25000		BA 42	130	215	130 ± 3



163X

BURNING POSITION

S135

Allowed

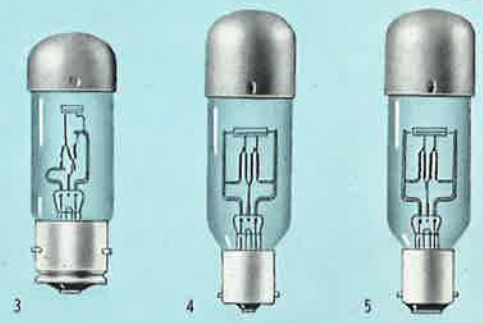
Not allowed

LAMPS FOR NARROW GAUGE FILM AND HOME CINEMA APPARATUS

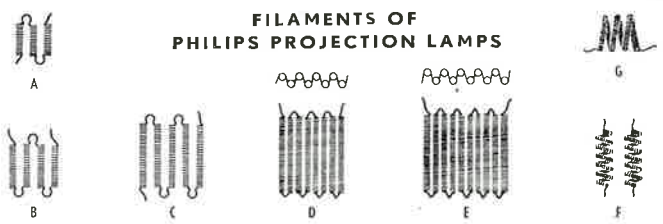
Philips supply projection lamps for almost every projector of American and European origin. As most of them are made according to the projector manufacturers specifications, Philips can guarantee maximum efficiency. The small size of the filament and its high brightness give powerful light projection. All filaments are factory pre-focused and are carefully checked to obtain a perfect focus in the optical system of the projector.

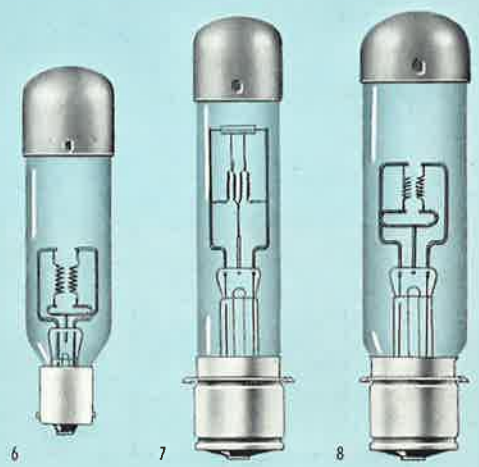
BURNING POSITIONS

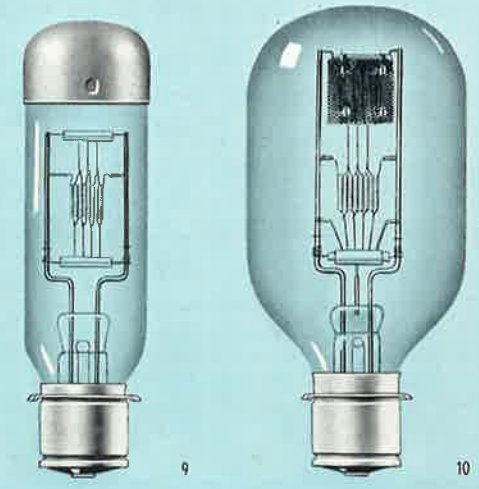
All lamps are shown in the position in which they have to be used. With narrow gauge film lamps the deviation is not to exceed 15°.



FILAMENTS OF PHILIPS PROJECTION LAMPS







Catalogue number	Voltage or current	Watts	Average life	Cap	Fig.	Filament Shape	Filament Exc. mm	Diam.	Ovl.	Lcl.[3]
6156 N [1][2]	100–130 V	50	50	BA 15s	1	A		25	78	I
7232 N	110 V	50	50	BA 15s	1	A	3	25	78	I
7238 N	12 V	100	25	BA 15s	1	G		25	78	I
6159 N	33 V	100	25	BA 15s	4	A	3.7	25	91	I
6158 N [1][2]	100–130 V	100	50	BA 15s	1	A		25	78	I
6158 N [1][2]	200–250 V	100	50	BA 15s	1	B		25	78	I
6067 C	100–130 V	100	50	P 28	7	A		25	135	II
6067 C	200–250 V	100	50	P 28	7	B		25	135	II
13141 N [1]	100–130 V	150	50	BA 15s	4	A		25	91	I
13141 N [1]	200–250 V	150	50	BA 15s	4	B		25	91	I
13140 C	100–130 V	150	50	P 28	7	A		25	135	II
13140 C	200–250 V	150	50	P 28	7	B		25	135	II
6166 N [1]	100–130 V	200	25	BA 15s	4	F		25	91	I
6160 C	100–130 V	200	50	P 28	8	F		32	135	II
6160 C	200–250 V	200	50	P 28	8	B		32	135	II
6070 C	100–130 V	250	50	P 28	8	F		32	135	II
6070 C	200–250 V	250	50	P 28	8	B		32	135	II
7212 N	100–130 V	300	25	BA 15s	6	F		26	103	I
6131 C	100–130 V	300	25	P 28	8	F		32	135	II
6131 C	200–250 V	300	50	P 28	8	B		32	135	II
13142 C	100–130 V	300	25	P 28	8	D		32	135	II
6117 C	100–130 V	400	25	P 28	8	D		32	135	II
6152 C	100–130 V	500	25	P 28	8	D		32	135	II
6152 C	200–250 V	500	25	P 28	8	E		32	135	II
6153 C	100–130 V	750	25	P 28	9	D		38	140	II
6153 C	200–250 V	750	25	P 28	9	D		38	140	II
7242 C	100–130 V	1000	25	P 28	9	D		38	140	II
6185 C	100–130 V	1000	25	P 28	10	D		65	140	II
6185 C	200–250 V	1000	25	P 28	10	E		65	140	II
7213 C	3.5 A	100	50	P 28	7	A		25	135	II
7223 C	3.5 A	100	50	P 28	7	A	3	25	135	II
7224 C	4 A	200	50	P 28	8	B	5	32	135	II
7217 C	5 A	250	50	P 28	8	B		32	135	II
7229 C	5 A	250	25	P 28	8	G	5	32	135	II
7219 C	5 A	375	50	P 28	8	C		32	135	II

[1]) Also available with cap BA 15d See fig. 2.
[2]) Also available with cap BA 21s See fig. 3. Ovl. 80 Lcl. 29.5 ± 0.5.
[3]) I = 35 ± 1; II = 55.6 ± 0.5

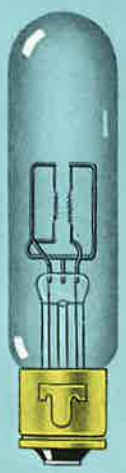
FOR PATHE PROJECTORS


1


2


3


4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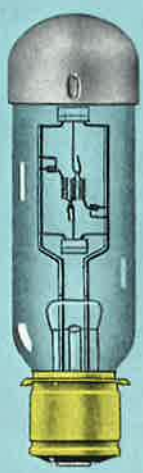
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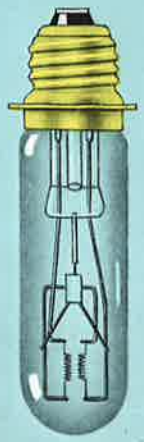
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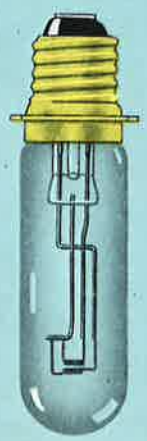
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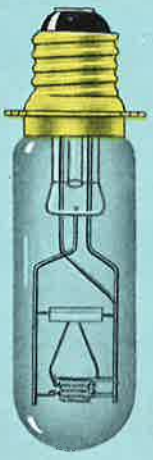
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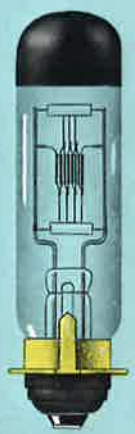
Catalogue number	Voltage	Watts or Amp.	Average life	Cap	Fig.	Filament Exc. mm	Diam.	Ovl.	Lcl. ± 0.5
6181 C	60	50 W	50	PP 10 I	1	3	24	81	35
6181 C	100–130	50 W	50	PP 10 I	1	3	24	81	35
7238 X	12	100 W	50	PP 20	2		25	90	30
7238 X	32	100 W	50	PP 20	2		25	90	30
6130 C	80	100 W	50	PP 10 I	3	3	24	95	35
6130 C	100–130	100 W	50	PP 10 I	3	3	24	95	35
6129 C	80	160 W	50	PP 10 I	4	3	24	112	35
6132 C	50	200 W	50	PP 26	5	5	32	135	58
6132 C	100–130	200 W	50	PP 26	5	5	32	135	58
6034 C	100	200 W	50	PP 27	6	7	32	129	75
6135 C	200–250	250 W	50	PP 26	5	5	32	135	58
7208 C	100	250 W	50	PP 27	6	7	32	129	75
7201 C	15	13 A	50	PP 27	7	7	32	129	75
7204 C	31	13 A	50	PP 27	8	7	38	129	75
13143 C	24	600 W	50	P 28	9	7	38	140	5.6

Topview of caps


B & H 38


B & H 46
B & H 46 I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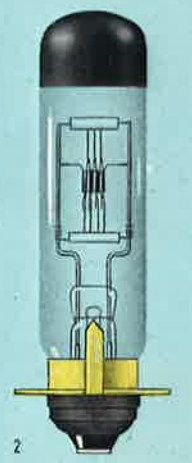
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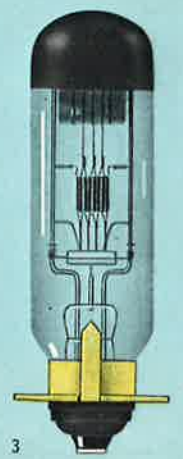
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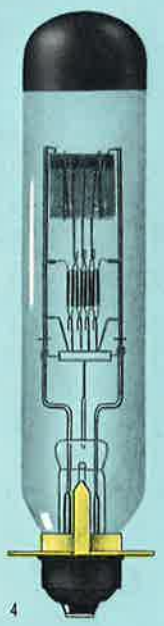
FOR FILMO PROJECTORS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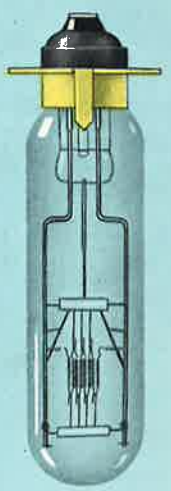
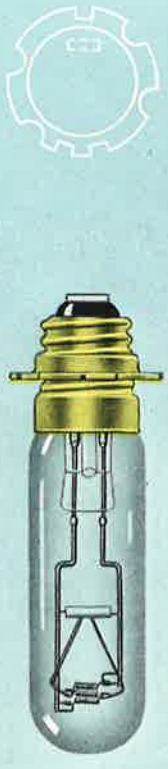

5

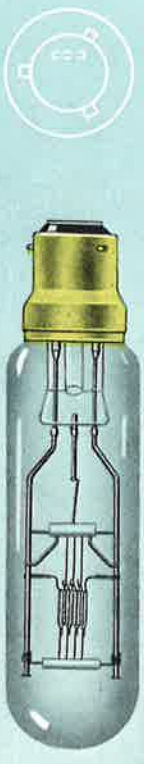
Catalogue number	Voltage	Watts	Average life	Cap	Fig.	Diam.	Ovl.	Lcl. ± 0.5
6131 H	100–130	300	25	B & H 38	1	32	130	59
13142 H	100–130	300	25	B & H 46	2	32	130	59
6117 H	100–130	400	25	B & H 38	1	32	130	59
6117 X	100–130	400	25	B & H 46	2	32	130	59
6152 H	100–130	500	25	B & H 38	1	32	130	59
6152 X	100–130	500	25	B & H 46	2	32	130	59
7244 H	100–130	500	25	B & H 46I	5	36	146	89
6153 H	100–130	750	25	B & H 46	3	38	135	59
7243 H	100–130	750	25	B & H 46I	5	36	146	89
6186 H	100–130	1000	25	B & H 46	4	38	185	78
7242 H	100–130	1000	25	B & H 46	3	38	135	59
7245 H	100–130	1000	25	B & H 46I	5	36	146	89
7081 H	100–130	1000	10	B & H 46	3	38	135	59
7209 H	100	1200	10	B & H 46	4	38	185	78

LAMPS FOR NARROW GAUGE FILM AND HOME CINEMA APPARATUS

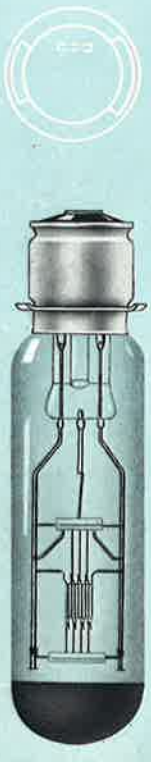
FOR VARIOUS MAKES OF PROJECTORS



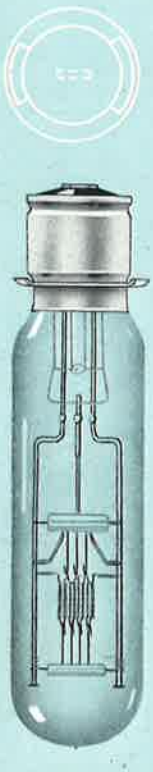
7233C 7234C



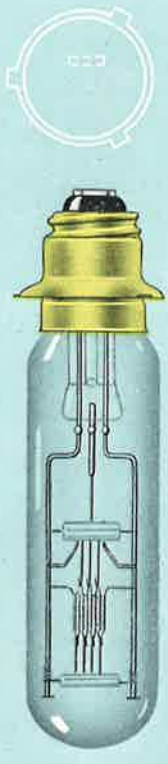
6169F



7235C



7228C 7231C 7239C

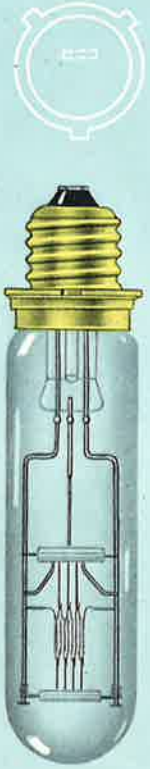


6169C 6170C

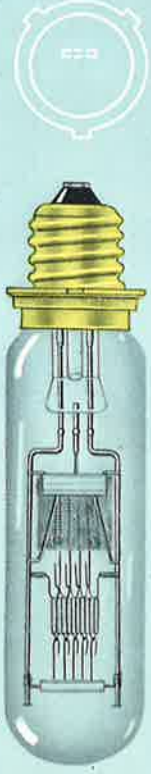
To obtain the nominal output of Philips projection lamps care should be taken that they are used on the right voltage, which is mentioned on the lamp. Lamps should be protected from vibration. When used with reflectors the beam of light must not be reflected onto the filament. When using cooling units they must function properly. Disregard of these warnings will seriously affect the life of the lamps.

Mark	Catalogue number	Voltage	Watts	Exc. mm.	Average life	Cap	Diam.	Ovl.	Lcl.
Debrie	6169 C 6170 C	100–130	500 750	4	50	PD 27	36	155	81 ± 0.5
Radio Cinema	7235 C	100–130	750	7.5	50	P 28	36	150	81 ± 0.5
Ericsson	7228 C 7231 C 7239 C	100–130	500 750 1000		50	P 28	36	150	81 ± 0.5
Precisvox	6169 Z 6170 X	100–130	500	4	50	PV 27	36	155	81 ± 0.5
Gebescope	6169 F	100–130	500	4	50	B 22III	36	142	95 ± 1
S.A.F.A.R	7233 C 7234 C	*)	200 300	7	25	PS 27 I PS 27	32	130	85 ± 0.5
Philips	7240 C	110	1000	4	25	PV 27	38	155	81 ± 0.5

*) Current 12.5 A



6169Z 6170X



7240C

MICRO PROJECTION LAMPS

These lamps are specially designed for applications in the scientific field. These lamps are used for the projection of micro-films etc. and have filaments specially designed for a variety of optical systems.


399 N


6164 M

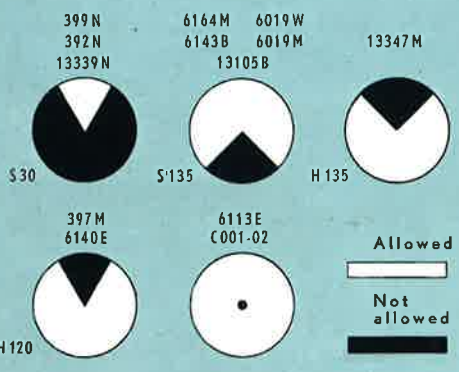

13347 M


6113 E


397 M


392 N

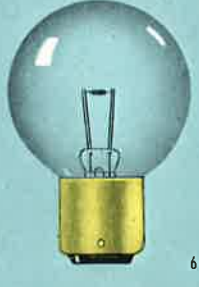
BURNING POSITIONS




6140 E


6019 W


6019 M


6143 B


C 001-02


13339 N


13105 B

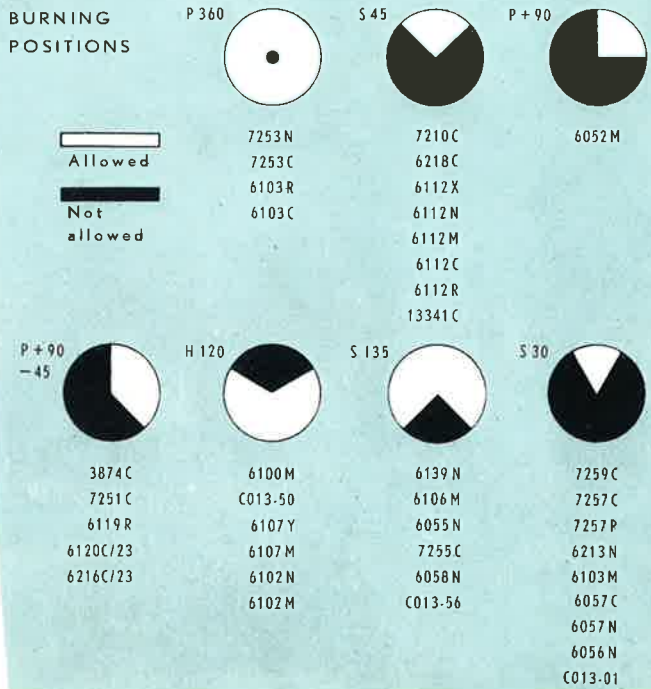
Catalogue number	Voltage	Current A	Watts	Average life	Cap	Diam.	Ovl.	Lcl.
399 N	12	0.5	—	100	BA 15 s	18.5	52	20 ± 0.5
6164 M	6	5	—	100	E 14	40	68	45 ± 3
13347 M	6	—	15	100	E 14	18.5	57.5	48.5 ± 2
6113 E	8	3.8	—	100	E 27	32	95	14 ± 1[1])
397 M	6	4.5	—	100	E 14	40	68.5	8 ± 1[1])
392 N	25	1	—	100	BA 15 s	18.5	54	20 ± 0.5
6140 E	24	1.36	—	1000	E 27	40	69	7 ± 1[1])
6019 W	8	6	48	100	B 15	40	68.5	45 ± 3
6019 M	8	6	48	100	E 14	40	68.5	45 ± 3
6143 B	12	—	50	100	B 22	48	72.5	38 ± 2
C 001-02	100–250	—	60	100	B 22	42	85.5	59 ± 3
13339 N	100–250	—	100	200	BA 15 s	48	70.5	35 ± 1
13105 B	6	—	100	100	B 22	60	93.5	60 ± 3

*) Distance filament to bulb bottom.

SOUND FILM EXCITER LAMPS

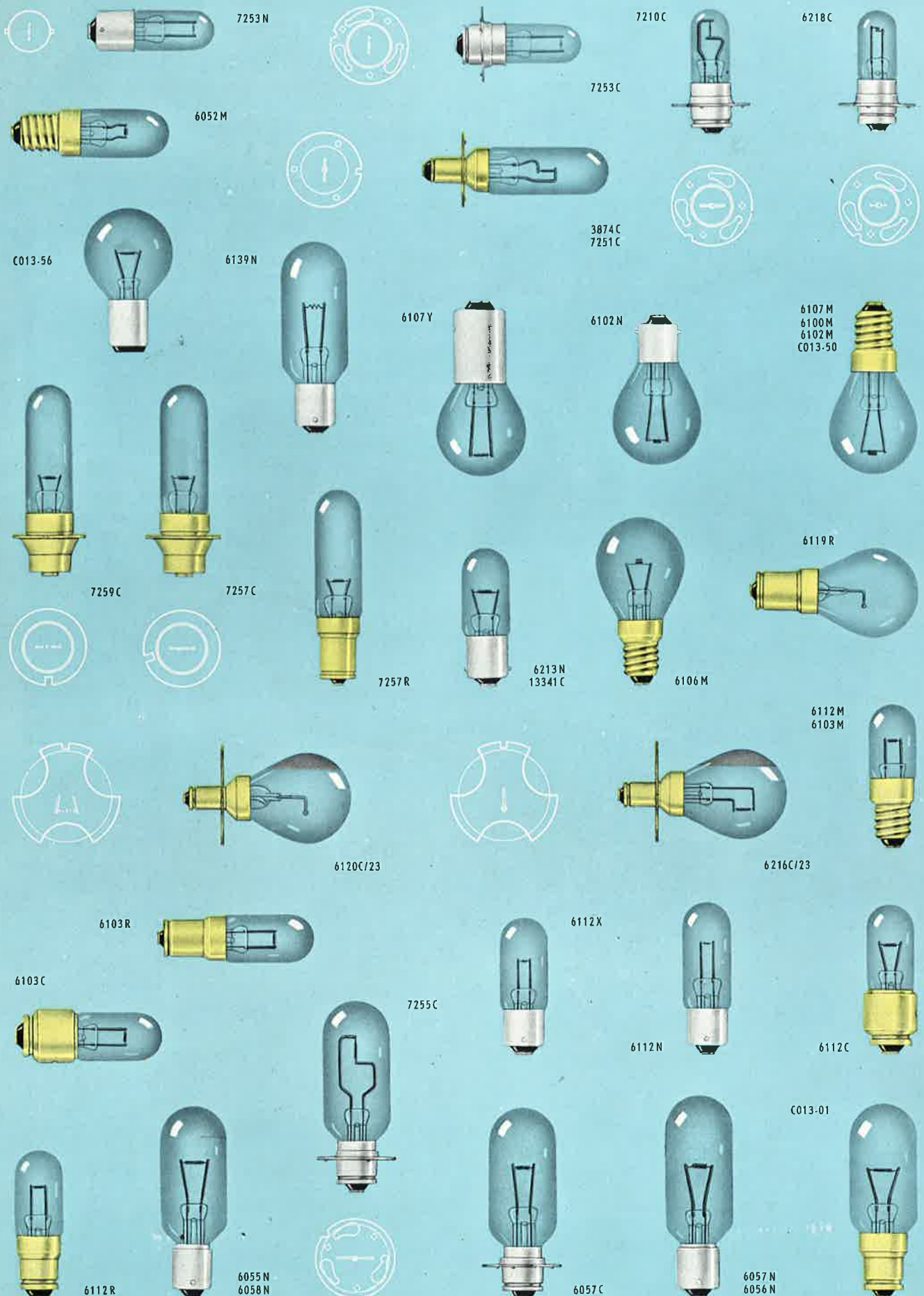
These lamps are specially designed to reproduce sound by illuminating the sound track of motion picture films. To obtain satisfactory reproduction it is essential that dimensions and shape of the lamp filament meet the requirements of the sound optical system, the electrical characteristics of the lamps are also of vital importance.

BURNING POSITIONS



SCALE 1:2

Catalogue number	Voltage	Current A	Lumens	Average life hrs.	Filament Exc.	Cap	Diam.	Ovl.	Lcl.
7253 N	4	0.75	30	50		BA 15s	15	50	31.8 ± 0.8
7253 C	4	0.75	30	50		P 15s	15	50	28.6 ± 0.25
7210 C	6	1	80	100		P 15s	15	50	28.5 ± 0.25
6218 C	2.5	3	50	100		P 15s	15	50	28.6 ± 0.25
6052 M	ca. 6	1.45	95	100	4.8	E 14	18.5	60	43.5 ± 1
3874 C	ca. 6.5	1.48	110	500		PG 28	18	74	31.5 ± 0.2
7251 C	ca. 5	4	245	1000		PG 28	18	74	31.5 ± 0.2
6100 M	6	4.35	440	100		E 14	34	65	8 ± 1*)
C 013–56	8.5	3.3		100		S 15d	34	57	37 ± 1
6139 N	27	1	445	100		BA 15s	26	75	40.5 ± 0.5
6107 Y	6	5	525	100		S 20s	34	67	8 ± 1*)
6107 M	6	5	525	100		E 14	34	65	8 ± 1*)
6102 N	6	5	510	200		BA 15s	34	60	8 ± 1*)
6102 M	6	5	510	200		E 14	34	65	8 ± 1*)
C 013–50	6	5	510	200		E 14	34	65	5 ± 1*)
7259 C	6	5	510	100		PG 27	18	75	22 ± 0.5
7257 C	6	5	510	100		PG 27	18	75	22 ± 0.5
7257 R	6	5	510	100		S 15s	18	75	38 ± 1
6213 N	6	5	525	100		BA 15s	18.5	54	28 ± 1
6106 M	6	5	510	100		E 14	34	65	45 ± 1.5
6119 R	6	5	510	100	8 ± 1	S 15s	32	65	43.5 ± 1
6120 C/23	6	5	510	100	6 ± 0.5	PG 40I	32	63	29 ± 0.25
6216 C/23	6	5	525	100	6 ± 0.5	PG 40I	32	63	29 ± 0.25
3875 C	6	5	525	100		PG 28	18	74	31 ± 0.2
6103 M	6	5	510	100		E 14	18	59.5	40.5 ± 1
6103 R	6	5	510	100		S 15s	18	58	41 ± 1
6103 C	6	5	510	100		PG 20	18	58	25.5 ± 0.4
6112 X	6	5	525	100		BA 15s	18	54	28 ± 1
6112 N	6	5	525	100		B 15s	18	58	41 ± 1
6112 M	6	5	525	100		E 14	18	59.5	40.5 ± 1
6112 C	6	5	525	100		PG 20	18	58	25.5 ± 0.4
6112 R	6	5	525	100		S 15s	18	58	41 ± 1
13341 C	6	5	450	100		PG 16s	18	55	28 ± 0.2
6055 N	8	4	625	100		BA 15s	26	75	44.5 ± 0.5
7255 C	5	6.5	700	100		P 15s	26	75	41.2 ± 0.25
6058 N	8.5	4	680	100		BA 15s	26	75.5	44.5 ± 0.5
6057 C	10	5	1050	100		P 15s	26	75	33.7 ± 0.25
6057 N	10	5	1050	100		BA 15s	26	75	40.5 ± 0.5
6056 N	10	7.5	1650	100		BA 15s	26	75	40.5 ± 0.5
C 013-01	10	10	2550	25		S 15s	26	75	48 ± 1

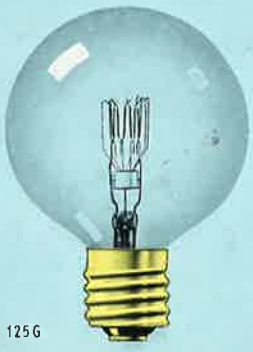

7253N
6052M
C013-56
6139N
7259C
7257C
7257R
6213N
13341C
6107Y
6102N
6107M
6100M
6102M
C013-50
6119R
6106M
6112M
6103M
6120C/23
6216C/23
6103R
6103C
7255C
6112X
6112N
6112C
6112R
6055N
6058N
6057C
6057N
6056N
C013-01
7253C
7210C
6218C
3874C
7251C

LIGHT HOUSE AND BEACONLAMPS

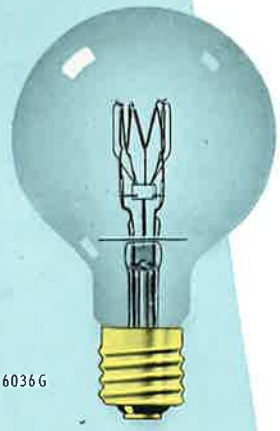
In spite of the latest technical developments such as radio and radar lighthouses, beacons and harbour lights are still of major importance in present-day navigation. It is obvious therefore that in the Philips lighting programme a complete range of lamps meeting the requirements put by these typical applications is incorporated. In this series the largest Philips lamp can be found, which has a light output equalling the total output of 364 75 W Argenta lamps. The lamps in this range must have very high light output as lighthouses and beacons must be visible from long distances. The major part of these lamps is completely hand made. Particular care is bestowed on the filaments which are manufactured by the highest skilled labour of all the Philips incandescent lamp works. This, together with the severe testing in the different laboratories, assures the user that a quality light source is supplied which will not fail to perform its important task.

120E

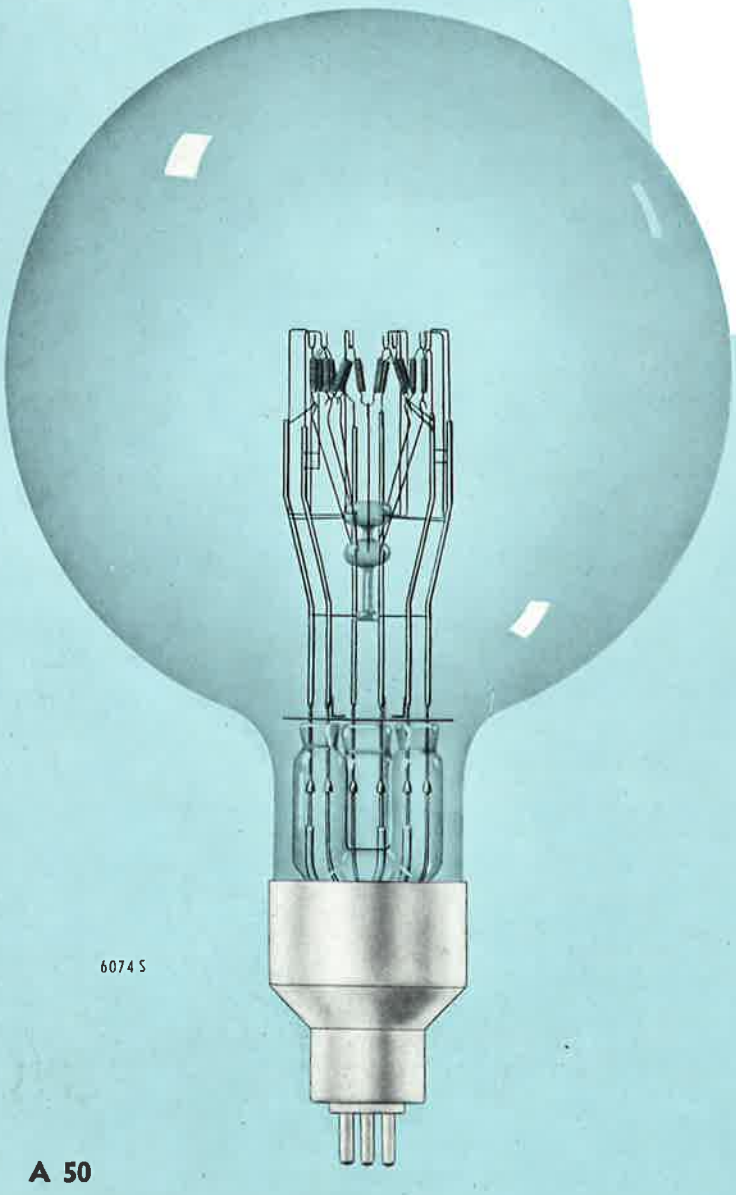
123E



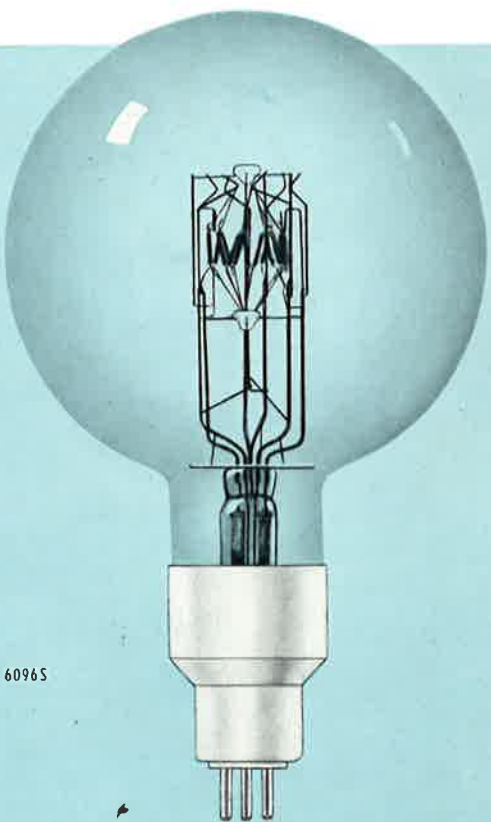
125G



6036G

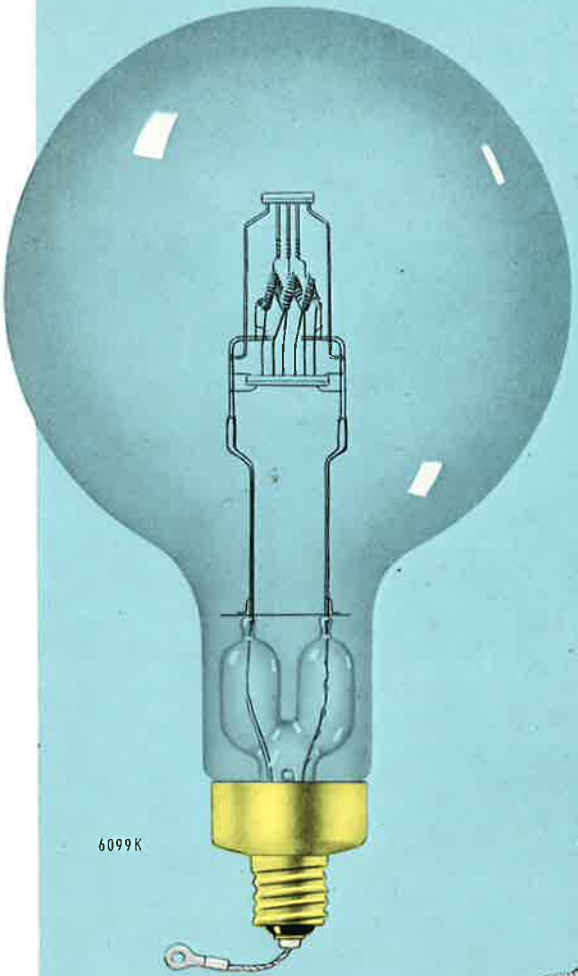


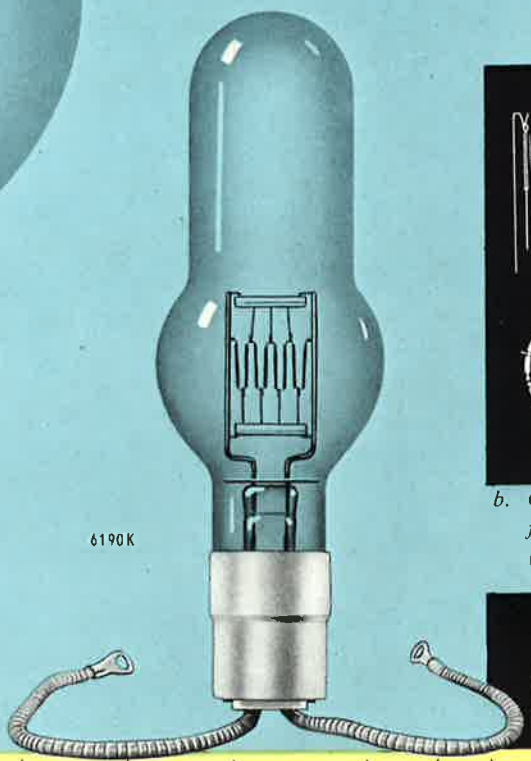
6074S

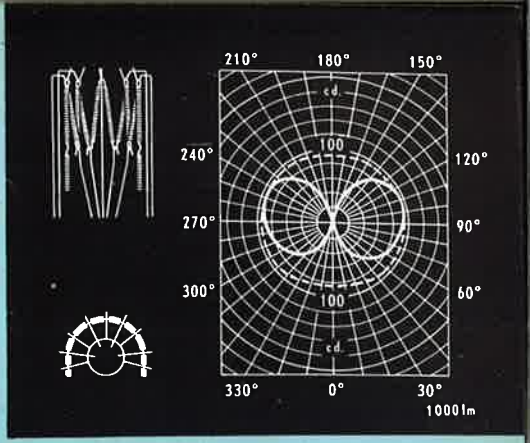


6096S

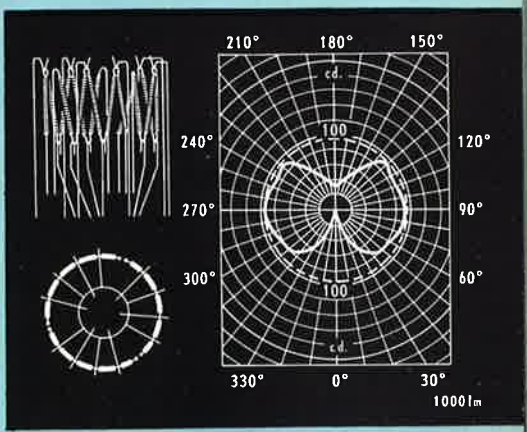
FILAMENT SHAPES AND LIGHT DISTRIBUTION DIAGRAMS



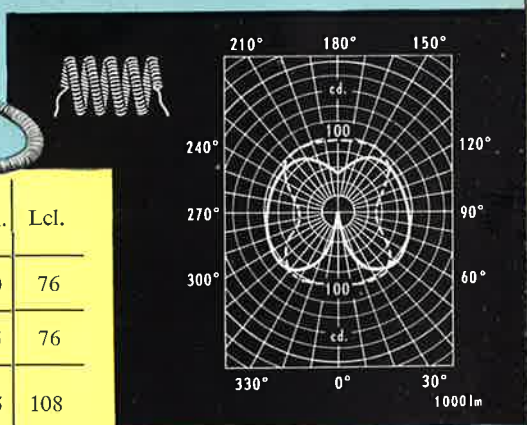




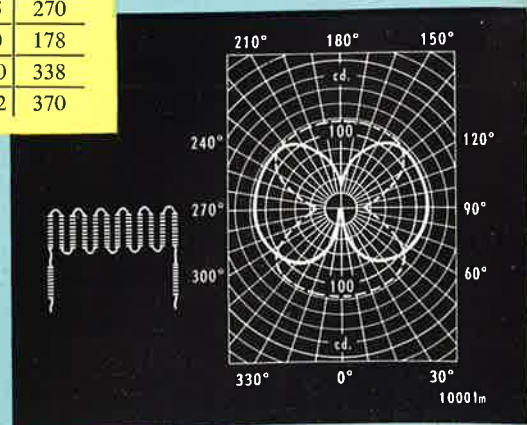
a. Cylindrical filamentshape



b. Cylindrical filament shape for 3-phase supply (Parts can be switched parallel)



c. Coiled-coil filament



d. Vertical grid filament

Catalogue number	Voltage V	Watts W	Filament shape	Lumens	Average life	Cap	Diam.	Ovl.	Lcl.
120 E	100–160 200–250	100	a	1100 900	500	E 27	80	120	76
123 E	100–160 200–250	250	a	3800 3300	500	E 27	90	125	76
125 G	24	500	c	10000	500	E 40	120	175	108
	100–160 200–250		a	9000 8000					
6036 G	24	1000	c	22000	500	E 40	130	215	140
	100–160 200–250		a	20000 19000					
6096 S	100–130	3000	b	51000	600	GIII 8×22	240	395	270
6190 K	32	3000	d	88500	100	S59/2Ca	120/90	380	178
6099 K	70	4200	c	86000	600	E40 Ca	300	500	338
6074 S	100	10000	b	185000	600	GIII 8	380	542	370

CONNECTION DIAGRAMS

DIAGRAM I
For connection to AC or DC single phase

= or

DIAGRAM II
For connection to AC or DC single phase

= or

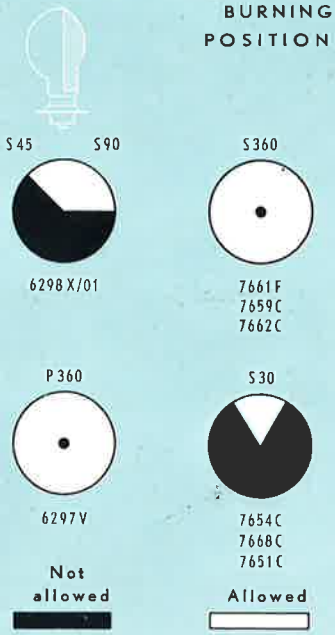
DIAGRAM III
For connection to three phases and the neutral wire.

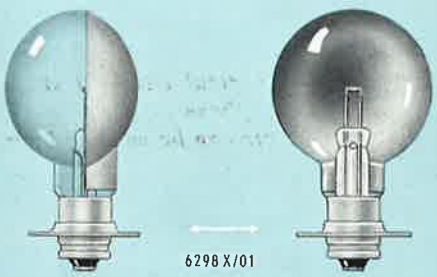
3 ph

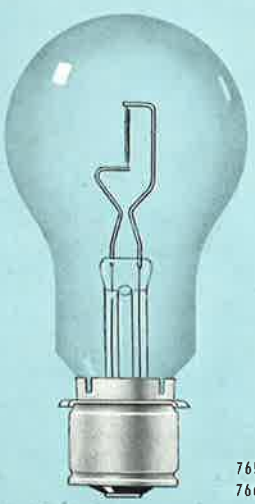
AERODROME LAMPS

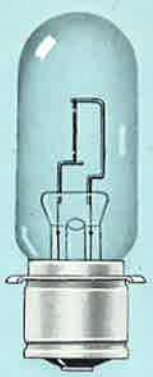
In aviation the lighting of airfields is essential to guarantee the utmost safety of air traffic. Adapted to the requirements a full range of lamps is available which, together with the fittings in which they will be fitted, will supply the desired beam patterns. It is a matter of course that in the famous Philips laboratories research in this important field will be carried on in order to make sure that the user can always rely on quality lamps which keep step with the developments in this dynamic field. In the complete range, lamps with clear finisch and lamps with inside mirrors are available.

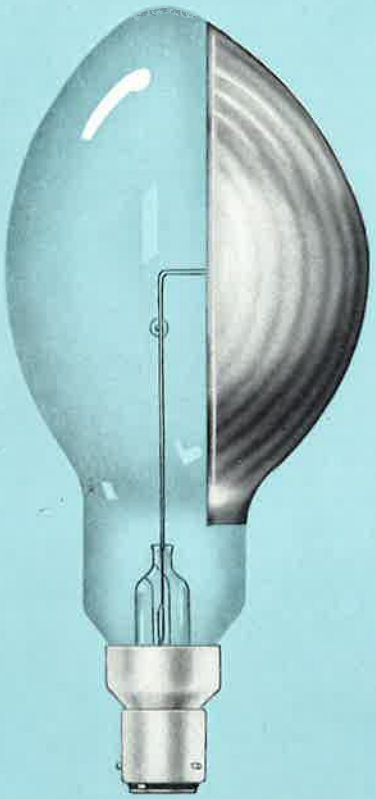
BURNING POSITIONS



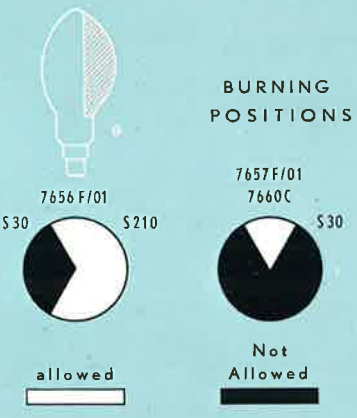


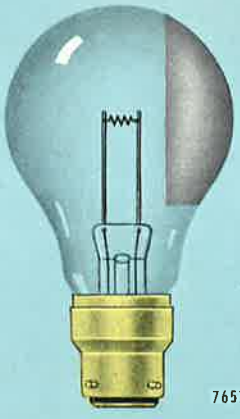






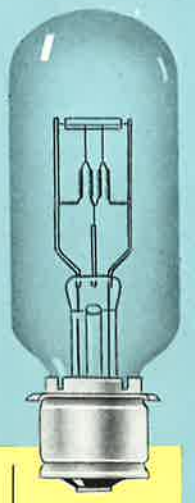
7656 F/01





7657 F/01

7660 C



Catalogue number	Current	Watts	Lumens	Average life	Cap	Diam.	Ovl.	Lcl.
7659 C	6.6 A	—	325	2000	P 28	65	127	70 ± 0.5
7662 C	6.6 A	—	1020	2000	P 28	65	127	70 ± 0.5
7661 F	5.83 A	35	500	500	B 22III	35	55	12 ± 1 [2]
6298 X/01	5.83 A	35	—	300	PS 15 s	44	68	37 ± 0.5
6297 V	5.83 A	35	500	500	BA 20 s	34	60	30 ± 0.5
7654 C	6.6 A	45	750	1000	P 28	32	100	38 ± 0.5
7651 C	6.6 A	65	1075	1000	P 28	32	100	38 ± 0.5
7656 F/01	4.17 A	100	—	200	B 22III	140	207	130 ± 3
7668 C	6.6 A	100	1800	1000	P 28	32	100	38 ± 0.5
7657 F/01 [1]	4.17 A	100	—	200	B 22III	60	110	68 ± 0.5
7660 C	6.6 A	200	4800	75	P 28	45	130	55.6 ± 0.5

[1]) Also available without mirror; lumens 2025.

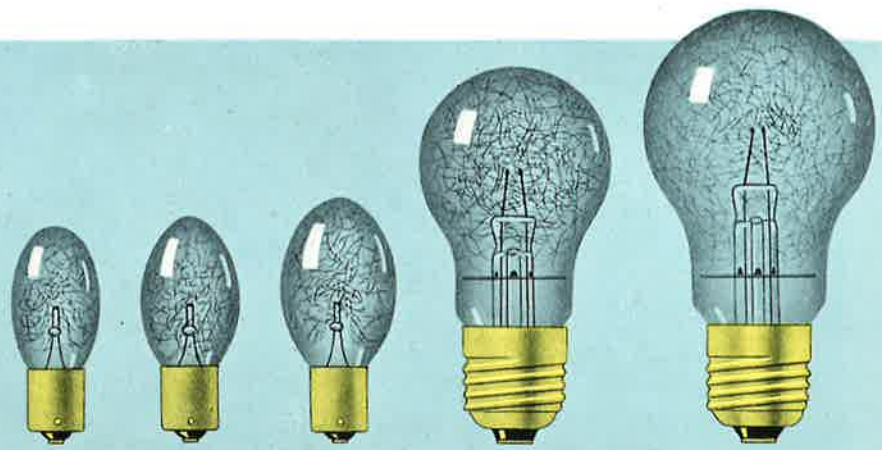
[2]) From bulb bottom to centre of filament.

"PHOTOFLUX" flashbulbs

Photography to-day would be absolutely inconceivable without the flashlight that is produced by flashbulbs. Over 20 years ago Philips introduced the first "Photoflux" flashbulb and from that time onwards the name "Photoflux" stood for quality and reliability. Philips research always went forward to produce better flashbulbs, supplying more light and taking less space and we dare to say that more and new important developments lie ahead.
The programme now available comprises 10 different types all made with the famous Philips accuracy.

"PHOTOFLUX" flashbulbs M-class

These flashbulbs are suitable for between the lens shutters, they can be used with the open flash method as well as for cameras with built-in synchronization. For colour photography these lamps are available with a special blue filter lacquer. When ordering no. 97 is to be added to the type number of the clear type.



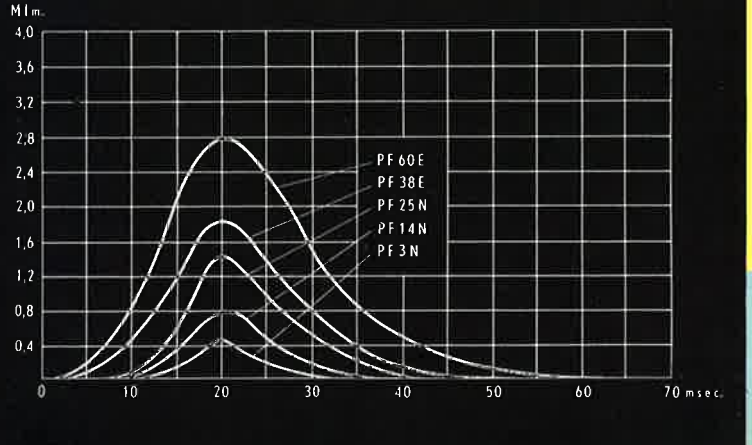
Type	Light output lmsec.	Max. luminous flux Mlm.	Time to full peak msec.	Flash duration at half peak msec.	Time to half peak msec.	Approx. colour temp. °K	Voltage range V	Cap	Colour	Diam.	Ovl.
PF 3N	5500	0.5	20	8	16	3800	3–30	BA 15 s	clear	22	52
PF 14N	10000	0.8	20	10	16	3800	3–30	BA 15 s	clear	26	59
PF 25N { PF 25 N	18000	1.4	20	12	15	3800	3–30	BA 15 s	clear	30	65
PF 25N { PF 25 N/97	9000	0.7	20	12	15	6000	3–30	BA 15 s	blue		
PF 38E	30000	1.8	20	16	13	3800	3–30	E 27	clear	50	102
PF 60E { PF 60 E	62000	2.8	20	20	11	3800	3–30	E 27	clear	60	116
PF 60E { PF 60 E/97	30000	1.4	20	20	11	6000	3–30	E 27	blue		

GUIDE NUMBERS TENTATIVE VALUES

		Exposure time in sec.	
		1/25–1/30 (X)	1/50–1/60 (M)
Daylight colour film negative	PF 25 N/97	20	15
	PF 60 N/97	40	30
Daylight colour film reversal	PF 25 N/97	15	12
	PF 60 N/97	30	25

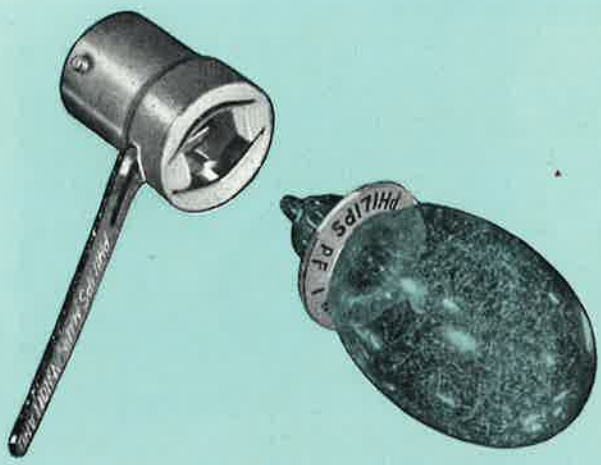
GUIDE NUMBERS

Type	Exposure time sec.	Filmspeed in ASA 12–20	25–40	50–80	100–160
PF 3 N	1/400–1/500(M)	5	7	10	15
	1/200–1/300(M)	7	10	15	20
	1/100(M)	10	15	20	30
	1/25(X) or 1/50(M)	15	20	30	40
PF 14 N	1/400–1/500(M)	7	10	15	20
	1/200–1/300(M)	10	20	30	30
	1/100(M)	15	15	20	40
	1/25(X) or 1/50(M)	20	30	40	55
PF 25 N	1/400–1/500(M)	10	15	20	30
	1/200–1/300(M)	15	20	30	40
	1/100(M)	20	30	40	55
	1/25(X) or 1/50(M)	30	40	55	80
PF 38 E	1/400–1/500(M)	15	20	30	40
	1/200–1/300(M)	20	30	40	55
	1/100(M)	30	40	55	80
	1/25(X) or 1/50(M)	40	55	80	110
PF 60 E	1/400–1/500(M)	20	30	40	55
	1/200–1/300(M)	30	40	55	80
	1/100(M)	40	55	80	110
	1/25(X) or 1/50(M)	55	80	110	155



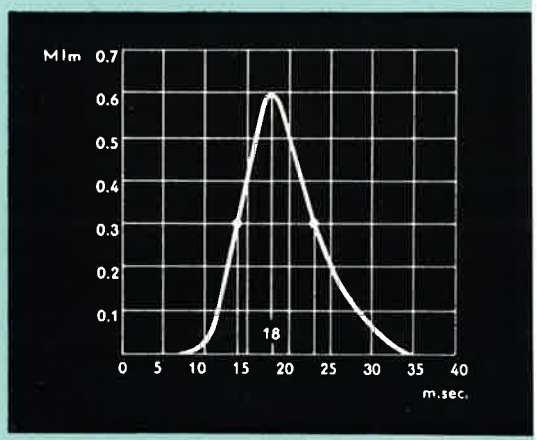
← *Flashtime characteristics*

CAPLESS "PHOTOFLUX"
Flashbulb PF 1

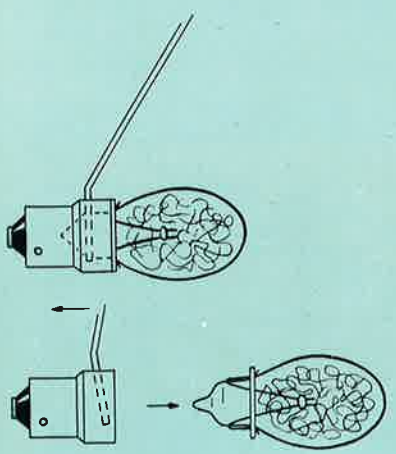


THE LATEST DEVELOPMENT IN FLASHBULBS

Again Philips are the first to introduce a revolutionary flashbulb, which will bring indoor photography within the reach of everybody.
The PF 1 capless "Photoflux" flashbulb together with adaptor is suitable for every existing flash gun. Compared to its small dimensions it has a very high light output.



FLASHTIME CHARACTERISTICS



To insert the PF 1 in the existing flash guns a special adaptor is to be used. This adaptor carries a device to enable the user to remove the lamp without touching it.

	PF 1 clear	PF 1/97 blue
Litht output lm/sec.	6500	3250
Max. luminous flux. Mlm.	0,6	0,3
Time to full peak m.sec.	18	18
Flash duration at half peak m.sec.	8–10	8–10
Time to half peak m.sec.	14	14
App. colour temp. ^{0}K	ca. 4000	6000
Voltage range V	3–30	3–30
Diameter	22½	22½
Ovl.	51	51

GUIDE NUMBERS BASED

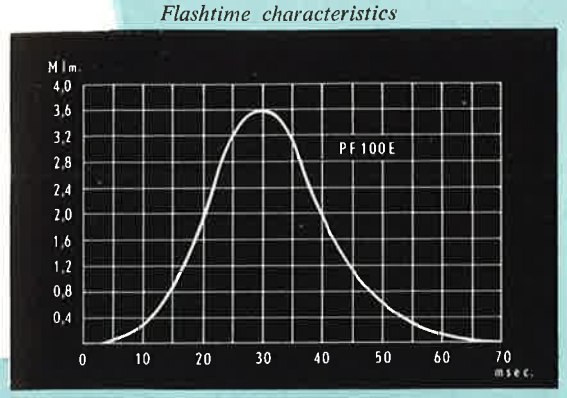
PF 1

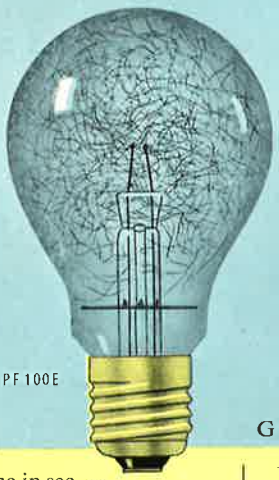
Exp. time sec.	Filmspeed ASA				
	12–20	25–40	50–80	100-160	200-320
1/400-1/500 (M)	6	9	12	18	25
1/200-1/300 (M)	9	12	18	25	35
1/100 (M)	12	18	25	35	50
1/50-1/60 (M)	15	20	30	40	60
1/25-1/30 (X)	18	25	35	50	70

GUIDE NUMBERS TENTATIVE VALUES

		Exposure time in sec.	
		1/50-1/60 (M)	1/25-1/30 (X)
PF 1/97 (BLUE)	Daylight colour film negative	10	12
	Daylight colour film reversal	8	10

Flashtime characteristics





"PHOTOFLUX"

Flashbulb PF 100 E

This bulb has been specially designed for photographing with the open-flash method and is very suitable for covering large areas. For colour photography this type is available with a special blue filter lacquer.

GUIDE NUMBERS TENTATIVE VALUES

	Type	Exposure time in sec.	
		1/25(X)	1/50(M)
Daylight colour film negative	PF 100E/97	45	35
Daylight colour film reversal	PF 100E/97	35	30

GUIDE NUMBERS

Type	Exposure time sec.	Filmspeed ASA			
		12–20	25–40	50–80	100–160
PF 100 E	1/50(M)	65	90	130	180
	1/25(X)	80	110	155	220

Type		Light output lmsec.	Max. luminous flux Mlm.	Time to full peak msec.	Flash duration at half peak msec.	Time to half peak msec.	Approx. colour temp. °K	Voltage range V	Cap	Colour	Diam.	Ovl.
PF 100E	PF 100E	95000	3.6	30	22	19	3800	3–30	E 27	clear	70	125
	PF 100E/97	45000	1.8	30	22	19	6000	3–30	E 27	blue		

GUIDE NUMBERS

Type	Exposure time sec.	Filmspeed ASA			
		12–20	25–40	50–80	100–160
PF 24 N	1/1000	—	5	7	10
	1/500	5	7	10	15
	1/250	7	10	15	20
	1/100	10	15	20	30
	1/50	15	20	30	40
PF 45 E	1/1000	5	7	10	15
	1/500	7	10	15	20
	1/250	10	15	20	30
	1/100	15	20	30	40
	1/50	20	30	40	55

"PHOTOFLUX"

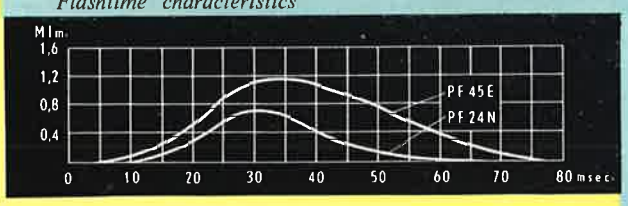
Flashbulbs for FP type shutters

Synchronized flash photography with focal-plane shutters calls for lamps with long flash duration of the types as shown here. The PF 24 type may be used with miniature cameras such as the Leica and the Contax, which feature a shutter of very short travelling time.

GUIDE NUMBERS TENTATIVE VALUES

	Type	Exposure time in sec.		
		1/250	1/100	1/50
Daylight colour film negative	PF 24 N/97	—	8	10
	PF 45 N/97	8	12	16
Daylight colour film reversal	PF 24 N/97	—	6	8
	PF 45 N/97	5	8	12

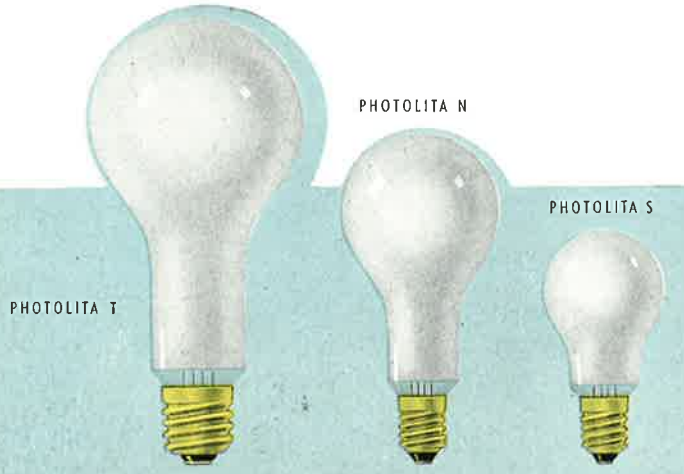
Flashtime characteristics

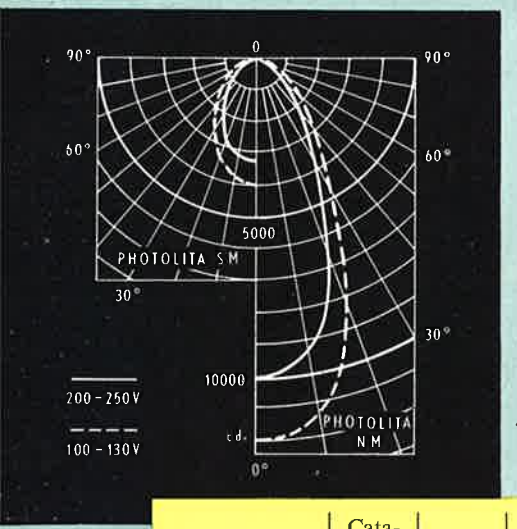


Type		Light output lmsec.	Max. luminous flux Mlm.	Time to full peak msec.	Flash duration at half peak msec.	Time to half peak msec.	Approx. colour temp. °K	Voltage range V	Cap	Colour	Diam.	Ovl.
PF 24N	PF 24N	15000	0.55	—	25	17	3800	3–30	BA 15s	clear	36	73
	PF 24N/97	7000	0.25	—	25	17	6000	3–30	BA 15s	blue		
PF 45E	PF 45E	45000	1.1	—	45	18	3800	3–30	E 27	clear	60	116
	PF 45E/97	22000	0.5	—	45	18	6000	3–30	E 27	blue		

LAMPS FOR GENERAL PHOTOGRAPHIC AND CINE LIGHTING

In photography light is of basic importance and so artificial light sources have been developed which are to assist the amateur as well as the professional photographer.
All lamps available in the extensive range of photolamps in the Philips programme are designed to do a specialized job and they are expected to do their work accurately and with optimum results.





→ *Light distribution diagrams with inside mirror*

"PHOTOLITA"

For general photographic and cine lighting

These lamps are available in an inside-frosted type for use in reflectors and a type equipped with inside mirror for use without reflector. Their luminous intensity is extremely high as compared to their current consumption. They supply a concentrated beam of light. The inside-frosted type can also be supplied with daylight-blue glass as an additional light source for colour photography.
Although the lifetime of these lamps may seem short, the contrary is true, since the exposure per picture only requires a few seconds so that over a thousand shots can easily be made with the result that the cost of the lamp per exposure is negligibly small.

Type	Catalogue number	Voltage	Watts	Lumens	Candles in centre of beam	Average life	Approx. colour temperature °K.	Cap*)	Diam.	Ovl.
"Photolita" S*)	PF 207	100–160 200–250	250	8650 7500		3	3400	E 27	65	116.5
"Photolita" SM	PF 217	100–160 200–250	250		4000 3300	3	3400	E 27	80	123.5
"Photolita" N*)	PF 208	100–160 200–250	500	17000 14500		6	3400	E 27	90	179
"Photolita"NM	PF 218	100–160 200–250	500		12000 10000	6	3400	E 27	111	156.5
"Photolita" T	PF 209	100–160 200–250	1000	33500 28500		10	3400	E 40	110	241

Guide numbers	"Photolita" S in reflector "Photolita" SM				"Photolita" N in reflector "Photolita" NM				"Photolita" T in reflector			
Exposure time \ Film-speed	10–16 ASA	20–32 ASA	40–64 ASA	80–125 ASA	10–16 ASA	20–32 ASA	40–64 ASA	80–125 ASA	10–16 ASA	20–32 ASA	40–64 ASA	80–125 ASA
1/500 Sec.	—	—	2	3	—	2	3	4	2	3	4	6
1/250 sec.	—	2	3	4	2	3	4	6	3	4	6	8
1/100 sec.	2	3	4	6	3	4	6	8	4	6	8	12
1/50 sec.	3	4	6	8	4	6	8	12	6	8	12	16
1/25 sec.	4	6	8	12	6	8	12	16	8	12	16	24
1/10 sec.	6	8	12	16	8	12	16	24	12	16	24	32
1/5 sec.	8	12	16	24	12	16	24	32	16	24	32	48
1/2 sec.	12	16	24	32	16	24	32	48	24	32	48	64
1 sec.	16	24	32	48	24	32	48	64	32	48	64	96
2 sec.	24	32	48	64	32	48	64	96	48	64	96	128

*) Can also be supplied with cap B 22.

To make Philips photolamps live up to these expectations a quality product of the highest standards is produced. With over 60 years of experience in lamp manufacturing and with one of the most important research laboratories in the world to back production, we are proud to offer reliable photolamps that meet all requirements.

ARGAPHOTO B

ARGAPHOTO BM

"ARGAPHOTO"

For general photographic and cine lighting

This artificial light source is also an aid to professionals and advanced amateurs. These lamps supply an evenly distributed beam of light. The Argaphoto BM has an inside mirror which is insensitive to atmospheric and other influences, whereas the Argaphoto B is to be used in a reflector.

Light distribution diagram →

GUIDE NUMBERS

Exposure time	Film-speed	10–16 ASA	20–32 ASA	40–64 ASA	80–125 ASA
1/500	sec.	—	—	—	—
1/250	sec.	—	—	—	—
1/100	sec.	—	3	4	6
1/50	sec.	3	4	6	8
1/25	sec.	4	6	8	12
1/10	sec.	6	8	12	16
1/5	sec.	8	12	16	24
1/2	sec.	12	16	24	32
1	sec.	16	24	32	48
2	sec.	24	32	48	64

Type	Catalogue number	Voltage	Watts	Lumens	Candles in centre of beam	Average life	Approx. temperature °K	Cap*)	Diam.	Ovl.
"Argaphoto" B	PF 308	100–130 200–250	500	11000 10000		100	3200	E 27	100	180
"Argaphoto" BM	PF 318	200–250 200–250	500		6000 5500	100	3200	E 27	156	235

*) Can also be supplied with cap B 22.

PHOTOMIRENTA **For professional and amateur portraiture**

This lamp is specially designed for the professional photographer and is excellently suited for portraiture. The advanced amateur, however, will also be able to obtain outstanding results with this light source. This flashed-opal lamp is fitted with an inside mirror.

GUIDE NUMBERS

Exposure time	Film-speed	10–16 ASA	20–32 ASA	40–64 ASA	80–125 ASA
1/500	sec.	—	—	—	—
1/250	sec.	—	—	—	7
1/100	sec.	—	—	7	10
1/50	sec.	—	7	10	15
1/25	sec	7	10	15	20
1/10	sec.	10	15	20	25
1/5	sec.	15	20	25	35
1/2	sec.	20	25	35	55
1	sec.	25	35	55	70
2	sec.	35	55	70	110

Type	Catalogue number	Voltage	Watts	Candles in centre of beam.	Average life	Approx. colour temperature °K	Cap	Diam.	Ovl.
"Photomirenta"	PF 418	100-130 200–250	500	1500 1350	100	3100	E 27	150	291

ENLARGER AND DARKROOM LAMPS

PF 609

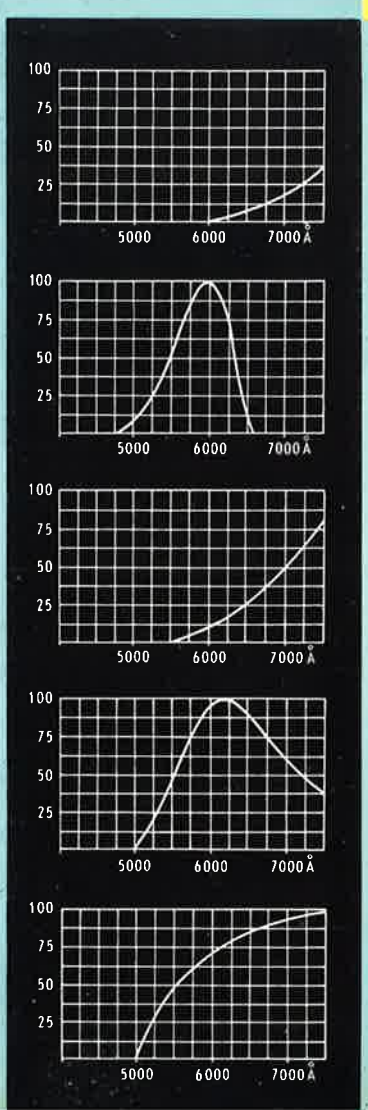
PF 603
PF 605
PF 607

"PHOTOCRESCENTA"

Philips' enlarger lamps with their white bulbs supply an excellent light, evenly distributed and diffused as is required for most types of enlarging apparatus. The 4 lamp types available range from 75 W to 300 W. They are excellently suited for their purpose and will prove to be a valuable asset to the professional as well as the amateur photographer.

Type	Voltage	Watts	Lumens	Approx. colour temperature °K	Average life	Cap*)	Diam.	Ovl.
PF 603	100–130 200–250	75	1300 1150	2950	100	E 27	65	121
PF 605	100–130 200–250	150	3000 2700	3050	100	E 27	65	121
PF 607	100–130 200–250	250	8000 7200	3450	3	E 27	6 5	121
PF 609	100–130 200–250	300	6000 5400	3100	100	E 27	100	185

*) Can also be supplied with cap B 22.



dark red
± 0.4 lm

green
10^{-3} lm

pale red
1–5 lm

yellow
10–45 lm

yellow-green
2–6 lm

← Relative spectral energy emission of darkroom lamps *(Approximate curves)*

DARKROOM LAMPS

The great variety of negative and positive photographic materials available necessitates the use of darkroom lamps which fully comply with the requirements of individual emulsions. With a view to the materials generally used Philips have developed the following darkroom lamps.

For negative material:
- *dark red — for development of orthochromatic material*
- *green — for development of panchromatic material*

For positive material:
- *pale red — to be used with bromide paper printing and enlarging*
- *yellow-green — to be used with bromide paper*
- *yellow — to be used with normal contact paper and the less sensitive bromide paper*

All darkroom lamps are made from naturally coloured glass except for the yellow-green one.

Type	Colour	Voltage	Cap*)	Diam.	Ovl.
PF 704	Dark-red	100–250	E 27	60	110
PF 744	Green				
PF 701	Light-red				
PF 732	Yellow-green				
PF 723	Yellow				

*) Can also be supplied with cap B 22.

NEON GLOW LAMPS

Except for the night-lamps all Philips' neon glow lamps have a clear finish and are filled with neon gas to produce an orange-red light. Being gas-discharge lamps in most types a resistor is incorporated to stabilize the current. Applied in practice, Philips' neon glow lamps fulfill very important tasks, often even key tasks. By their faultless operation, everyone, no matter where his activities lead him, will profit from these lamps.

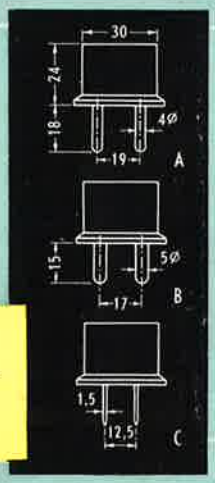
Finish	Catalogue number	Cap	~ Voltage	~ Watts	= Voltage	= Watts	Diam.	Ovl.
Inside frosted	13503 E/21 13503 B/21	E 27 B 22	75–250	Max. 2.5	110–250	Max. 2	55	103
Fluores-cent	13503 E/48 13503 B/48	E 27 B 22	75–250		110–250			

NIGHT-LAMPS

In numerous cases a source of soft light is required to supply a weak lighting. The Philips' night-lamp has been designed for such purposes. It is available with inside-frosted and fluorescent finish, it has a very low current consumption and is absolutely shock and vibration proof.

PLUG-IN LAMPS

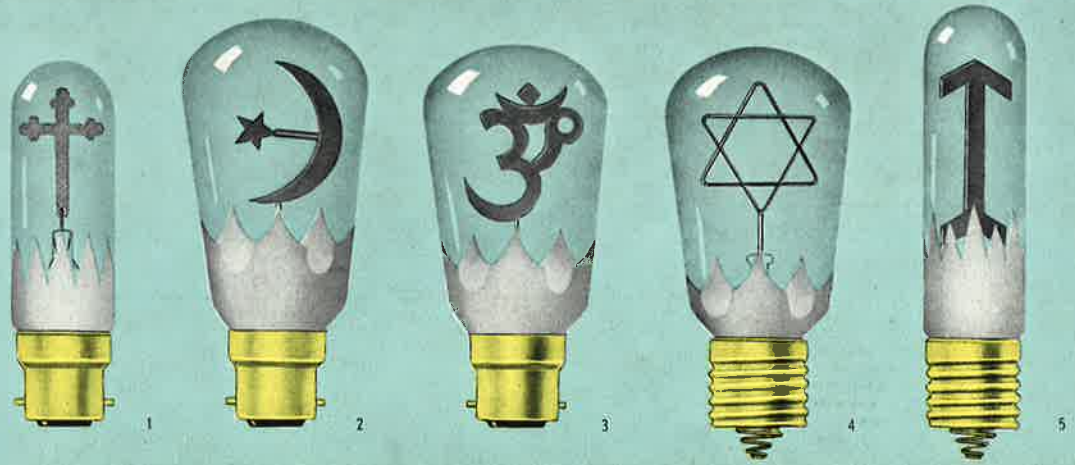
This lamp is to be considered as a night lamp and consequently, offers exactly the same advantages. However, it has one important advantage over the normal night-lamp for it is fitted with a plug so that it can be directly put in a wall socket. Thus one need not keep a valuable lamp fitting occupied. Available in fluorescent finish for European (Fig. A), British (Fig. B) and American (Fig. C) wall sockets.



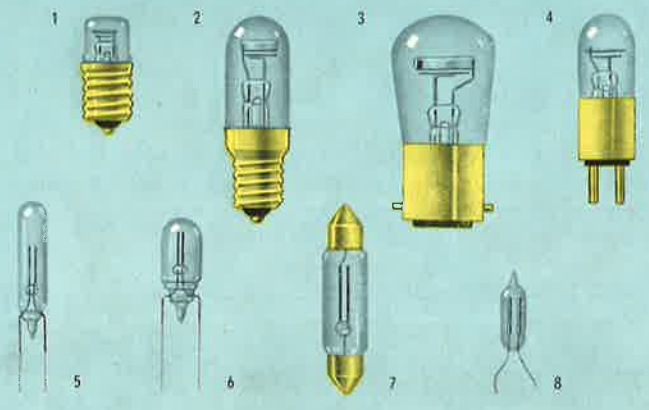
Finish	Fig.	Catalogue number	~ or = Voltage	~ or = Watts	Diam.	Ovl.
For European wall sockets	A	13511 A	110–250V	Max.0.8W	48	85
For British wall sockets	B	13511 X				
For American wall sockets	C	13511 Z				

EMBLEM LAMPS

These tubular or pear-shaped clear-finished neon lamps with their frosted saw-edge band just above the cap, are available with different electrodes. The lamps fitted with bayonet cap (B 22) have the pins in a plane midway between the two electrodes. The lamps with screw cap E 27 have a small spring soldered to the central contact so as to avoid improper insertion of the lamp. They supply a striking light colour, are vibration and shock-proof, and have a very low current consumption.



Finish	Catalogue number	Cap	~ Voltage	~ Watts	= Voltage	= Watts	Fig.	Diam.	Ovl.
Crucia lamp	13501 E/16 13501 B/16	E 27 B 22	110–250	Max. 3.5	110–250	Max. 2.5	1	28	108 101
Crescent lamp	13507 E/16 13507 B/16	E 27 B 22	150–250		175–250		2	51	115 106
Ohm lamp	13506 E/16 13506 B/16	E 27 B 22					3	51	115 106
Zion lamp	13504 E/16 13504 B/16	E 27 B 22	175–250		150–250		4	51	115 106
Arrow lamp	13502 E/16 13502 B/16	E 27 B 22	150–250		175–250		5	28	127 117



SIGNAL LAMPS

Philips' neon signal lamps are tubular or pear-shaped clear glow discharge lamps of small dimensions emitting a distinctive orange-yellow light. They are amongst others applied for control purposes, switchboards, household appliances, indicator purposes etc. Among their many features we should like to mention low current consumption, dependable long life, vibration and shockproof, occupying little space, hardly any heat dissipation and easy mounting.

	Finish	Catalogue number	Cap	~ Voltage	~ Current	~ Ω **)	= Voltage	= Current	= Ω **)	Fig.	Diam.	Ovl.
With built-in resistance	Dwarf	9511 M 9511 W	E 14 B 15	100–250	Max. 2 mA	—	100-250	Max. 2 mA	—	1	11.5	30
	Tubular shape	9512 M 9512 W	E 14 B 15	80–250	2–3 mA	—	110–250	1–2 mA	—	2	15	53 49
	Pear shape	9513 E 9513 B	E 27 B 22		3–5 mA	—	100–250	2–3 mA	—	3	28	65 58
	With Bernstein cap	9510 P	—		1–3 mA	—		1–2 mA	—	4	15	51
Without built-in resistance	Dwarf	Z1 M W	E 14 B 15	80–145	Max. 2 mA	40000	110–195	Max. 2 mA	40000	1	11.5	30
		Z2 M W	E 14 B 15	110–145		60000	150–195		100000			
		Z3 M W	E 14 B 15	150–195 200–250		120000 250000	200–250		250000			
	Without cap	Z9	—	65–100 105–130 135–195 200–250	ca. 0.25 mA	130000 200000 400000 550000	90–100 105–130 135–195 200–250	ca. 0.25 mA	70000 200000 400000 550000	5	1.2	32
	Without cap	Z10	—	65–100 105–130 135–195 200–250		130000 200000 400000 550000	90–100 105–130 135–195 200–250		70000 200000 400000 550000	6	10	25
	With two caps	Z11	S 8.5	80–130 135–195 200–250	Max. 2 mA	25000 60000 100000	110–130 135–195 200–250	Max. 2 mA	20000 60000 100000	—	10.5	44
	Without cap	Z8	—	65–100 105–130 135–195 200–250	ca. 0.25 mA	130000 200000 400000 550000	90–100 105–130 135–195 200–250	ca. 0.25 mA	70000 200000 400000 500000	8	6	23

*) For neon-glowlamps without built-in resistance it is important to specify the voltage for which they are required and whether they are to be used on AC or DC.

**) The appropriate resistance for lamps without built-in resistance has to be mounted in series with the lamp.

SOME APPLICATIONS OF THE NEON SIGNAL LAMPS

1 FUSE CONTROL

Lamps are connected parallel to fuses and burn when fuses are blown. The circuit is not interrupted, but the high resistance, either built in the lamp cap or mounted in the circuit, prevents damage.

2 MAINS SUPPLY CONTROL

The lamp is connected parallel to the mains and burns when the mains are live, indicating whether the mains supply is on or off.

3 WALL SOCKETS CONTROL

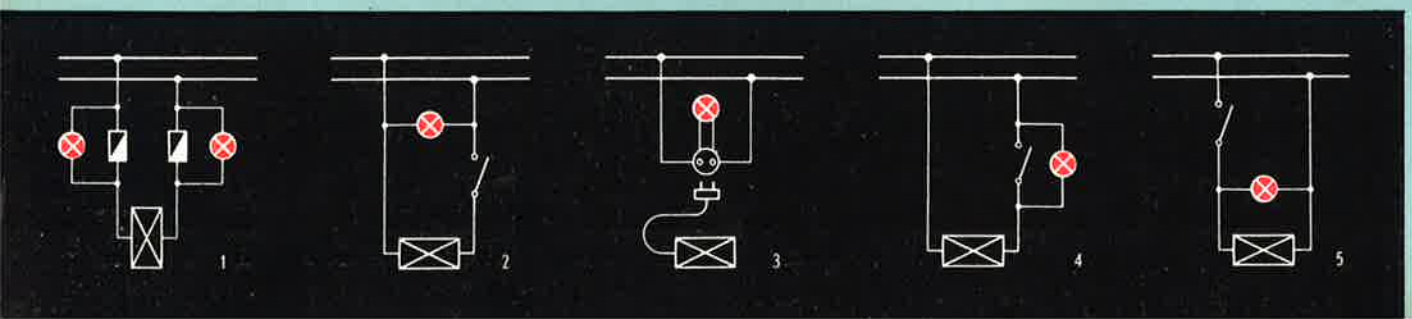
The lamp is connected parallel to the contacts of the wall socket and burns if it is live. The lamp indicates eventual trouble to the mains or to the appliance.

4 SWITCH INDICATOR

The lamp is connected parallel to a switch and lights up in case the switch is open.

5 APPLIANCE CONTROL

The lamp is connected to a household appliance and will burn if the apparatus is in circuit.



FLUORESCENT ARGON LAMP

This lamp has been designed to exploit the fluorescing properties of different materials as e.g. paints and lacquers. It is useful for commercial purposes and will find its application in show-windows, on display boards etc. The radiation is mostly in the UV wavelength 0.30–0.38 M which is very effective to cause fluorescence. It does not affect the eyes or skin. Although the clear glass finish serves its purpose excellently, Woods' glass (black glass) will produce even better results, as it intercepts the small amount of light produced in the lamps.

13200E

Finish	Catalogue number	Cap	~ Voltage	~ Current	= Voltage	= Current	Diam.	Ovl.
Clear	13200 E 13200 B	E 27 B 22	110–250	7–9 mA	125–250	5–7 mA	44.5	91
Wood glass	13200 E/70 13200 B/70	E 27 B 22						

LAMP FOR WAVELENGTH CONTROL

This lamp of tubular shape has no built-in resistance. Therefore a resistance has to be connected up in series with the lamp.
The value of it depends on the voltage applied and must be suitable for the maximum current of the lamp. The bulb is clear glass.

4018D

Finish	Catalogue number	Cap	~ Voltage	~ Current	= Voltage	= Current	Diam.	Ovl.
Clear bulb	4018 D	E 10	100–∞	Max.1mA	125–∞	Max. 1mA	10	—

TENSION INDICATOR LAMPS

These lamps are specially designed for detecting and indicating circuits. There are two types available:

one for application in switchboards
one for use in the Philips' mains detector, Cat. Nr. 7829

Philips' mains indicator lamps are reliable, of strong construction, vibration free and shockproof.

13525T

4017T

A. When connected to AC both electrodes will light up.

B. When the cap with pin is connected to the positive pole of a DC system the electrode marked + will light up.

C. When the cap with pin is connected to the negative pole of a DC system the ring-electrode will light up.

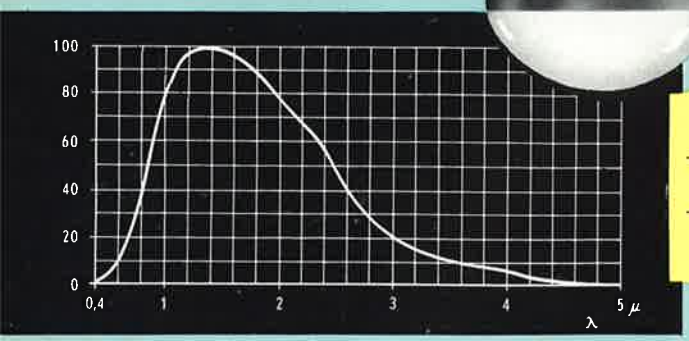
Finish	Catalogue number	Cap	~ or = Voltage	Current	Fig.	Diam.	Ovl.
Indicator	13525 T	Two caps S 19	265–750	1–3 mA*)	A	19.5	81
Tester	4017 T	One cap S 19 and one cap with pin S 19 p	110–250	Max. 5 sec. continuous use	B	19.5	81
	4021 T		200–750				

*) Suitable for continuous use.

INFRA-RED INDUSTRIAL DRYING LAMPS

250 W • 375 W

These lamps are heat sources which are especially suitable for baking, drying, degreasing, preheating and dehydrating purposes. As such they are widely used in industry and render excellent service. These lamps are built of specially selected sturdy resisting glass and are fitted with sealed beam reflectors. They will not get dirty, not need cleaning and keep brilliant for their entire life. A special 1000 W tubular shaped lamp has recently been introduced.

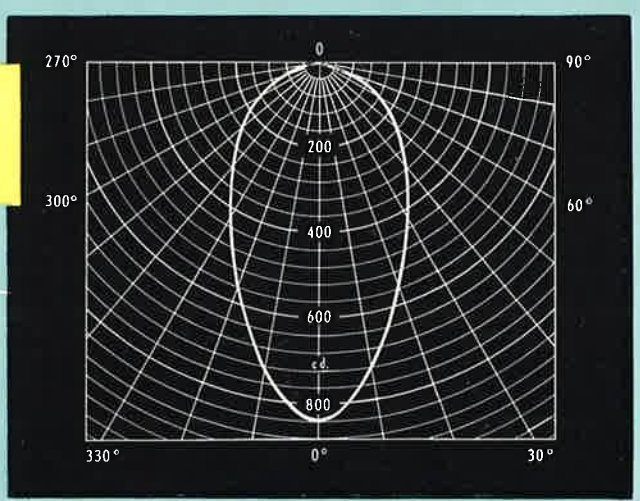


Finish of bottom	Voltage	Watts	Cap	Catalogue number	Diam.	Max. Ovl.
Clear	100–250	250 375	E27	13352 E/99 13344 E/06	125	192
Slightly sand blasted	100–250	250 375		13352 E/13 13344 E/13		

← *Relative spectral energy distribution*

1000 W

The type shown above will not be supplied anymore. It has been replaced by a small 1000 W tubular quartz lamp; diameter 10 mm, length 348 mm. Technical data will be supplied on application.



INFRA-RED HEAT LAMPS

150 W

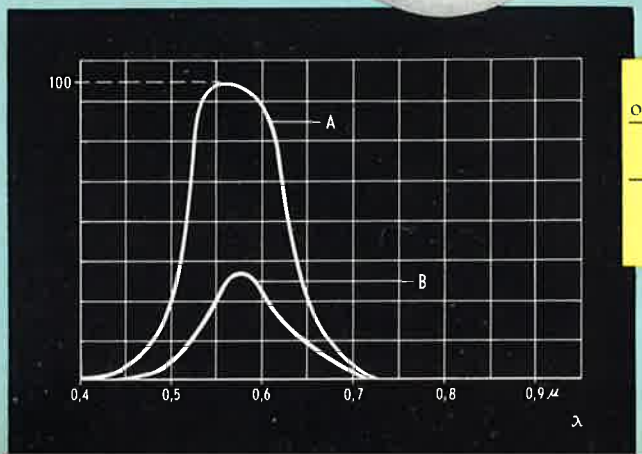
250 W

In homes and on farms heat lamps are nowadays used for a great variety of purposes.

In homes they mostly serve healing purposes,* as they supply a source of penetrating heat which helps to relieve muscular pains. Also the pain effects of various complaints such as neuritis, arthritis etc.

On farms these lamps have proved to be of great value for stockbreeding and many a poultry farmer now runs his entire farm with the help of Philips' Infra-Red Heat lamps.

* "Infraphil".



Finish of bottom	Voltage	Watts	Cap	Catalogue number	Diam.	Max. Ovl.
Satin-frosted	100–250	250	E 27	13352 E/44	125	190
Brown	100-250	150	E 27	13346 E/98	111	154.5
	100–250	250	E 27	13345 E/98	125	190

← *Radiation of the clear lamp and the lamp with brown bottom in the visible area*


M-83425

GASDISCHARGE LAMPS

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A main street in a big city lighted with gas-discharge lamps type HPL.

MANUFACTURING AND QUALITY

The first experiments with discharge lamps as light sources were made in the Philips' Laboratories in 1918, and 1932 saw the first actual application of Philips' discharge lamps for the lighting of public roads. Since that time a great deal of research work has been done both in the laboratories and in the factories towards the further development of these lamps. Known principles were put to practical tests and new discoveries opened up new perspectives. All this has contributed to a large degree towards discharge lamps having won for themselves a unique place in lighting technique and it has thereby become possible to meet aspirations which were hitherto considered unattainable. A typical feature of discharge lamps is their high luminous efficiency, whilst furthermore the long useful life is important and outstanding. Discharge lamps for purposes of illumination are either of the sodium or mercury type, the latter including fluorescent tubular lamps, which are, however, usually never referred to as such. This part of the catalogue covers Sodium lamps SO, the high-pressure mercury lamps HPL and HP, the blended-light lamps ML and the high-pressure mercury lamps HO. Also included is a fast growing group of discharge lamps which are used in photochemical or optical equipment. Their applications are mainly to be found outside the lighting field proper.

Philips SO lamps are now a familiar sight in many countries, not only on highways carrying dense traffic, on bridges, at road junctions and the like, but also in the grounds surrounding factories and public buildings. The many and outstanding features of these lamps can be summarized as follows:

1. High visual acuity
2. Enhanced contrasts
3. Monochromatic amber light
4. Low brightness
5. High luminous efficiency
6. Long life.

In the thirties Philips was the first to develop a colour


RETOUR
PHILIPS OSS

corrected fluorescent mercury lamp. This lamp was designated HPL. The main characteristics are:

white light
high luminous efficiency
high visual acuity
long life

The HP lamp, similar to the HPL lamp but for the colour correction, is still widely used for road- and workshop lighting, as is the ML lamp which is a special mercury lamp in which a tungsten coil acts as ballast and colour corrector. The HO lamp is still a popular lamp for workshop and floodlighting and also for artificial lighting in horticulture.

To the aforementioned group of special discharge lamps belong:

TUV germicidal lamps are used in the processing and preservation of foods, pharmaceutical products and other perishables and are used for sterilization purposes in hospitals and laboratories.

The HPW "blacklight" lamp, a source of radiation for the excitation of the phenomenon of "luminescence", is used in various industries for purposes of detection and analysis and also for publicity and showlighting.

The HPR "Repro" lamp has been developed for photographic reproduction and copying purposes and also finds use as a small floodlight unit.

HOG, HOK and "TL" blue actinic tubular mercury lamps are applied in light printing and other photochemical processes, such as chlorination, polymerization, hydrogenation and so on.

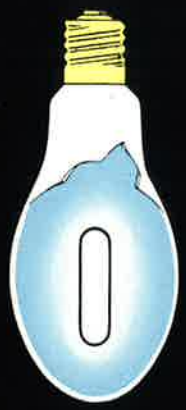
Spectral lamps are made for use in spectroscopy, refractometry, polarimetry -in short- in all those physical and chemical experiments of tests where light plays a role.

SP super high-pressure mercury-vapour lamps with forced cooling are small light sources having a high luminous flux and a high brightness and meet with a growing demand from industrial and scientific quarters. Philips SP lamps fully answer these requirements and are finding increasing application in optical equipment, such as optical marking apparatus, in photomechanical processes, in film and micro-projection and in equipment for measuring or checking by means of optical systems e.g. for profile scanning, in grinding and milling machines, for checking ball bearings and precision components of typewriters, watches and other products in precision engineering.

Other types belonging to this group, but not incorporated in this catalogue are flash tubes, compact-source mercury lamps, sunlamps and "blacklight" fluorescent lamps. Particulars will be gladly submitted on application.

Gas- discharge lamps are of paramount importance for industry. Only a most careful manufacturing process and constant research will guarantee first class quality. The experience gained by Philips over the last 25 years is supported by a generation of workers, skilled in this particular branch of lamp manufacture. Although, mechanisation has made mass production possible labour still plays an all important part, and the happy combination of the two is responsible for increased uniformity of quality. Close cooperation between Philips lamp designers and Philips ballast engineers ensures world wide availability of light sources and accessories, which give long and lasting satisfaction to the user.

DISCHARGE LAMPS FOR GENERAL LIGHTING PURPOSES



The principle of the gas-discharge lamp is a rather simple one. Instead of a tungsten filament, as in incandescent lamps, gas-discharge lamps have a discharge tube filled with a vapourized metal. The result of the electric current trough this vapourized metal is an electro magnetic radiation part of which is visible light.

FLUORESCENT MERCURY LAMPS HPL

HPL colour corrected fluorescent mercury lamps consist of a quartz discharge tube — filled with liquid mercury and a quantity of argon gas to facilitate starting — contained in a glass envelope, which is inside coated with fluorescent phosphor powder. The space between the two bulbs is filled with an inert gas. Three electrodes are built into the discharge tube, two main electrodes and an auxiliary one, the latter for ease of ignition only. The original arc is struck through the ionization of the argon gas. Once the arc strikes, the mercury begins to vaporize and gradually takes over. Thanks to the phosphor coating a white light is provided.

MERCURY LAMPS HP

The HP mercury lamp is equivalent to the HPL type except for the coulour correcting phosphor coating. Owing to the high pressure of the mercury discharge, the green, yellow and blue rays are accompanied by a weak continuous spectrum so that the light produced is of a bluish white colour.

MERCURY LAMPS HO

Philips HO lamps are high pressure mercury lamps consisting of a tubular outer envelope of hard glass enclosing an inner tube likewise of hard glass. The greenish-white light from these lamps is composed mainly of green and yellow rays and a small amount of blue rays.

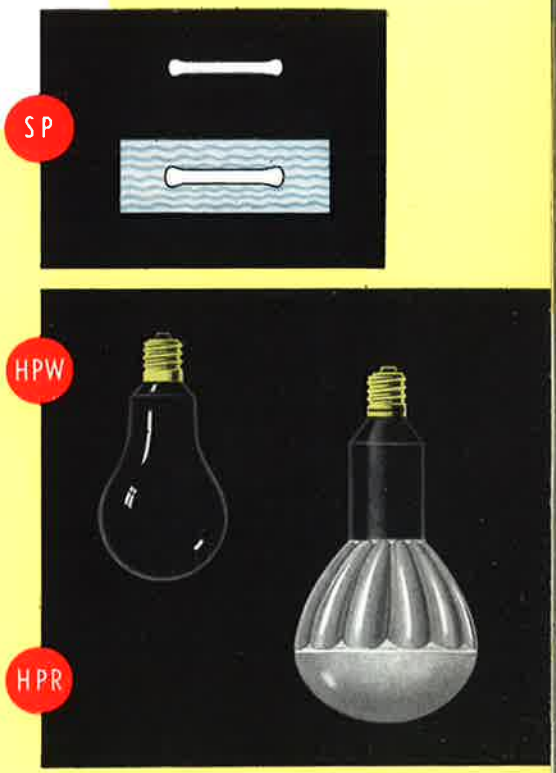
BLENDED LIGHT MERCURY LAMPS ML

Philips blended light lamps type ML contain a quartz mercury discharge tube in series with a coiled tungsten filament which is mounted around the discharge tube. This filament functions both as an incandescent light source and as a ballast resistance controlling the discharge current. Each light source produces about one half of the luminous flux. These lamps can be used in every 220 V socket without any change in the installation.

SODIUM LAMPS SO

The Philips sodium lamp consists of a U-shaped glass tube filled with a quantity of sodium and a neon gas of low pressure acting as a starting gas. This tube which is fitted with a porcelain bayonet cap is enveloped in a double walled jacket, with a vacuum between the inner and outer wall to keep lamp temperature within narrow limits which is essential for proper operation.

DISCHARGE LAMPS FOR SPECIAL PURPOSES



SUPER HIGH PRESSURE MERCURY LAMPS SP

Philips' SP lamps are super high pressure mercury lamps with forced cooling. They can be either water-cooled or air-cooled. In a quartz capillary tube a highly concentrated discharge takes place. The light from SP lamps is whiter than that produced by ordinary mercury lamps on account of the internal pressure, while in use, being very high.

BLACK LIGHT MERCURY LAMPS HPW

The Philips' HPW black light lamp is a mercury lamp consisting of a small quartz discharge tube enclosed in an outer bulb of (black) Wood's glass. It constitutes a source of invisible radiation for the excitation of the "luminescence" phenomenon.

MERCURY LAMPS HPR (REPRO LAMPS)

The Philips' HPR repro lamp consists of a small quartz discharge tube enveloped in a hard glass outer bulb of a special shape. Its inside mirror ensures a homogeneous beam of light. The lamp emits a large quantity of actinic radiation.

"TL" BLUE ACTINIC FLUORESCENT LAMPS

Blue actinic "TL" lamps are tubular, low pressure and low voltage mercury lamps. They are inside coated with a fluorescent powder that changes the short wave ultra-violet radiation of the arc into a useful actinic radiation with a peak at approximately 4000 Å.

SPECTRAL LAMPS

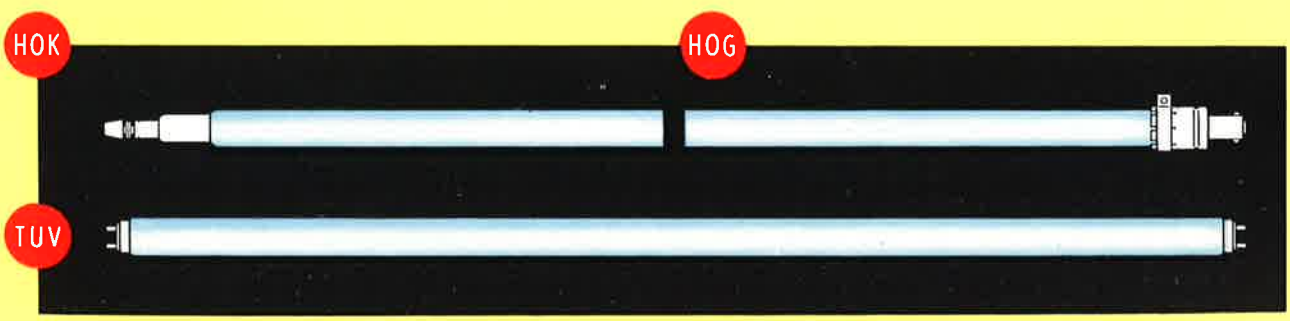
Philips' spectral lamps consist of a small discharge tube enveloped in a cylindrical outer bulb. The discharge tube contains either a gas, a metallic vapour or a mixture of both. The electrodes permit of a very high current intensity so that a light source is obtained capable of emitting considerable energy in one single spectral line or in a few lines.

LIGHTPRINTING LAMPS HOG-HOK

Philips' lightprinting lamps HOG-HOK are tubular mercury lamps for lightprinting and other photo-chemical processes. They are made respectively from hard glass and from quartz and are strong U.V. radiators.

GERMICIDAL LAMPS TUV

Philips' germicidal lamps are tubular, low pressure mercury lamps made of a special kind of glass. The main radiation of these lamps is in the 2537 Å line.



HPL


HPL 80 W


HPL 125 W


HPL 250 W


HPL 400 W

The fluorescent mercury lamp HPL provides a white light and its colour rendition is very satisfactory. By its high luminous efficiency this lamp is very suitable for public lighting, for indoor lighting, in industry and for floodlighting. There are four different types ranging from 80 W to 400 W.

BURNING POSITION


Any

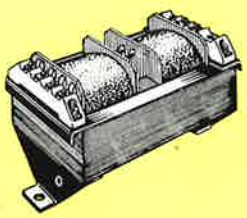
LAMPDATA

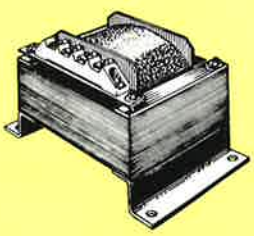
Type	Lumens	Average life hrs. [1]	Catalogue number			Diam.	Max. length		
			Cap E27	Cap B22	Cap E40		E27	B22	E40
HPL 80W	2800	4000	57217 E/25	57217 B/25	—	80	156	151	—
HPL 125W	4750		57218 E/97	57218 B/97	—	90	176	171	—
HPL 250W	10000		—	—	57220G/97	90	—	—	227
HPL 400W	18000		—	—	57221G/97	120	—	—	283

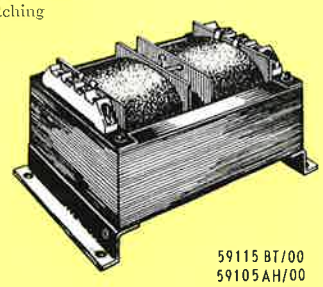
[1]) Based on an average of 5 burning hours per switching

BALLASTS


58204 AH/03
58205 AH/03


59202 BT/00
59203 BT/00

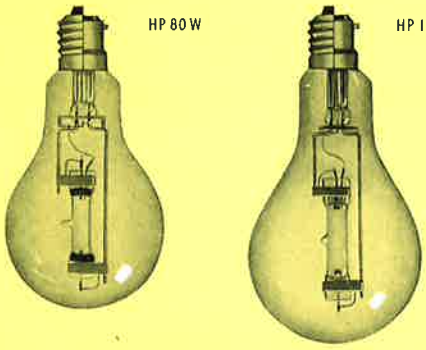

58100 AH/01
58101 AH/00


59115 BT/00
59105 AH/00
59106 BT/00
59110 BT/00

For lamp	Nominal voltage V	Mains current A	Power factor	Losses W	With capacitor [1])			Catalogue number	Weight kg	Dimensions max. L × W × H
					µF	Mains current	Power factor			
HPL 80W	220	0.8	0.5	9	6.3	0.49	0.8	58204 AH/03	1.6	113 × 82 × 82
	110	1.7	0.5	15	10	0.94	0.9	59202 BT/00	2.8	87 × 142 × 88
	125	1.55				0.83				
HPL 125W	220	1.15	0.55	10	10	0.68	0.9	58205 AH/03	2	113 × 82 × 94
	110	2.5	0.55	20	10	1.55	0.85	59203 BT/00	3.6	87 × 142 × 102
	152	2.2	0.5	18		1.35				
HPL 250W	220	2.0	0.6	15	20	1.28	0.95	58100 AH/01	4.0	160 × 100 × 105
	110	4.2	0.6	22	20	2.6	0.95	59115 BT/00	5.8	174 × 104 × 110
	125	3.7		19		2.3				
HPL 400W	220	3.2	0.6	19	33	2.1	0.9	58101 AH/00 [2])	6.1	160 × 100 × 135
		4.7	0.4	46	50	2.3	0.9	59105 AH/00 [3])	11.5	215 × 138 × 130
	110	6.5	0.6	38	25	4.4	0.9	59106 BT/00 [2])	11.0	215 × 138 × 135
	125	5.8		36		3.8				
	110	9.2	0.45	57	40 [4])	4.4	0.9	59110 BT/00 [3])	11.0	215 × 138 × 140
	125	8.2		52		3.8				

[1]) For data capacitors see page B 20
[2]) Only to be used for indoorlighting: ambient temperature 5°C (41°F) minimum
[3]) For ambient temperatures below 5°C (41°F)
[4]) With capacitance 33 µF power factor 0.8

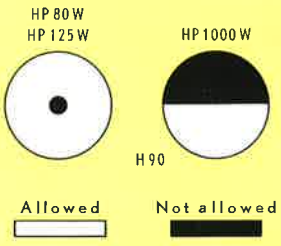
INSIDE FROSTED



CLEAR

HP 1000W

BURNING POSITION



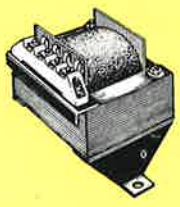
When colour rendering is not essential the super high pressure mercury vapour lamp type HP with its bluish white light colour is excellently suitable for public lighting, for outdoor and indoor lighting in industry and for floodlighting. These lamps will further serve their purpose in photochemical processes, egg testing, microscopic examinations etc.

LAMPDATA

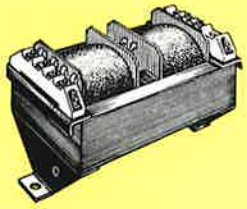
Finish	Type	Lumens	Average life [2] hrs	Catalogue number [1] Cap E27	Cap B22	Cap E40	Diam.	Max. length E27	B22	E40
Frosted	HP 80W	3000	4000	57201 E/21	57201 B/21	—	80	156	151	
	HP 125W	5000		57202 E/21	57202 B/21	—	90	177	172	
Clear	HP 80W	3000		57201 E/00	57201 B/00	—	80	156	151	
	HP 125W	5000	4000	57202 E/00	57202 B/00	—	90	177	172	382
	HP 1000W	52000		—	—	57213 G/00	65	—	—	

[1]) HP 80W and 125W also available with 3 pin cap F Cat. Nr. 5720. F/... [2]) Based on an average of 5 burning hrs. per switching

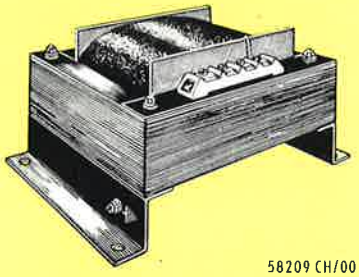
BALLASTS



58204 AH/03
58205 AH/03



59202 BT/00
59203 BT/00

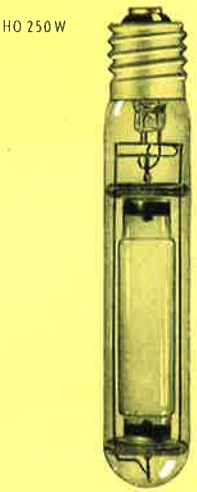


58209 CH/00

For lamp	Consumers voltage V	Mains current A	Power factor	Losses W	With capacitor [1] µF	Mains current	Power factor	Catalogue number	Weight kg	Dimensions max. L × W × H
HP 80W	225	0.8	0.5	9	6.3	0.49	0.8	58204 AH/03	1.6	113×82×82
	110	1.7	0.5	15	10	0.94	0.9	59202 BT/00	2.8	87×142×88
	125	1.55				0.83				
HP 125W	225	1.15	0.55	10	10	0.68	0.9	58205 AH/03	2	113×82×94
	110	2.5	0.55	20	10	1.55	0.85	59203 BT/00	3.6	87×142×102
	125	2.2	0.5	18		1.35				
HP 1000W	225	7.3	0.65	30	66	5.3	0.9	58209 CH/00	15.7	256×160×140

[2]) For data capacitors see page B 20

These lamps supply a greenish white light. When colour rendering is not essential HO lamps can be very well applied for public lighting, for indoor and outdoor lighting in industry and for floodlighting. In addition this lamp can be used for plant irradiation in green houses. There are three types available viz. HO 250 W for burning positions as shown in the figure, HO 250 W(L) for any burning position but with a lower luminous flux and HO 450 W. Also available now a HO 400 W type.



CLEAR

Allowed

Not allowed

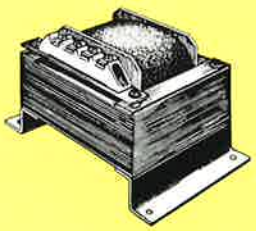
BURNING POSITION

LAMPDATA

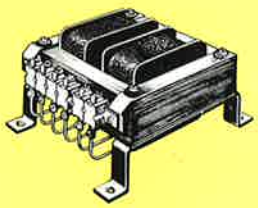
Finish	Type	Lumens	Average life [1] hrs.	Cap	Catalogue number	Diam.	Max. length
Clear	HO 250W	9000	3000	E 40	57101 G/00	46	255
	HO 250W (L)	8000	3000	E 40	57108 G/00	46	255
	HO 400W	16000	3000	E 40	57102 G/00	46	310
	HO 450W	18500	3000	E 40	57103 G/00	50	300

[1]) Based on an average of 2.5 burning hours per switching.

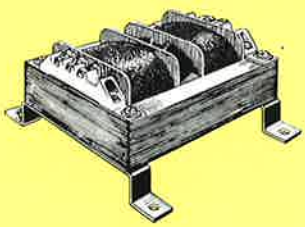
BALLASTS



58100 AH/01
58104 AH/00



59100 AA/01



59103 BD/00

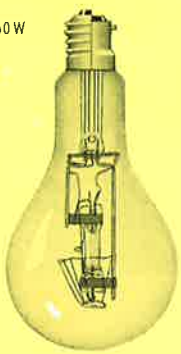
For lamp [1])	Nominal voltage V	Mains current A	Power factor	Losses	With capacitor [2]) µF	With capacitor [2]) Mains current	With capacitor [2]) Power factor	Catalogue number	Weight kg	Dimensions max. in mm L × W × H
HO 250W HO 250W (L)	225	2.3	0.55	17	20	1.45	0.9	58100 AH/01	4.0	160×100×105
	110 120 130	5.1 4.7 4.4	0.5	25	—	—	—	59100 AA/01 [3])	7.5	175×197×108
HO 450W	225	3.7	0.6	23	33	2.3	0.95	58104 AH/01	6.5	160×100×135
	115 125	7.7 7.0	0.55	33	—	—	—	59103 BD/00	10.3	190×179×125

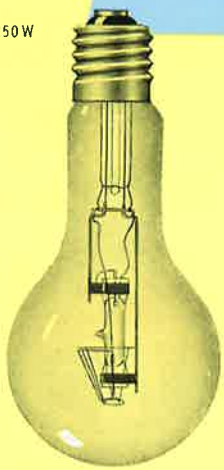
[1]) For HO 400W the same ballast should be used as for HPL 400W (see page B 8)
[2]) For data capacitor see page B20
[3]) This ballast is now replaced by an autoleaktransformer Cat. Nr. 59115 B7/00 for 110-120 V or 120-130 V Dim. 174×104×110


ML 160W


ML 250W

INSIDE FROSTED


ML 160W


ML 250W

CLEAR

This lamp supplies a crisp and stimulating near white light of average daylight appearance which has fair colour rendering properties. ML lamps are available in clear and inside frosted finish. When the ML lamp is switched on, the filament produces immediately a luminous flux approximately equal to the nominal. It decreases as the luminous flux of the discharge tube increases till after about 2 minutes the respective contributions are almost equal. The power factor of these lamps is 0.96.

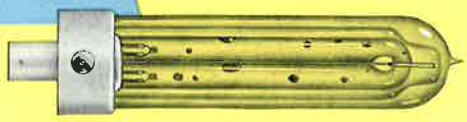
The Philips ML lamp is suitable for lighting of shop windows, displays and shop interiors, factories, stores, schools, garages and hangars, public lighting, outdoor lighting and flood lighting.

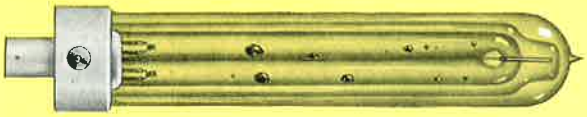
BURNING POSITION

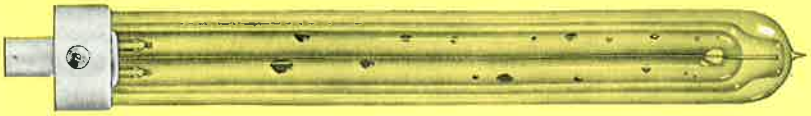
Any

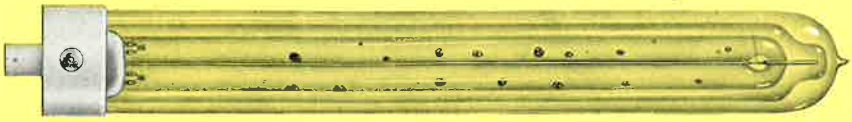
Finish	Type	Nominal voltage V	Lumens	Average life hrs.	Catalogue number cap E27	Catalogue number cap B22	Catalogue number cap E40	Diam.	Max. length E27	Max. length B22	Max. length E40
Opalized bulb	ML 160W	200–210	2700	3000	57273 E/56	57273 B/56	—	90	184	179	—
		210–220	2750		57274 E/56	57274 B/56	—				
		220–230	2750		57270 E/56	57270 B/56	—				
		230–240	2750		57272 E/56	57272 B/56	—				
		240–250	2650		57276 E/56	57276 B/56	—				
	ML 250W	200–210	4400	3000	57283 E/56	—	57283 G/56	110	250	—	240
		210–220	4500		57284 E/56	—	57284 G/56				
		220–230	4500		57275 E/56	—	57275 G/56				
		230–240	4500		57278 E/56	—	57278 G/56				
		240–250	4300		57285 E/56	—	57285 G/56				
Opalized hardglass outer bulb	ML 160W	200–210	2700	3000	57273 E/96	57273 B/96	—	90	184	179	—
		210–220	2750		57274 E/96	57274 B/96	—				
		220–230	2750		57270 E/96	57270 B/96	—				
		230–240	2750		57272 E/96	57272 B/96	—				
		240–250	2650		57276 E/96	57276 B/96	—				
Clear bulb	ML 160W	200–210	2700	3000	57273 E/00	57273 B/00	—	90	184	179	—
		210–220	2750		57274 E/00	57274 B/00	—				
		220–230	2750		57270 E/00	57270 B/00	—				
		230–240	2750		57272 E/00	57272 B/00	—				
		240–250	2650		57276 E/00	57276 B/00	—				
	ML 250W	200–210	4400	3000	57283 E/00	—	57283 G/00	110	250	—	240
		210–220	4500		57284 E/00	—	57284 G/00				
		220-230	4500		57275 E/00	—	57275 G/00				
		230–240	4500		57278 E/00	—	57278 G/00				
		240–250	4300		57285 E/00	—	57285 G/00				

SO


SO 45W


SO 60W

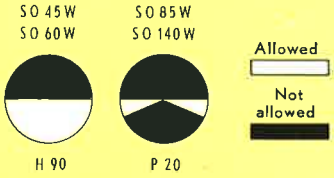

SO 85W


SO 140W

CLEAR

Philips sodium lamps spread a monochromatic amber coloured light. Therefore such lamps are desirable in all cases where it is of importance that one should be able to see well and easily. The colour of the light from this lamp limits the application, but its use has shown that Philips sodium lamps render full satisfaction in a great number of ways. Those we would mention include: lighting of highways waterways and traffic points, yard lighting, quarry lighting, airfield lighting, floodlighting, indoor lighting of industrial spaces etc.

BURNING POSITION



LAMPDATA

Type	Lumens	Average life hrs.	Cap	Catalogue number		Diam. [1] mm	Max. [1] length mm
				Lamp	Vacuum jacket		
SO 45W	2600	4000	special	57002 B/00	61025/00 [2]	50	247
SO 60W	4000			57004 B/00	61026/00	50	307
SO 85W	6200			57006 B/00	61027/00	50	424
SO 140W	10200			57007 B/00	61028/00	65	522

[1]) Lamp + Jacket
[2]) If purely yellow light is required use vacuum jacket in orange finish. Cat. Nr. 61025/99.

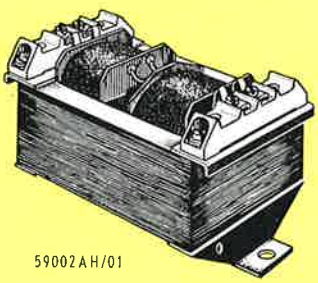
LAMPHOLDERS

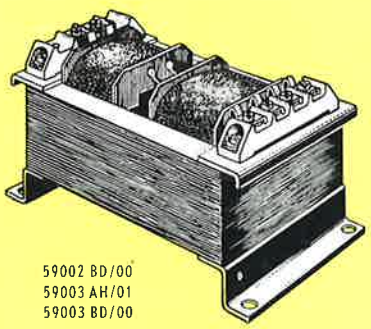
For lamp	Catalogue number	Weight g
SO 45W SO 60W SO 85W	61080/10	100
SO 140W	61080/20	110


61080/10


61080/20

BALLASTS


59002 AH/01


59002 BD/00
59003 AH/01
59003 BD/00

For lamp	Nominal voltage V	Mains current A	Power factor	Losses W	With capacitor [1]			Catalogue number	Weight kg	Dimensions L × W × H
					µF	Mains current	Power factor			
SO 45W	220	1.45	0.2	20	20	0.37	0.8	59002 AH/01	3.6	142× 87×102
	115	2.6	0.25	22		0.74	0.7	59002 BD/00	5.1	174×104×100
	125	2.5	0.2	20		0.67	0.75			
SO 60W	220	1.4	0.25	20	20	0.43	0.85	59002 AH/01	3.6	142× 87×102
	115	2.6	0.25	21		0.81	0.85	59002 BD/00	5.1	174×104×100
	125	2.5	0.25	20		0.75	0.85			
SO 85W	220	1.4	0.35	20	20	0.54	0.9	59002 AH/01	3.6	142× 87×102
	115	2.5	0.35	20		0.99	0.9	59002 BD/00	5.1	174×104×100
	125	1.4	0.35	20		0.92	0.9			
SO 140W	220	2.1	0.35	24	25	0.84	0.85	59003 AH/01	6.0	174×104×110
	115	4.1	0.35	27		1.6	0.9	59003 BD/01	7.8	174×104×130
	125	3.8	0.35	26		1.55	0.85			

[1]) For data capacitors see page B 20

FORCED COOLED SUPER HIGH PRESSURE MERCURY LAMPS

Light from SP lamps is whiter than that produced by ordinary mercury lamps on account of the internal pressure, while in use, being very high. Full light output is reached at once; a further feature of SP lamps is their re-igniting immediately. They are, moreover, distinguished by a high level of brightness and by a high efficiency.
Three sizes are available viz. 500W, 900W and 1000 W.The SP 500 and SP 900W lamps should be used on AC, the SP 1000W lamp on DC. The SP 500W lamp is made either to radiate freely in all directions or having directed radiation. The SP 1000W lamp is supplied having directed radiation only. The 900W size is a quartz discharge tube only (Cat. Nr. 57350 X/01).
A highly concentrated discharge takes place in a quartz capillary tube, around which either water flows (SP 500W and 1000W) or air is blasted (SP 900W). The discharge produces a considerable quantity of UV-radiation. With the exception of the SP 900W lamp this radiation is for the greater part absorbed by glass parts belonging to the lamps. However, with the lamps destined for directed radiation these glass parts may be replaced by corresponding parts of quartz which allow of using the ultra-violet radiation almost in its entirety.

FOR UNDIRECTED RADIATION

The lamps are supplied in a metal reflector fitted with a glass or quartz cover to direct the cooling water properly (see 57300 ZB/00 and 57302 ZB/00). These units are used in a metal holder which is provided with a glass (Cat. Nr. 61300/01) or quartz (Cat. Nr. 61300/11) convex window. Reflector cover and window are removable allowing of the use of quartz or glass. The reflector cover is available in clear glass and quartz, and in frosted glass and quartz. The frosted type is recommended in cases when a more uniform beam is required. For the electrical connection the contact pin of the lamp fits into a single pole female plug (Cat. Nr. 61375/00).

FOR DIRECTED RADIATION

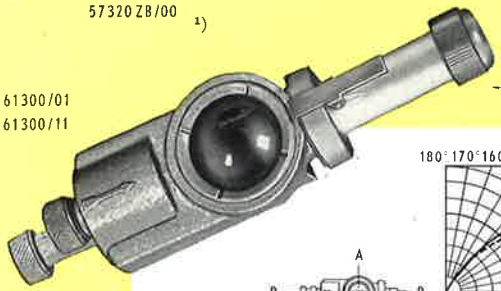
The discharge tube is placed in the common axis of two cylindrical glass envelopes. The inlet and the outlet for the cooling water are both on the same side of the lamp. The radiation passes through two layers of glass and cannot be used for ultra-violet purposes (Cat. Nr. 57310 AA/00). The connection to the cooling unit is made by means of a metal coupling and a rubber washer. (Cat. Nr. 61378/02).

57320 ZB/00 [1]

57322 ZC/00 [2]

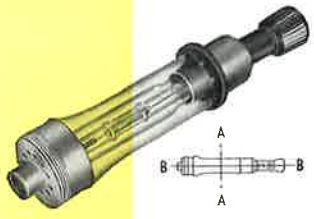
[1]) Now 57302ZB/00
[2]) Now 57300ZB/00

61300/01
61300/11



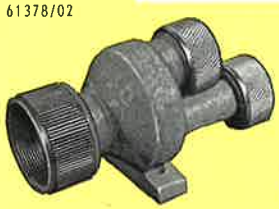
61375/00

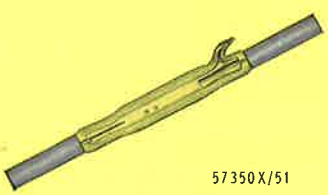
61385/03



57310 AA/00

61378/02





57350 X/51

LAMPDATA

Description	Type	Lumens	Brightness sb	Average life [1])	Catalogue number	Length of discharge
For directed radiation	SP 500W	15.000 [2])	25000 [2])	50 h	57300 ZB/.. [3])	12.5
	SP 1000W	30.000 [2])	45000 [2])	50 h	57302 ZB/.. [3])	12.5
For undirected radiation	SP 500W	30.000	25000	50 h	57310 AA/00	12.5
	SP 900W	50.000	22000	100 h	57350 X/51	25

[1]) Based on an average of 2 burning hours per switching.
[2]) With reflector and cover.
[3]) Glass cover: { Clear/00 / Frosted/07 } Quartz cover: { Clear/51 / Frosted/52 }

BALLASTS

The Philips SP 500 W lamp is operated via a leak transformer, (Cat. Nr. 59300 BE/00) the primary circuit of which has a number of terminals for connection to AC mains usually occurring between 105 and 380 volts 50 c/s. Earthing of one of the two terminals is essential. We shall be pleased to supply information regarding the use of SP lamps on mains having a frequency other than 50 c/s.

59300 BE/00

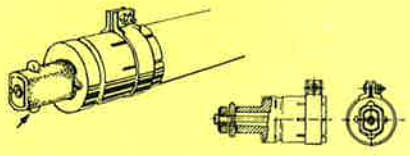
HOG

HOG 2000 W

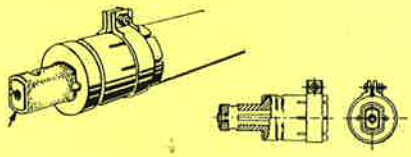
CLEAR

HOG 700 W

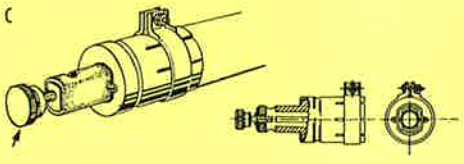
A



B



C



HOG lamps are fitted with universal lamp bases comprising:

A side contacts
B end contacts
C a milled screw to connect the leads direct to the lamp when lampholders are not used

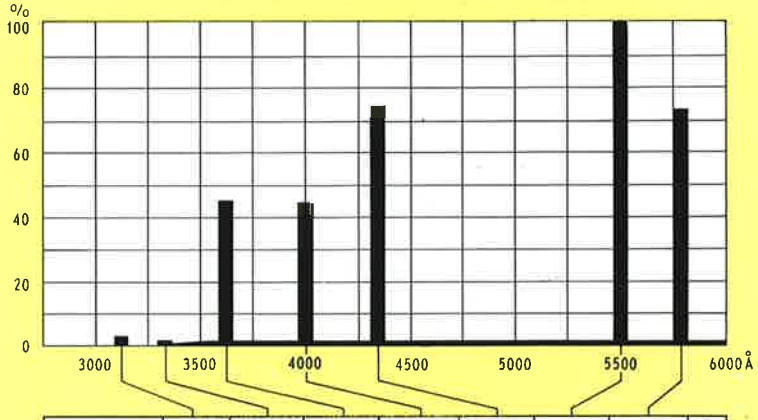
LAMPDATA

Type	Average life [1]	Catalogue number	Diam.	Length	
				luminous	overall
HOG 700W	1000	57123 AH/95	27	417	567
HOG2000W		57118 AH/95	27	1217	1367
HOG2500W		57124 AH/95	27	1350	1502

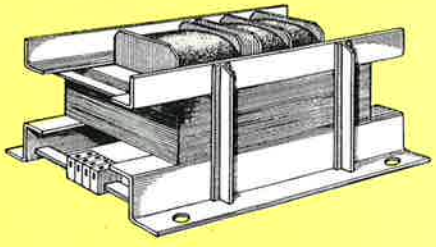
[1]) At an average of 4 hours per switching

The hard glass tube of the Philips HOG lamp is ultra-violet transparent and therefore these mercury lamps will satisfy the requirements of the diazo printing sector.
The lamps may be used in all positions. Insulation or ventilation must frequently be applied to achieve an equilibrium between the heat developed by the lamp and the dissipation of that heat. If the lamp gets too hot or too cold its working point is adversely affected. After starting, the lamps take some minutes to reach full output. If there is too much cooling in this period the mercury will not vaporize and the lamp will not operate properly, thus in such cases cooling must be restricted during the starting period and gradually increased up to the necessary capacity.

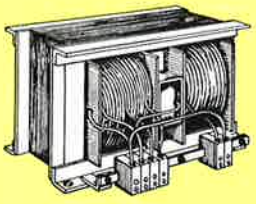
RELATIVE SPECTRAL ENERGY DISTRIBUTION



	3130	3342	3655	4047/87	4358	5461	5770/91	Å
HOG 2000 W	1,5	1	36	35	85	77	58	W
HOG 700 W	0,5	0,3	7,5	8,5	13	19	12	W



59108CP/00



59114CP/00

BALLASTS

HOG lamps are used on A.C. mains and are connected to the mains via leak transformers. Transformers to suit frequencies other than 50 c/s or with tappings other than 205.215 and 225 V can be supplied to order.

For [1]) lamp	Nominal voltage V	Mains current A	Power factor	Losses W	With capacitor [2]) µF	With capacitor [2]) Mains current A	With capacitor [2]) Power factor	Catalogue number	Weight kg	Dimensions L × W × H
HOG 700W	205	9.0	0.4	70	79	4.5	0.85	59114 CP/00	19	260×162×166
	215	8.7		69		4.3				
	225	8.3		68		4.1				
HOG 2000W	205	20	0.55	130	132	12.5	0.8	59108 CP/00	50	390×276×190
	215	19		125		12				
	225	18		120		11.5				

[1]) For HOG 2500W use ballast 59107CP/00. Dimensions equal to 59108CP/00. For power factor correction to 0.85 use capacitor 198 µF [2]) For data capacitors see page B20

All HOK lamps have bases provided with a milled screw; consequently the leads are connected directly to the lamp.

HOK 1200

HOK 2000

CLEAR

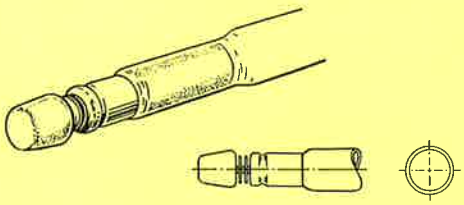
HOK 3000

LAMPDATA

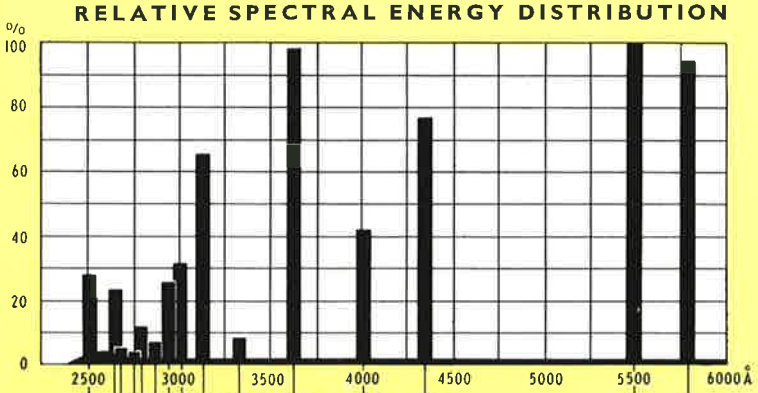
Type	Average life [1] hrs.	Catalogue number	Diam.	Length	
				luminous	overall
HOK1200W	1000	57121 AH/51	25±3	380	630
HOK2000W		57122 AH/51	25±3	530	780
HOK3000W		57119 AH/51	25±3	1280	1495

[1]) At an average of 4 hours per switching

LAMP BASE



RELATIVE SPECTRAL ENERGY DISTRIBUTION



2537	2652	2699	2753	2804	2894	2967	3022	3130	3342	3655	4047/87	4358	5461	5770/91	Å	
18	14,5	3,5	3	7,5	4,5	11	19	41	5,5	64	30	55	75	58	W	HOK 1200
37	34	7,5	6	17,5	8,5	21	43	85	10	128	52	96	122	128	W	HOK 2000
49	42	10,5	7,5	21,5	11	29	59	125	13,5	190	79	144	187	174	W	HOK 3000

The transparency of the quartz tube of the Philips' HOK lamp to UV radiation combined with an admissible high wattload per unit of length leads to a high efficiency. Where very high printing speeds are required and in most applications other than lightprinting these lamps are a very economical proposition.

The remarks concerning the HOG lamps also apply to the HOK lamps. It should be noted that HOK lamps cause formation of ozone which can be carried of with the cooling air.

The ultra-violet rays radiated are very strong and because of this, the operators must be sufficiently protected against these often harmful rays.

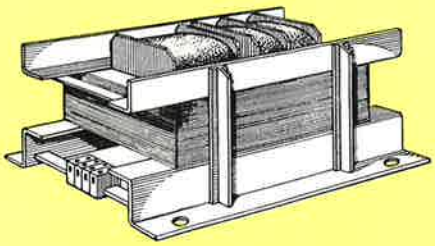
LAMP SUPPORTING BRACKETS

When no use is made of lampholders, lamp supporting brackets suitable both for HOG and HOK lamps are available. The clamps of the brackets which hold the lamp are asbestos covered and the base is made from insulating and heat resistant material. Cat. Nr. 61137/00.

61137/00

BALLASTS

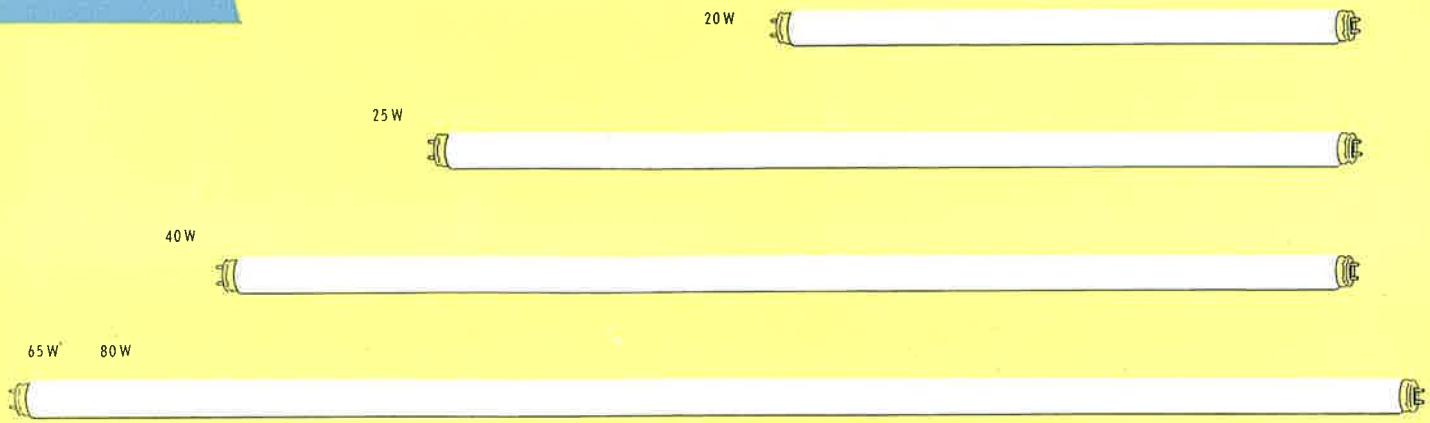
HOK Lamps are used on AC mains and are connected to the mains via leak transformers. Transformers to suit frequencies other than 50 c/s or with tappings other than 205, 215, and 225 V can be supplied to order.



For lamp	Nominal voltage V	Mains current A	Power factor	Losses W	With capacitor [1] µF	Mains current A	Power factor	Catalogue number	Weight kg	Dimensions L × W × H
HOK 1200W	205	11.5	0.55	60	82	7.4	0.85	59112 CP/00	±40	390×276×165
	215	11		60		7.1				
	225	10.5		60		6.8				
HOK 2000W	205	20	0.55	130	132	12.5	0.8	59108 CP/00	±50	390×276×190
	215	19		125		12				
	225	18		120		11.5				
HOK 3000W	205	30	0.5	180	264	19	0,85	59113 CP/00	±80	420×312×228
	215	29		175		18				
	225	28		170		17				

[1]) For data capacitors see page B 20

"TL"
BLUE ACTINIC



Five sizes are available from 20 W up to 80 W, all of which operate on AC mains in series with a ballast and when a proper starter is used. *) The efficiency of blue actinic "TL" lamps is excellent especially as regards to the long wave TUV production which is needed for various photo-chemical processes. When larger capacities are required several lamps can be used together. Heat generation is negligible and the lamps may be placed quite near to their objects without risk of the latter being damaged. To obtain the best results it is recommended to fit and centre the lamps in such a way that they intercept as little as possible radiation from one another. The availability of blue actinic "TL" lamps has led to the construction of very efficient and light weight printing machines, which may be fed from an ordinary wall socket.

BURNING POSITIONS

Any

BALLASTS

Same ballasts that serve standard fluorescent lamps should be applied. Data can be found on pages C 16 and C 17 of this catalogue. All Philips ballasts are manufactured to give full satisfaction in the task for which they are designed. They ensure correct lamp operating characteristics and long lamp life, operate completely silent, do not need maintenance and comply with C.E.E. specifications.

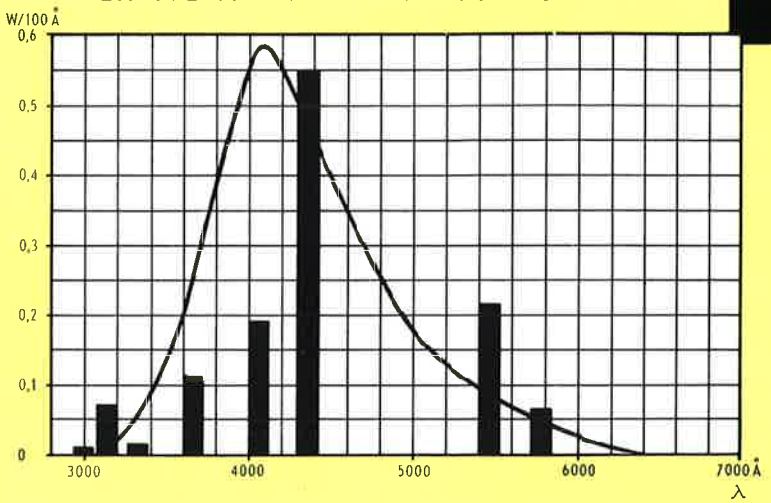
*) The 25W and 40W sizes may also be operated from 220V DC mains using a special ballast and starter. Information will be supplied on request

LAMPDATA

Type	Cap	Average life hrs.	Tube [1]) length	Tube diam.
"TL"20W/10	Standard bi-pin	2500	620	38
"TL"25W/10			1000	38
"TL"40W/10			1230	38
"TL"65W/10			1530	38
"TL"80W/10			1530	38

[1]) Incl. lampholders

RELATIVE SPECTRAL ENERGY DISTRIBUTION



LAMPHOLDERS AND STARTERS

The lampholders and starters for blue actinic "TL" lamps should be taken from the standard range data of which can be found on pages C 14 and C 15 of this catalogue. For each lamp one starter is required and care must be taken that the correct starter is used for each particular lamp size.

← Graph refers to 40 W size. For 20 W, 25 W, 65 W and 80 W sizes the data are proportional.

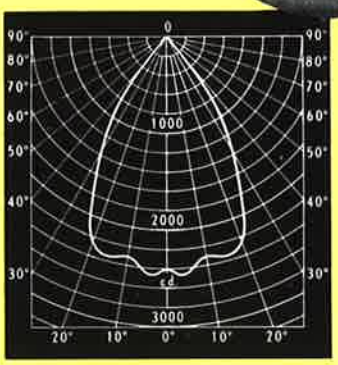
HPR

The lamp generates a large quantity of actinic radiation, to which the materials commonly employed for reproduction and copying purposes are most sensitive. The radiated visible light is of little or no consequence for the specific application of the lamp. This lamp is widely used for A. reproduction boards (black and white) and B. copying frames (for letterpress, intaglio, offset, "Multilith", "Rotaprint", etc.)

BURNING POSITION

Any

HPR 125W

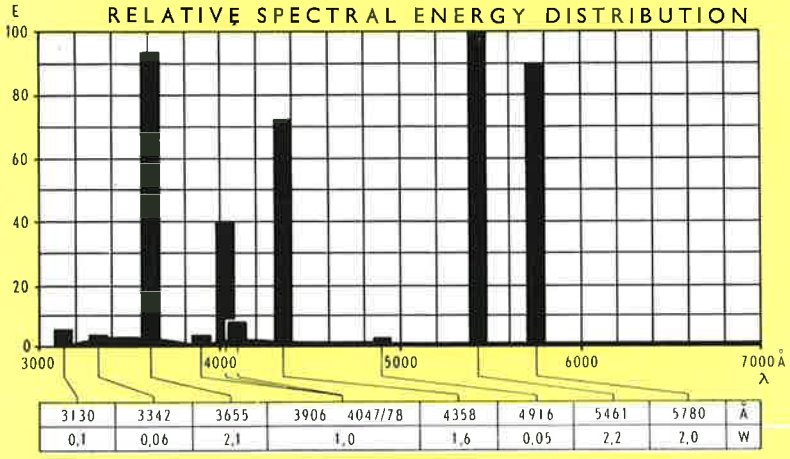


LAMPDATA

Type	Average[1] life hrs.	Catalogue number cap E27	Catalogue number cap B22	Diam.	Max. length E27	Max. length B22
HPR 125W	1500	57205 E/99	57205 B/99	109	222	217

[1]) Based on an average of 2.5 burning hours per switching.

RELATIVE SPECTRAL ENERGY DISTRIBUTION



HPW

BURNING POSITION

Any

HPW 125W

The HPW 125 W "black light" lamp with Wood's glass bulb constitutes a source of (invisible) radiation for the excitation of the "luminiscence" phenomenon. Because of easy mounting and simple operating this lamp can be used for analysis and detection e.g. in chemical, sugar and textile industries, in food production, mineralogy, criminology, banking etc.

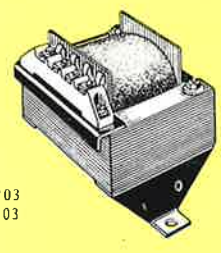
BALLASTS

Like all discharge lamps the HPW and HPR need a ballast to limit the current. The ballasts are supplied with an earth terminal.

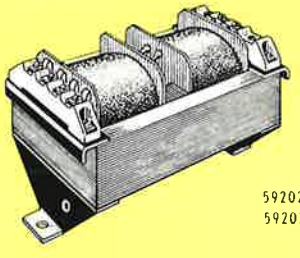
LAMPDATA

Type	Average[1] life hrs.	Catalogue number cap E27	Catalogue number cap B22	Diam.	Max. length E27	Max. length B22
HPW 125W	1000	57202 E/70	57202 B/70	91	177	173

[1]) Based on an average of 2.5 burning hours per switching.

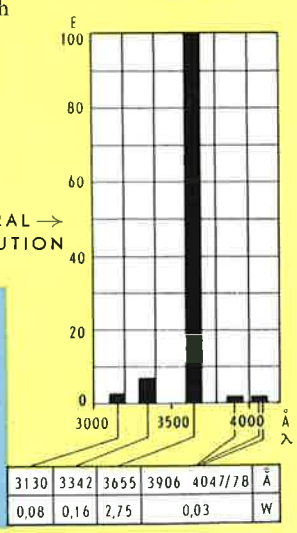


58204 AH/03
58205 AH/03



59202 BT/00
59203 BT/00

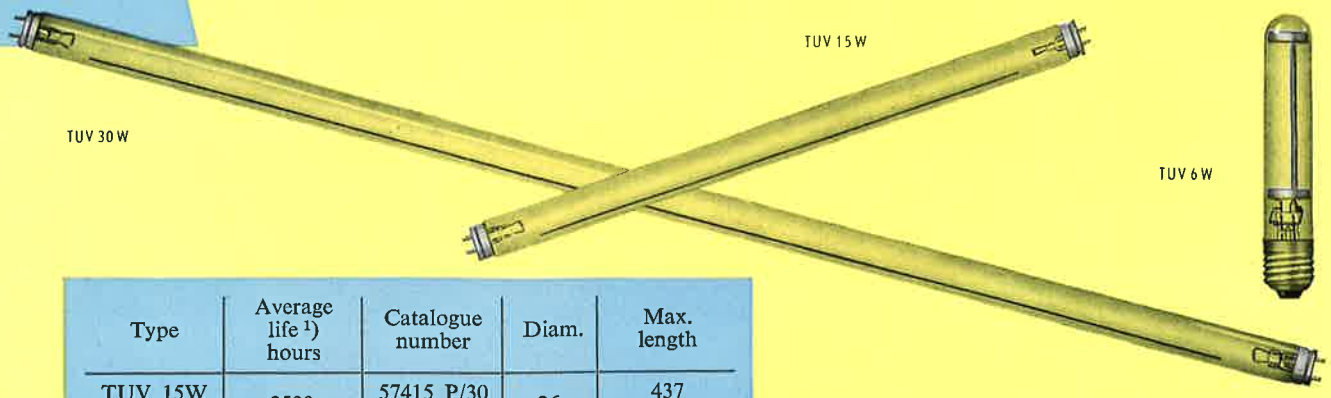
RELATIVE SPECTRAL → ENERGY DISTRIBUTION



For lamp	Nominal voltage V	Mains current A	Power factor	Losses W	With capacitor[1] µF	With capacitor[1] Mains current	With capacitor[1] Power factor	Catalogue number	Weight kg	Dimension max. L×W×H
HPR 125W	225	1.15	0.55	12	10	0.68	0.9	58205AH/03	2.1	113×82×94
and HPW 125W	110	2.5	0.55	22	10	1.55	0.85	59203 BT/00	3.6	142×87×102
	125	2.2	0.55	20		1.35				

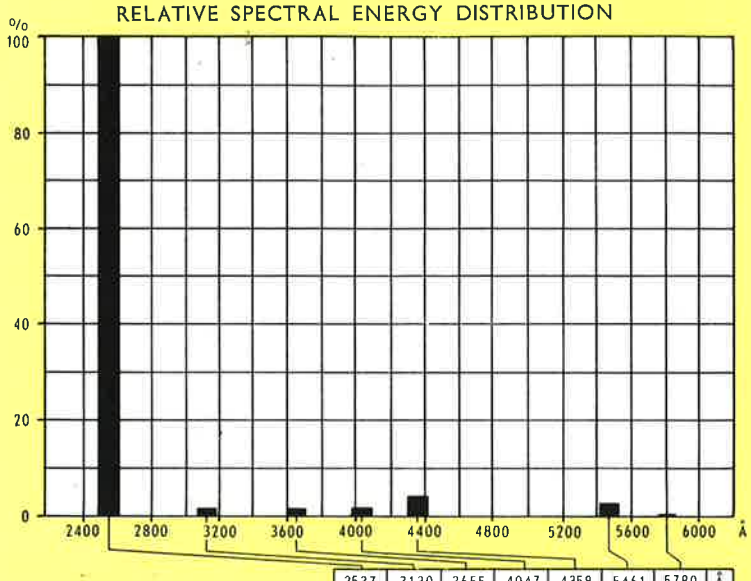
[1]) For data capacitors see page B 20

TUV



Type	Average life [1] hours	Catalogue number	Diam.	Max. length
TUV 15W TUV 30W	2500	57415 P/30 57413 P/30	26	437 894

RELATIVE SPECTRAL ENERGY DISTRIBUTION

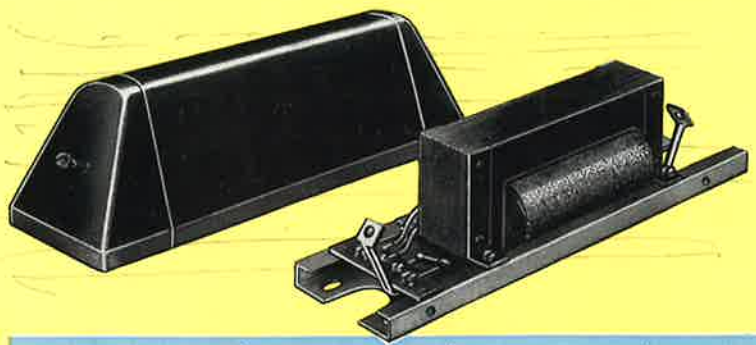


Absolute spectral energy distribution

	2537	3130	3655	4047	4358	5461	5780	Å
TUV 15 W TUV 30 W	2,9 7,2	No bactericidal effect						W W

Most of the energy radiated by Philips germicidal (TUV) lamps has a wavelength of 2537 Å which wavelength is most effective in destroying bacteria and moulds. The special glass used in these lamps allows the UV rays predominating in the low-pressure discharge to pass through down to a minimum of 2000 Å, but prevents troublesome formation of excess ozone by shorter wavelengths. These lamps are widely applied in hospitals, meat cold storage rooms, cheese warehouses, pharmaceutical industries, dairies, breweries, bacteriological research institutions etc.

TUV lamps have to be used with caution for too long exposure to the human body will affect the skin and the eyes.



BALLASTS

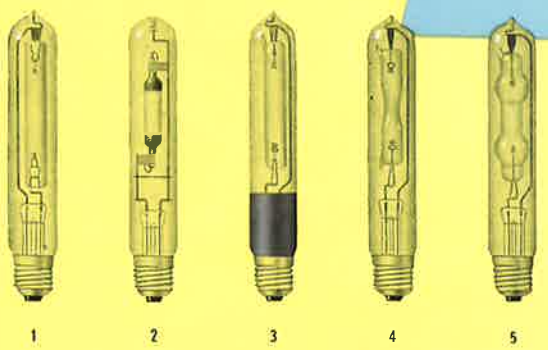
The ballasts for TUV lamps have been designed according to the Standard Parts system. The parts are mounted on an aluminium base and are housed in a "Philite" cover. This cover can be easily removed.

	For Lamp	Nom. voltage V	Mains Current A	Power factor	Losses W	With cover: Catalogue number	With cover: Weight kg	Without cover: Catalogue number	Without cover: Weight kg	Dimensions[1] maximum L×W×H
Low power factor	TUV 15 W	210-230	0.33	0.35	9	58490 AH/00	1.25	58490 AH/01	1.15	195×68×62
		120-130	0.33	0.50	6	58490 BG/00	0.85	58490 BG/01	0.75	—
		105-115	0.33	0.55	5	58490 BF/00	0.85	58490 BF/01	0.75	—
	2 × TUV 15 W	215-235	0.37	0.45	8	58480 CH/00	1.15	58480 CH/01	1.05	195×68×62
	TUV 30 W	215-235	0.37	0.45	8	58480 CH/00	1.15	58480 CH/01	1.05	195×68×62
Combinations for duo-circuit	4 × TUV 15 W	215-235	0.38	0.90	16	58480 CH/00 58580 CH/00	1.15 1.75	58480 CH/01 58580 CH/01	1.05 1.60	195×68×62 395×68×62
	2 × TUV 30 W	215-235	0.38	0.90	16	58480 CH/00 58580 CH/00	1.15 1.75	58480 CH/01 58580 CH/01	1.05 1.60	195×68×62 395×68×62

[1] With cover. Without cover: L = 10 mm less, W = 8 mm less, H = 3 mm less.

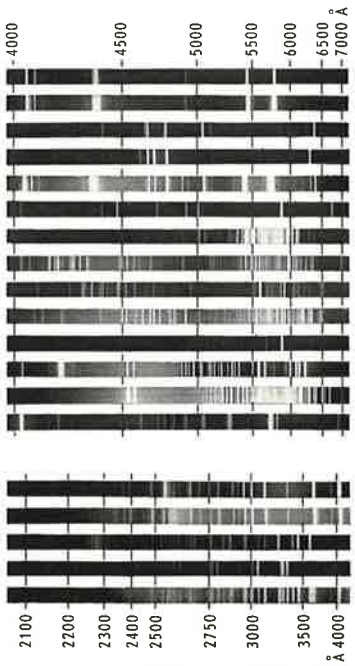
SPECTRAL LAMPS

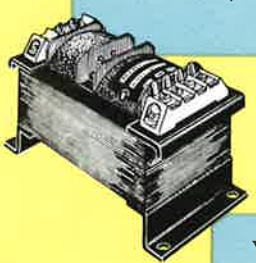
These lamps consist of a small discharge tube enclosed in a tubular outer bulb made either from glass or from quartz depending on the requirements. The discharge tube is filled with a gas, a metallic vapour or a mixture of both. The electrodes permit of a very high current intensity so that a light source is obtained capable of emitting considerable energy in one spectral line or in a few lines.
These light sources are an important aid in physical and chemical experiments e.g., in spectroscopy, in refractometry, polarimetry etc.



	Gas or vapour	Type number	Fig.	Watts	Length luminous discharge
For visible spectra (with glass tube and bulb)	Hg (low pressure)	93123	1	15	40
	Hg (high pressure)	93136	2	90	30
	Cd	93162	2	25	30
	Zn	103137	2	25	30
	Hg, Cd, Zn	93145	2	90	30
	He	93098	5	45	32
	Ne	93099	1	25	40
	A	93100	1	15	40
	Kr	93101	1	15	40
	Xe	93102	1	10	40
	Na	93122	3	15	40
	Rb	93104	4	15	40
	Cs	93105	3	10	40
	K	93103	4	10	40
For ultraviolet spectra (with quartz tube and bulb)	Hg (low pressure)	93109	1	15	40
	Hg (high pressure)	93110	2	90	30
	Cd	93107	2	25	30
	Zn	93106	2	25	30
	Hg, Cd, Zn	93146	2	90	30

Photographs of the spectra





BALLAST FOR SPECTRAL LAMPS

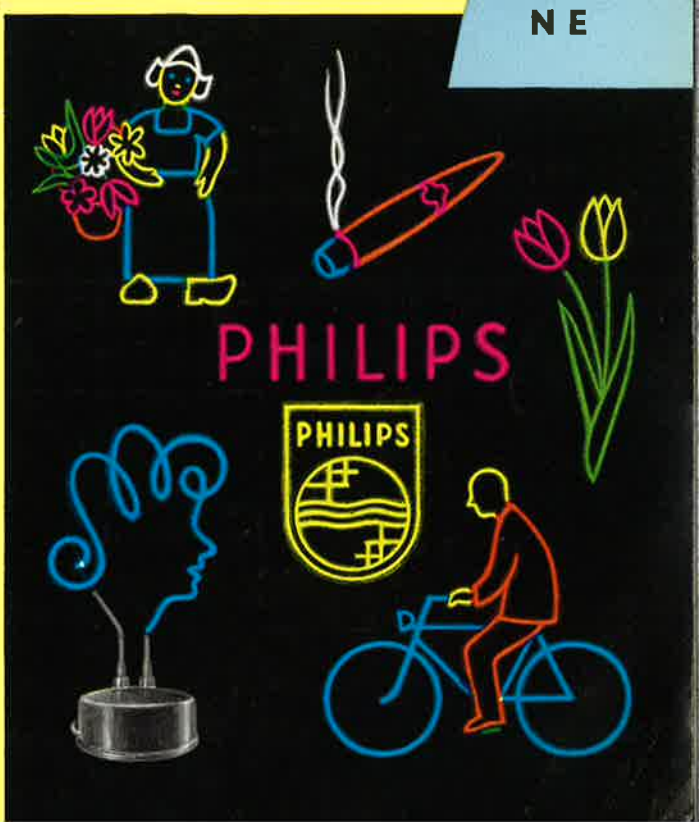
Voltage	Losses W	Catalogue number	Weight kg
115/125 V	26	59003 BD/00	7.8
220 V	24	59003 AH/01	6

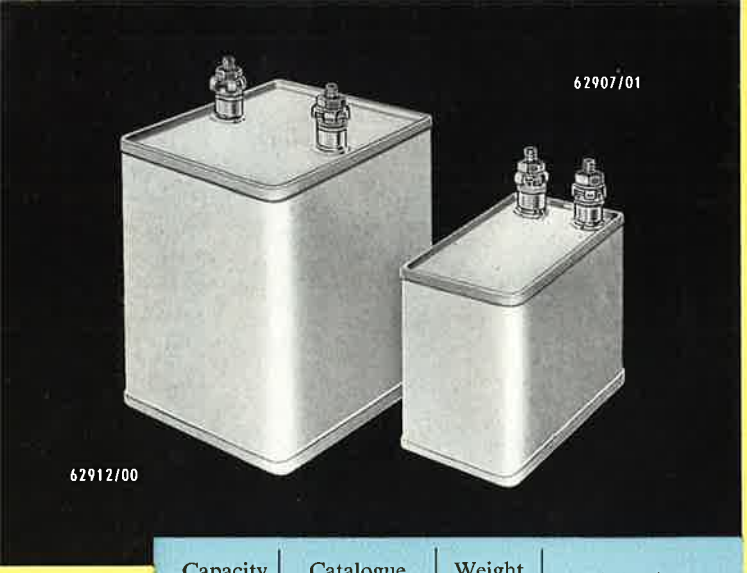
NEON TUBES

The neon tube is a glass tube filled with neon gas under low pressure, fitted with an electrode at both extremities and radiating a red light if the correct voltage is applied.

The colour of neon tubes depends on the gas or gas mixture used (neon or neon and mercury) and is further affected by the colour of the glass and a fluorescent coating on the inside of the glass.

Today neon tubes are used for commercial purposes all over the world. Big shopping centres are decorated with huge and elaborate neon signs and we are proud to state that many of them have been made in the Philips factories. Due to the fact that all neon sign installations have their own specific requirements, we invite you to apply for detailed information.





Capacity μF	Catalogue number	Weight kg	Dimensions
6.3	62909/00	0.42	35×45×145
10	62907/01	0.80	90×45×100
16	62910/00	1.20	90×45×145
20	62911/00	1.50	120×45×145
25	62904/01	2.00	120×45×145
33	62912/00	2.70	90×90×145

CAPACITORS

A range of capacitors is available from 6.3 μF to 33 μF. They are designed to improve the power factor of installations with discharge lamps, and to compensate inductive current either individually or in groups. The capacitors are suitable for all mains voltages up to 250 V. In the case of 220 V mains the capacitor must be connected to the mains. In the case of 110 or 125 V the capacitor should be connected to an extra winding on the ballast providing 220 V.

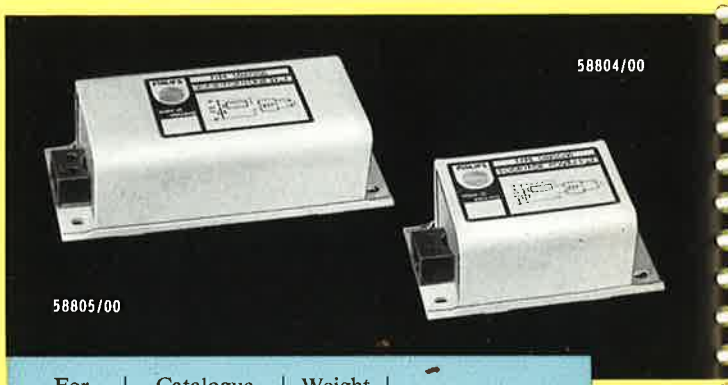
A discharge resistor is built-in, which after switching off, reduces the terminal voltage to maximum 50 V within 60 seconds.

The capacitors are paper-ones which are housed in metal boxes. The paper is impregnated with vaseline.

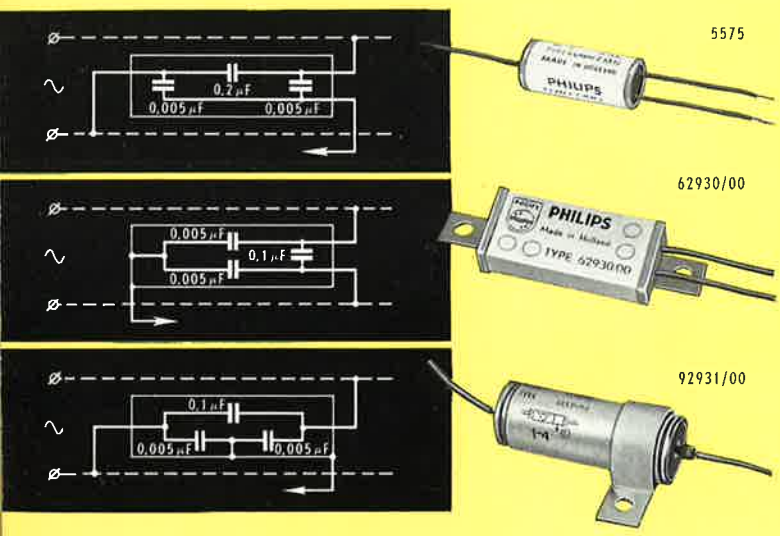
FILTER COILS FOR NETWORKS WITH AUDIO-FREQUENCY REMOTE CONTROL

For cases where audio-frequency signals of 300–1500 c/s are being transmitted through the mains for switching street lighting on and off, or for other similar purposes, it is advisable to connect a filter coil in series with the parallel capacitor. The impedance of these capacitors decreases as and when the frequency increases. When the filter coil is connected in series with the capacitor the audio frequencies are blocked in the gas-discharge lamp circuit and the mains frequency is transmitted.

The Philips range of filter coils has been designed in such a way that the series resonance frequency of the L.C. circuit (filter coil + capacitor) is about 200 c/s.



For capacitor	Catalogue number	Weight kg	Dimensions
6.3 μF	58800/00	0.80	105×64×45
10 μF	58801/00	0.80	105×64×45
16 μF	58802/00	0.80	105×64×45
20 μF	58803/00	0.80	105×64×45
25 μF	58804/00	0.80	105×64×45
33 μF	58805/00	1.00	150×64×45



RADIO-INTERFERENCE FILTERS

In the accessory range three types of radio interference filters have been incorporated. They are to be used respectively as follows:

5575 for indoor-lighting installations

62930/00 for TM 10 mounting channels

62931/00 for outdoor-lighting installations and under high humidity conditions.

Voltage	Freq.	Catalogue number	Weight	Dimensions
250	25–60 c/s	5575	25 gr	47×21 φ
250	25–60 c/s	62930/00	30 gr	81×25×8.5
250	40–60 c/s	62931/00	35 gr	54×19 φ

FLUORESCENT LAMPS

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A railway station in Rotterdam entirely lighted with Philips "TL" fluorescent lamps

MANUFACTURING AND QUALITY

Only a few years before World War II broke out, fluorescent lamps were put on the market. It was a revolutionary development. In the laboratories of the Philips Works too, a great deal of research had been carried out and in 1939 the trouble taken was rewarded when the first type of fluorescent lamp was introduced. It was to be followed by a great many different types, now including self-start and direct-start lamps, in a great variety of colours.

However, it was not so simple as you read it here, for in 1940 complete stagnation set in and in the then following five years progress was rich. Only in 1945 could research and manufacture be resumed and then under very difficult conditions, for the factories and laboratories were heavily damaged and necessary information was often lacking. It was decided to erect complete new factories and laboratories and everything was done to fall - within the shortest possible time - in line with the developments made during the lapse the Philips Works had gone through.

Much was achieved, for it took only a few years to prove the world that Philips meant something in fluorescent lighting. A huge factory was built, which may be called one of the most modern fluorescent lamp factories in the world. It certainly was an answer to the position fluorescent lamps had conquered. The factory is completely self-contained and the fluorescent lamps are made from scratch, except for the bases, which are supplied by another factory in the concern.

The manufacture of fluorescent lamps starts with the production of the glass for them. From huge furnaces, in which the basic material is melted into glass, a continuous tube of the required diameter is drawn.


Still

This tube is cut into short sections of the desired length after the drawing process, which also serves to cool it down sufficiently. The resulting tubes are fully tested for length, diameter and quality, before they are sent to the washing machines, in which they are thoroughly cleaned. They are then transported to the manufacturing group, where the type requiring a certain tube length and diameter is made. The fluorescent coating which is then applied is also made in this factory. The basis of the coating is a powder composed of several chemicals, including phosphor. The "loaf" baked from this powder is dissolved in a liquid. The resulting liquid looks milky white or coloured, depending on the type in production. It is blown into the tube and after having remained there for a few seconds it flows back into a container, leaving an even coating on the inner surface of the tube. This coating is dried onto the tube in an oven, through which the tubes are fed on a conveyor belt.
Then one of the most severe tests is carried out, for the colour of each tube has to meet fully the requirements set.
The length and diameter are checked once more and the electrodes are fitted, after which the lamps are "pumped". The lamp bases are put on, and another "TL" fluorescent lamp has been born. It is put in a rotary test unit, in which it is switched on and kept burning for a quarter of an hour.

However, the lamp is not yet ready to be packed for distribution to the sales channels.
A flying squad picks lamps at random from the daily production, tests and checks the lamps taken once more, and on top of that a certain percentage of the daily production is sent to be tested in an up-to-date test laboratory.
Current consumption, light output, colour, life etc. etc. are carefully examined and the experience gained from these examinations supplies the factory with valuable information and determines the quality of the final product.

The auxiliary equipment on which the operation of fluorescent lamps depends is also made in special factories of the Philips concern. The production of these accessories is just as carefully watched as that of the lamps themselves. In these factories it is an axiom that the quality of both the lamp and the accessories must be outstanding, so that they will operate in full harmony, to the benefit of the customer.

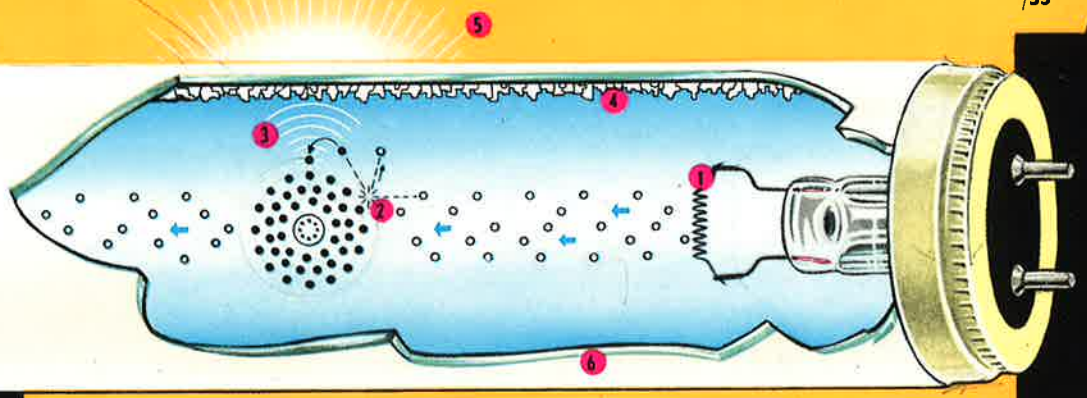
CONSTRUCTION AND OPERATION OF FLUORESCENT LAMPS

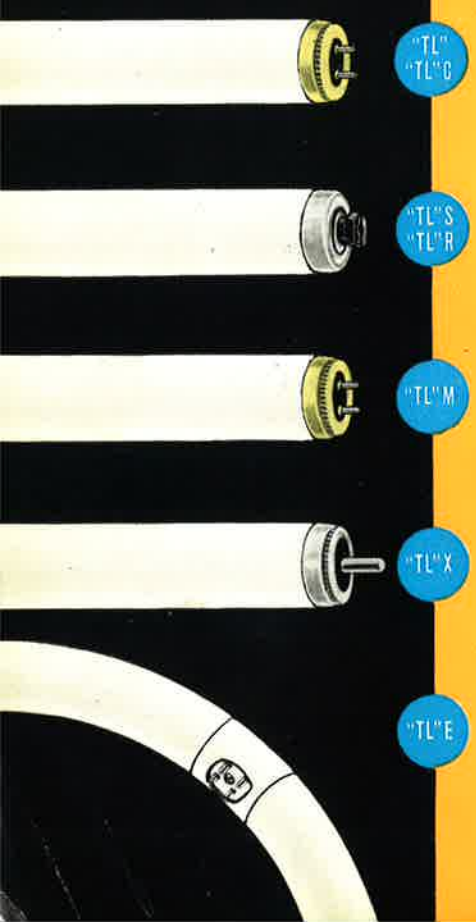
An electrical discharge in a low pressure mercury vapour atmosphere is the most efficient and practical generator of ultra violet rays. With fluorescent lamps this property is fully exploited. The invisible UV radiation is converted into visible radiation (light) by means of electro-chemical action taking place between the UV radiation and the fluorescent powder which is coated onto the inner surface of the tubular glass bulb. By changing the composition of the artificial minerals, various light colours may be obtained.
The essential points of construction and operation of fluorescent lamps will now be explained by following the schematic cut-away view, below.

1. When the proper voltage is applied to the electrodes sealed in both ends of the lamp, electrons start to flow from one electrode to the other, which in most cases, however, will never be reached due to the fact that these electrons will collide with one of the electrons of a mercury atom during their travel.

2. After collision the electron of the mercury atom will be diverted out of its orbit and when it snaps back into place, UV radiation is produced.

3. The UV radiation reaches the fluorescent powder (4) and a similar action as described in 2. will take place when the impulse reaches the active centres of the fluorescent crystals by which visible light (5) is produced.



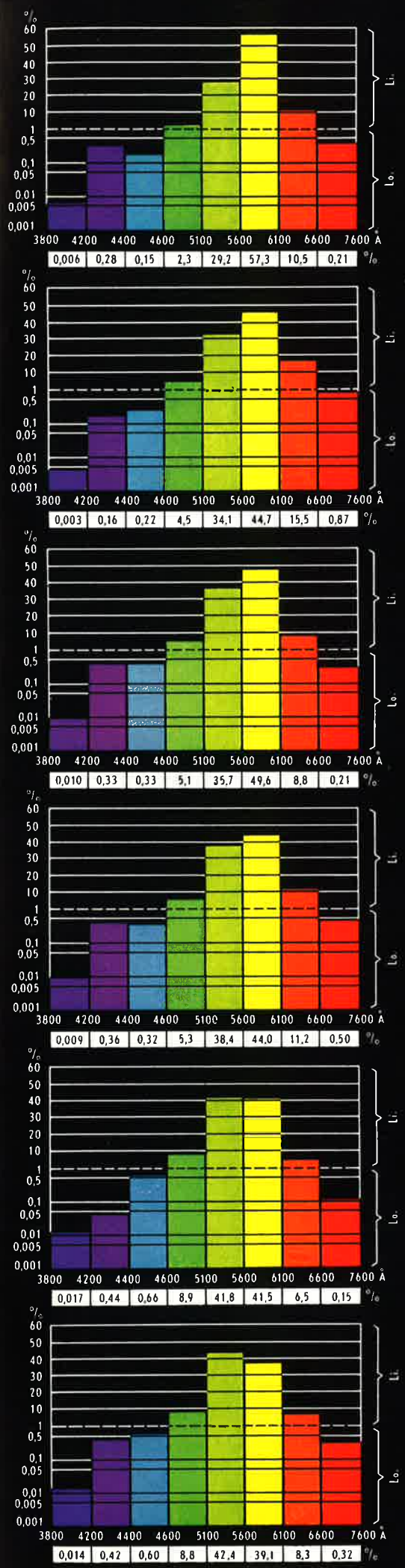


TYPES OF PHILIPS "TL" FLUORESCENT LAMPS

"*TL*" *standard* fluorescent lamps should be applied together with ballasts and starters. They are manufactured in a wide variety of "white" colours for general lighting purposes and also in fancy colours for decorative purposes.
"*TL*"*C* fluorescent lamps are specially designed for DC applications, but may also be applied in normal ballast and starter-switch circuits on AC mains.
"*TL*"*E* circular fluorescent lamps have electrical characteristics corresponding to "TL" standard fluorescent lamps.
"*TL*"*M* direct start fluorescent lamps light up immediately after switching on without the help of a starter-switch.
"*TL*"*R* instant selfstart fluorescent lamps are built for DC operation. In general they are used for tram, trolley bus and shiplighting purposes.
"*TL*"*S* instant selfstart fluorescent lamps are operated either in series with an incandescent stabilizing lamp or a suitable starterless ballast. These lamps are destined for AC operation exclusively.
"*TL*"*X* instant selfstart fluorescent lamps correspond to "TL"S lamps, but for the caps which have a nickeled single pin. They are applied in flame proof fittings in collieries and the chemical industry.

EXPLICATION OF DIAGRAMS

The diagrams on page C7 show the relative spectral light distributions of fluorescent light colours supplied by Philips. They all represent a graduation of "white", ranging from bluish to reddish whites. The coloured columns and the corresponding percentages mentioned under same give an impression of the principal colour composition of each of the 6 light colours available.



BALLASTS

In the Philips range of accessories for fluorescent lamps, ballasts take an important place.

The fluorescent lamp, as opposed to most other electrical appliances, has rather complicated electrical characteristics and its behaviour under various conditions cannot easily be predicted. Apart from establishing optimum starting conditions, the main task of the ballast is to provide and maintain the lamp in a certain electrical condition. The performance of a lamp will only be as good as the ballast is. The fluorescent lamp will have a poor performance on an inferior quality ballast. The three most important functions a fluorescent lamp ballast has to fulfill are:

1. Preheating the electrodes so as to make electrons free.
2. Providing a sufficient high voltage impulse to start the arc between the electrodes,
3. Preventing the arc current from exceeding the limits set for each individual type of lamp.

Generally ballasts consist of a reactor sometimes combined with a capacitor, for power factor correction, and a transformer.

The task which ballasts are to perform is of vital importance for the operation of fluorescent lamps and so in the manufacture great care has to be taken care and the best available raw materials have to be used.

STARTERS

The function of the starter in the fluorescent lamp circuit is to start the lamp automatically. This is done by short circuiting the fluorescent lamp for preheating the electrodes and interrupting the current flow through the ballast to obtain a high voltage impulse for starting the arc.

The starter consists of a glass tube filled with an inert gas, incorporating two electrodes, one of which is a bi-metal strip. Under normal conditions these electrodes are separated. When voltage is applied a glow discharge between the two electrodes takes place which results in heating of the starter electrodes. In the starter sufficient residual heat is made available to keep it closed for a short time for the preheating of the lamp electrodes. The glow being extinguished, the bi-metal cools, the electrodes separate and the resulting high voltage impulse ignites the lamp.

STABILIZING LAMPS AND STABILIZING TUBES

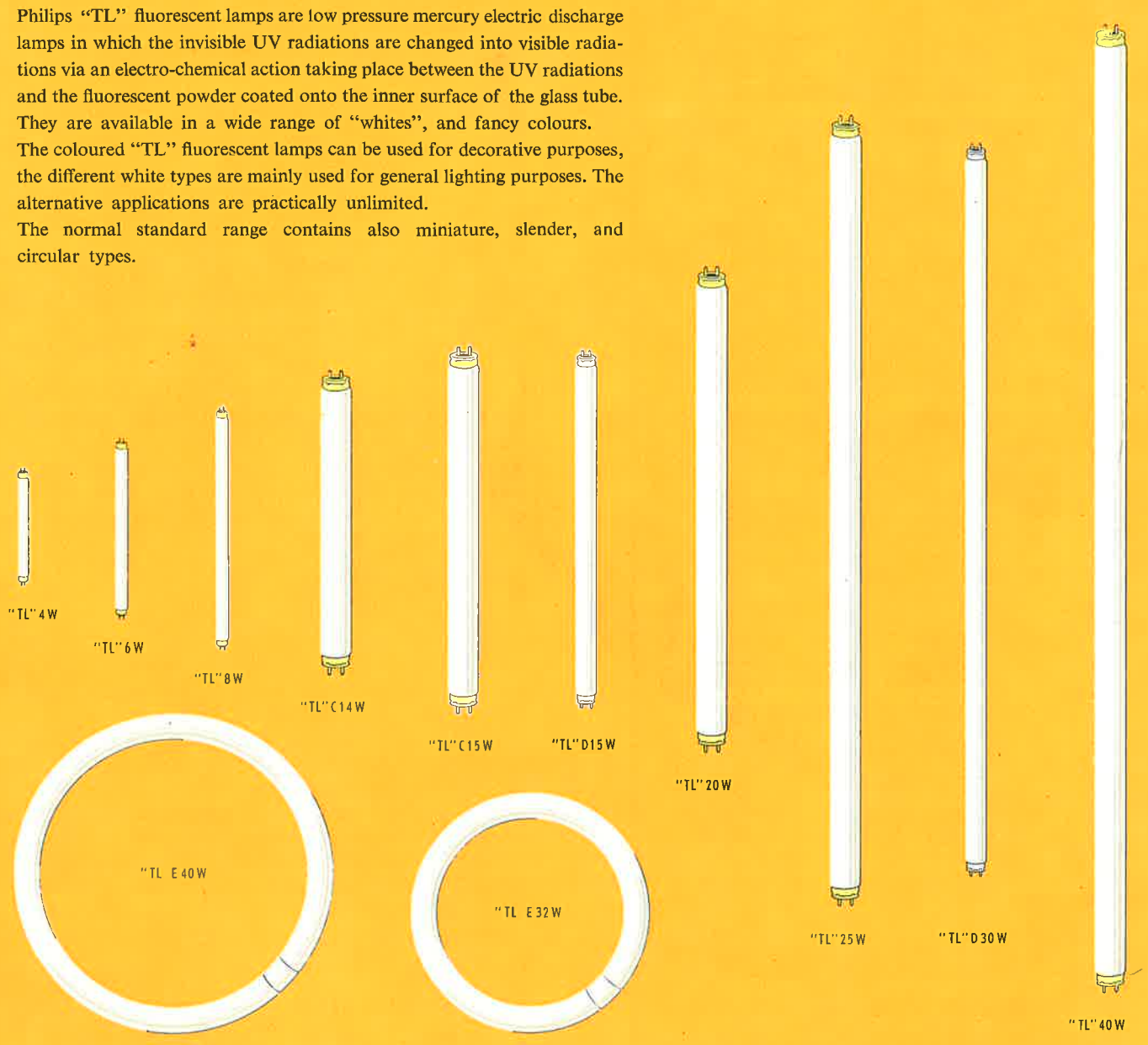
With some types of fluorescent lamps or in certain special circuits the ballast is replaced by a stabilizing tube or stabilizing lamp. The stabilizing tube is a filament resistor built into a glass bulb filled with hydrogen and is used on DC mains. Stabilizing tubes used together with "TL"C lamps have twin-filaments, one of them preheating the negative lamp electrodes on the full mains or battery tension, the other limiting the lamp current when in operation. Being a filament device they function not only as a current limiter but also as a current regulator.

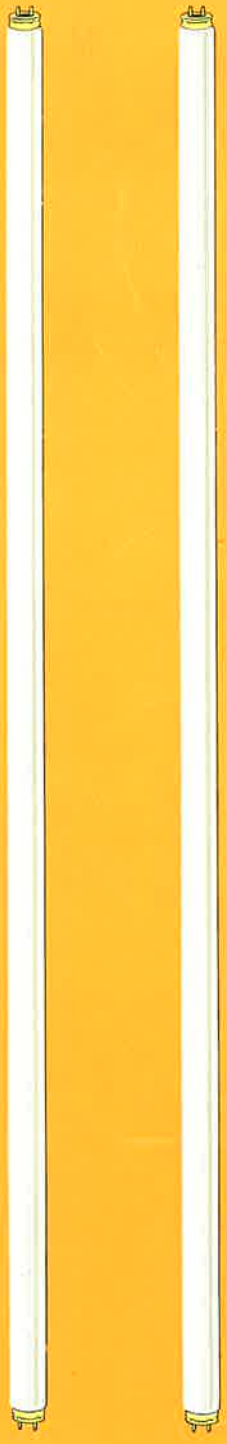
The stabilizing lamps besides regulating the lamp current, also supplies visible light contrary to stabilizing tubes. They are available in internally mirrored and inside frosted finish. Apart from replacing the ballasts in certain circuits they offer a light technical advantage by supplying at the same time tungsten light which, when blended with fluorescent light, creates special lighting effects.

Lo = logarithmic scale Li = linear scale

"TL" STANDARD RANGE

Philips "TL" fluorescent lamps are low pressure mercury electric discharge lamps in which the invisible UV radiations are changed into visible radiations via an electro-chemical action taking place between the UV radiations and the fluorescent powder coated onto the inner surface of the glass tube. They are available in a wide range of "whites", and fancy colours.
The coloured "TL" fluorescent lamps can be used for decorative purposes, the different white types are mainly used for general lighting purposes. The alternative applications are practically unlimited.
The normal standard range contains also miniature, slender, and circular types.





"TL" 65 W "TL" 80 W

Type	Tube[1] length	Tube diam.	Cap	Light colour	Approx. lumens	Catalogue number	Stand. packing quantity
"TL" 4W	156 mm (6″)	15 mm (5/8″)	miniature bi-pin	warmwhite white	105 95	"TL" 4W/29 "TL" 4W/33	24
"TL" 6W	232 mm (9″)	15 mm (5/8″)	miniature bi-pin	warmwhite white	220 200	"TL" 6W/29 "TL" 6W/33	24
"TL" 8W	308 mm (12″)	15 mm (5/8″)	miniature bi-pin	warmwhite white	340 320	"TL" 8W/29 "TL" 8W/33	24
"TL"C 14W	38 cm (15″)	38 mm (1½″)	standard bi-pin	warmwhite warmwhite de luxe white white de luxe	530 380 500 420	"TL"C 14W/29 "TL"C 14W/32 "TL"C 14W/33 "TL"C 14W/34	16
"TL"C 15W	47 cm (18″)	38 mm (1½″)	standard bi-pin	warmwhite warmwhite de luxe white white de luxe daylight	650 460 610 500 500	"TL"C 15W/29 "TL"C 15W/32 "TL"C 15W/33 "TL"C 15W/34 "TL"C 15W/55	16
"TL"D 15W	47 cm (18″)	25 mm (1″)	standard bi-pin	warmwhite warmwhite de luxe white white de luxe daylight	740 520 700 580 580	"TL"D 15W/29 "TL"D 15W/32 "TL"D 15W/33 "TL"D 15W/34 "TL"D 15W/55	16
"TL" 20W	62 cm (24″)	38 mm (1½″)	standard bi-pin	warmwhite warmwhite de luxe white white de luxe daylight cool daylight	980 690 925 775 775 850	"TL" 20W/29 "TL" 20W/32 "TL" 20W/33 "TL" 20W/34 "TL" 20W/55 "TL" 20W/54	24
"TL" 25W	100 cm (39″)	38 mm (1½″)	standard bi-pin	warmwhite warmwhite de luxe white white de luxe daylight	1570 1110 1480 1230 1230	"TL" 25W/29 "TL" 25W/32 "TL" 25W/33 "TL" 25W/34 "TL" 25W/55	24
"TL"D 30W	93 cm (36″)	25 mm (1″)	standard bi-pin	warmwhite warmwhite de luxe white white de luxe daylight	1780 1260 1680 1400 1400	"TL"D 30W/29 "TL"D 30W/32 "TL"D 30W/33 "TL"D 30W/34 "TL"D 30W/55	16
"TL" 40W[2]	123 cm (48″)	38 mm (1½″)	standard bi-pin	warmwhite warmwhite de luxe white white de luxe daylight cool daylight	2550 1800 2400 2000 2000 2200	"TL" 40W/29 "TL" 40W/32 "TL" 40W/33 "TL" 40W/34 "TL" 40W/55 "TL" 40W/54	24
"TL" 65W	153 cm (60″)	38 mm (1½″)	standard bi-pin	warmwhite warmwhite de luxe white white de luxe daylight	4025 2840 3800 3160 3160	"TL" 65W/29 "TL" 65W/32 "TL" 65W/33 "TL" 65W/34 "TL" 65W/55	16
"TL" 80W	153 cm (60″)	38 mm (1½″)	standard bi-pin	warmwhite warmwhite de luxe white white de luxe daylight	4720 3330 4440 3700 3700	"TL" 80W/29 "TL" 80W/32 "TL" 80W/33 "TL" 80W/34 "TL" 80W/55	16
"TL" 20W coloured	62 cm (24″)	38 mm (1½″)	standard bi-pin	red yellow green blue	60 600 1100 200	"TL" 20W/15 "TL" 20W/16 "TL" 20W/17 "TL" 20W/18	24
"TL" 40W coloured	123 cm (48″)	38 mm (1½″)	standard bi-pin	red yellow green blue	150 1500 2700 500	"TL" 40W/15 "TL" 40W/16 "TL" 40W/17 "TL" 40W/18	24
"TL"E 32W	31 cm[3] (12″)	32 mm (1¼″)	4-pin	warmwhite warmwhite de luxe white white de luxe daylight	1620 1140 1520 1270 1270	"TL"E 32W/29 "TL"E 32W/32 "TL"E 32W/33 "TL"E 32W/34 "TL"E 32W/55	6
"TL"E 40W	41 cm[3] (16″)	32 mm (1¼″)	4-pin	warmwhite warmwhite de luxe white white de luxe daylight	2300 1620 2160 1800 1800	"TL"E 40W/29 "TL"E 40W/32 "TL"E 40W/33 "TL"E 40W/34 "TL"E 40W/55	6

[1]) Inclusive lampholders

[2]) For ambient temperatures lower than + 5° C, "TL"B 40W lamps should be used. "TL"B lamps are identical with "TL" 40 W lamps both as regards dimensions and electrical characteristics. They will ignite down to -20° C.

[3]) Outer diameter of circle.

"TL" FOR SPECIAL PURPOSES

"TL" M

The starterless "TL"M fluorescent lamp with its proper ballast comprises an integral direct start unit. The lamp lights up immediately after switching on and reaches its full light output after approximately 1½ seconds. The dimensions of the "TL"M 40 W lamp are fully identical with those of the standard "TL" 40 W lamp. It is fitted with medium bi-pin caps and thus fits standard lampholders. The bulb of the lamp is silicone coated, so starting is independent of humidity conditions. Both lamp bases are connected by an outside stripe which is shockproof and need not to be earthed.

"TL" C

The general characteristics of "TL"C fluorescent lamps correspond with those of the normal "TL" fluorescent lamps. Thus when connected to AC mains suitable ballasts and starters should be used. However, "TL"C lamps were primarily designed for application on DC mains. In this case a twin filament stabilizing tube takes the place of the ballast; starters are not required. The stabilizing tube provides for the correct preheating of the negative electrode and stabilizes the lamp current. The stability of the "TL"C fluorescent lamps when used according to the special circuits mentioned later, is of special interest for DC vehicle lighting, where large battery voltage fluctuations mostly occur.

"TL" S

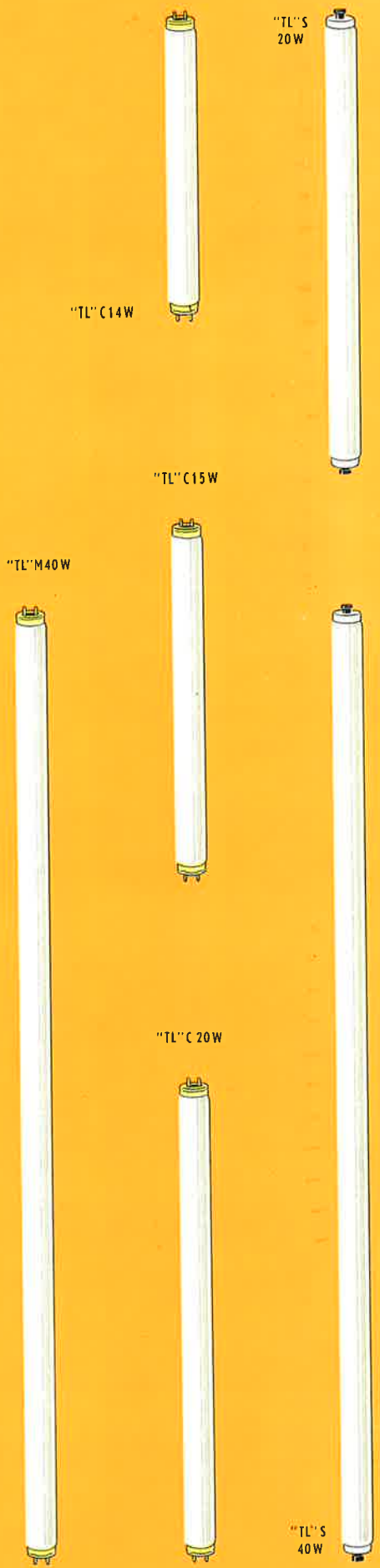
The "TL"S fluorescent lamps are instant self start types which immediately light up irrespective of the fact whether used in series with an incandescent stabilizing lamp or connected to a suitable ballast. In either case the lamp functions immediately after switching on. Triple coiled, robust electrodes guarantee faultless operation without the use of any starter-switch. These lamps have shockproof single contact bases. "TL"S lamps may be oparated either with a suitable tungsten stabilizing lamp or with a ballast, but are suitable for AC mains only.

"TL" R

The starterless "TL"R fluorescent lamp, designed for DC operation exclusively, starts immediately after switching on without any blinking. Provided with cold starting hot cathodes and two auxiliary electrodes in the shape of a conducting stripe running lenghtwise inside the tubular lampbulb, they resemble "TL"S fluorescent lamps, the difference being that the "TL"S has only one inside stripe and the "TL"R two. Each stripe is connected to its main electrode.

"TL" X

The "TL"X fluorescent lamp is an instant selfstart type which is exactly alike the "TL"S fluorescent lamp but for the caps which are nickeled single pin. They are operated from a ballast which provides for the required starting voltage. This lamp type is to be applied in flameproof and increased safety fittings as designed after the German V.D.E. 170/171 and similar specifications. The flameproof lampholder is made by specialized fitting makers.



"TL" M

Type	Tube [1] length	Tube diam.	Cap	Light colour	Approx. lumens	Catalogue number	Standard packing quantity	Mains
"TL"M40W	123 cm	38 mm (1½")	stand. bi-pin	warmwhite white daylight	2500 2350 1950	"TL"M 40W/29 "TL"M 40W/33 "TL"M 40W/55	24	AC

"TL" C

"TL"C 14W	38 cm (15")	38 mm (1½")	stand. bi-pin	warmwhite warmwhite de luxe white white de luxe	540 390 510 430	"TL"C 14W/29 "TL"C 14W/32 "TL"C 14W/33 "TL"C 14W/34	16	DC or AC
"TL"C 15W	47 cm (18")	38 mm (1½")	stand. bi-pin	warmwhite warmwhite de luxe white white de luxe daylight	660 [2] 470 [2] 610 [2] 510 [2] 510 [2]	"TL"C 15W/29 "TL"C 15W/32 "TL"C 15W/33 "TL"C 15W/34 "TL"C 15W/55	16	DC or AC
"TL"C 20W	62 cm (24")	38 mm (1½")	stand. bi-pin	warmwhite warmwhite de luxe white white de luxe daylight	900 640 850 710 710	"TL"C 20W/29 "TL"C 20W/32 "TL"C 20W/33 "TL"C 20W/34 "TL"C 20W/55	16	DC
"TL"C 20W	62 cm (24")	38 mm (1½")	stand. bi-pin	warmwhite warmwhite de luxe white white de luxe daylight	850 600 810 670 670	"TL"C 20W/29 "TL"C 20W/32 "TL"C 20W/33 "TL"C 20W/34 "TL"C 20W/55	16	AC

[2]) For AC with ohmic resistance as a ballast 40 lm more

"TL" S

"TL"S 20W	62 cm (24")	38 mm (1½")	mono-type	warmwhite warmwhite de luxe white white de luxe daylight	780 560 750 620 620	"TL"S 20W/29 "TL"S 20W/32 "TL"S 20W/33 "TL"S 20W/34 "TL"S 20W/55	16	AC with ballast
"TL"S 40W	123 cm (48")	38 mm (1½")	mono-type	warmwhite warmwhite de luxe white white de luxe daylight	2070 1460 1940 1620 1620	"TL"S 40W/29 "TL"S 40W/32 "TL"S 40W/33 "TL"S 40W/34 "TL"S 40W/55	26	AC with ballast
"TL"S 40W	123 cm (48")	38 mm (1½")	mono-type	warmwhite warmwhite de luxe white white de luxe daylight	2000 1400 1880 1560 1560	"TL"S 40W/29 "TL"S 40W/32 "TL"S 40W/33 "TL"S 40W/34 "TL"S 40W/55	16	AC with incan-descent ballast lamps

"TL" R

"TL"R 20W	62 cm	38 mm (1½")	mono-type	warmwhite warmwhite de luxe white white de luxe	790 560 750 620	"TL"R 20W/29 "TL"R 20W/32 "TL"R 20W/33 "TL"R 20W/34	16	See pages C12–C13
"TL"R 40W	123 cm	38 mm (1½")	mono-type	warmwhite warmwhite de luxe white white de luxe daylight	2040 1450 1920 1600 1600	"TL"R 40W/29 "TL"R 40W/32 "TL"R 40W/33 "TL"R 40W/34 "TL"R 40W/55	16	See pages C12–C13

"TL X"

"TL"X 20W	62 cm	38 mm (1½")	single-pin	warmwhite white daylight	780 750 620	"TL"X 20W/29 "TL"X 20W/33 "TL"X 20W/55	16	AC
"TL"X 40W	123 cm	38 mm (1½")	single-pin	warmwhite white daylight	2070 1950 1620	"TL"X 40W/29 "TL"X 40W/33 "TL"X 20W/55	16	AC

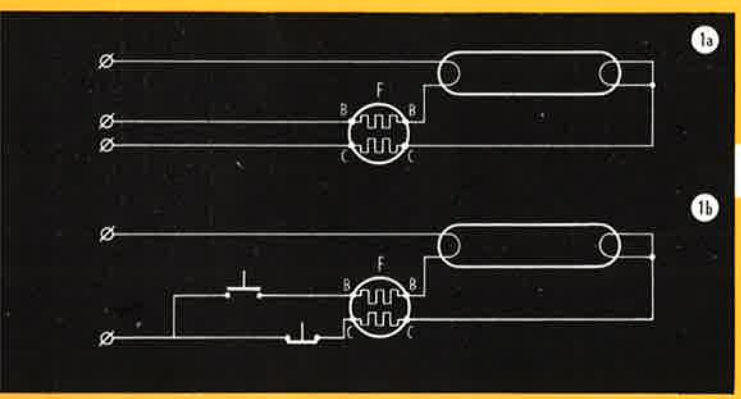
[1]) Inclusive lampholders

CIRCUITS FOR "TL" FLUORESCENT LAMPS ON D.C. MAINS

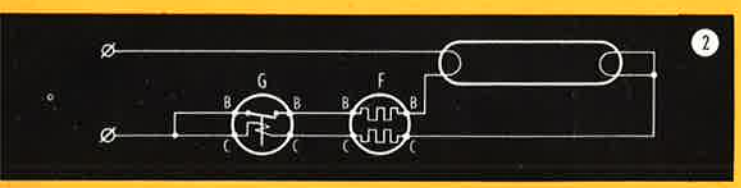
Mains voltage	Lamps	Accessories	Circuit	Main application
72 V DC	"TL"C 14W "TL"C 15W	Stabilizing tube	1a and 1b	Train lighting
110 V DC	"TL"C 14W "TL"C 15W "TL"C 20W	Stabilizing tube	1a and 1b	Train lighting
	"TL"C 20W	Stabilizing tube and relay	2	General and shiplighting
220 V DC	"TL"R 20W	Stabilizing tubes and relay	4	General and shiplighting
	"TL"R 40W	Stabilizing lamps	6	General lighting
		Stabilizing tubes	8	Shiplighting
	"TL" 40W	Wire-wound resistor, choke coil and starter	10	General lighting
550 V DC	"TL"R 20W	Stabilizing lamps	3	Tramcar - trolleybus - and train lighting
		Wire-wound resistor	5	Tramcar - trolleybus - and train lighting
	"TL"R 40W	Stabilizing lamps	7	Tramcar - trolleybus - and train lighting
		Wire-wound resistor	9	Tramcar - trolleybus - and train lighting

Since traffic has been increasing so enormously and the variety of vehicles and craft on roads, railways, the sea and in the air has developed to a like extent, it will be obvious that the lighting engineer has been faced with great problems. This development has imposed heavy demands on the lighting installations of the vehicles in use. Consequently lighting engineers in the Philips laboratories have developed a number of specific circuits for the use of "TL" fluorescent lamps in vehicles and craft, of which a few are given on these pages. We are quite aware of the fact that these examples do not cover all possible installations. We should like to stress, however, that any problem you might have in this direction can be solved in our development departments. To say this popularly: Philips make circuits to measure.

On request we will readily give you complete information about characteristics etc. of these circuits.



1a. Ignition by control starting switch
1b. Ignition by push-button
F=stabilizing tube { (for 72 V: 61490/00
(for 110 V: 61491/10



F=stabilizing tube 61491/10 G=relay 103336
Note: B and C refer to the terminals of holder 61479/00

FOR "TL"C LAMPS

WITH STABILIZING TUBE (circuits 1a and 1b)

"TL"C 14 W and "TL"C 15 W on 72 V and 110 V mains with large fluctuations (60–105 V and 80–150 V resp.)

"TL"C 20 W on 110 V DC mains with large fluctuations (80–150 V)

A group of lamps is ignited by connecting feeder +, temporarily to feeder +′ thus preheating the lamp cathodes.

FOR "TL"C 20 W (circuit 2)
WITH STABILIZING TUBE AND RELAY
on 110 V DC mains

For 72 V { "TL"C 14 W: I la = 0.37 A, W tot = 27 W
"TL"C 15 W: I la = 0.355 A, W tot = 24 W

For 110 V { "TL"C 14 W: I la = 0.39 A, W tot = 43 W
"TL"C 15 W: I la = 0.375 A, W tot = 41 W
"TL"C 20 W: I la = 0.355 A, W tot = 39 W

WARNING NOTICES

FOR "TL"C LAMPS: To avoid cataphoresis involving dark ends of the lamps at the anode side, it is recommended to mount the lamps in enclosed fittings. This applies especially for 20 W lamps, and for cases where a draught might cause temperature differences between lamp ends. Polarity reversing is not allowed for these circuits.

FOR "TL"R LAMPS

1. It is not recommended to use wire-wound resistors in series with "TL"R lamps on 220 V DC instead of stabilizing tubes or stabilizing lamps because of the bad striking characteristics of the former combination. Both temperature coefficient and specific resistance of tungsten as used in Philips' stabilizing tubes and stabilizing lamps facilitate the striking of the "TL"R lamps.

2. To avoid cataphoresis involving dark ends at the anode side of the lamps, it is recommended to mount the lamps in enclosed fittings and to reverse the polarity of the connections to the circuit regularly (e.g. every 8 hours).

FOR "TL" 40 W LAMPS

To avoid cataphoresis involving dark ends at the anode side of the lamps, it is recommended to mount the lamps in enclosed fittings and to reverse the polarity of the connections to the circuit regularly (e.g. every 8 hours)

FOR "TL"R LAMPS

FOR "TL"R LAMPS 20 W

WITH STABILIZING LAMPS (circuit 3)
For 3 "TL"R lamps 20 W
in series on 550 V mains with large
voltage fluctuations (450–650 V)
Lamp current 0.305 A, total power 168 W

WITH STABILIZING TUBES AND RELAY (circuit 4)
For 2 × "TL"R lamps 20 W
in series on 220 V mains.
Lamp current 0.34 A, total power 75 W

WITH WIRE-WOUND RESISTORS (circuit 5)
For 3 × "TL"R lamps 20 W
in series on 550 V mains with large
voltage fluctuations. (450 V–700 V)
Lamp current 0.33 A, total power 181 W.

FOR "TL"R LAMPS 40 W

WITH STABILIZING LAMPS (circuit 6)
For one "TL"R 40 W
on 220 V mains.
Lamp current 0.35 A, total power 77 W.

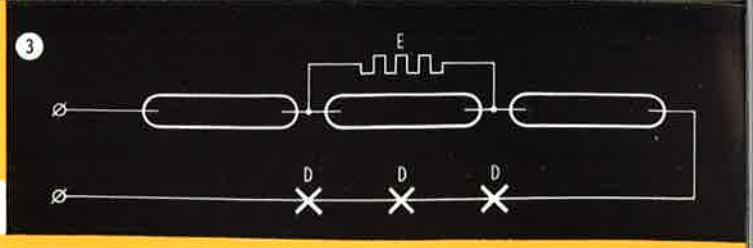
WITH STABILIZING LAMPS (circuit 7)
For one "TL"R lamp 40 W
in series on 550 V mains with
large voltage fluctuations (450–650 V).
Lamp current 0.315 A, total power 173 W.

WITH STABILIZING LAMPS (circuit 8)
For one "TL" R lamp 40 W
on 220 V mains.
Lamp current 0.35 A, total power 77 W.

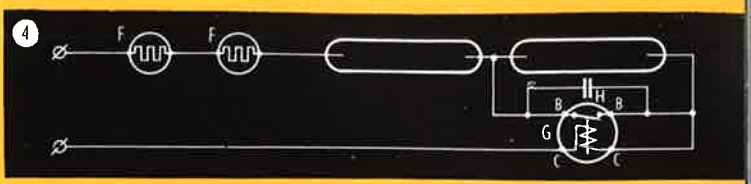
WITH WIRE-WOUND RESISTOR (circuit 9)
For 2 × "TL"R lamps 40 W
in series on 550 V mains with
large voltage fluctuations (450–700 V)
Lamp current 0.35 A, total power 192 W.

FOR "TL" LAMPS

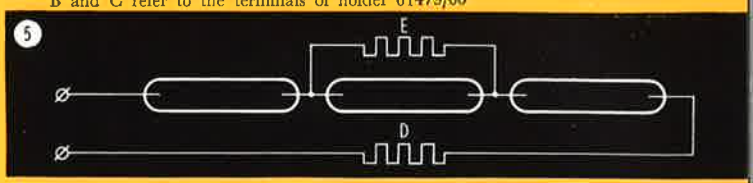
WITH WIRE-WOUND RESISTOR,
CHOKE COIL AND STARTER
For one "TL" 40 W lamp (circuit 10)
on 220 V DC mains.
Lamp current 0.35 A, total power 77 W



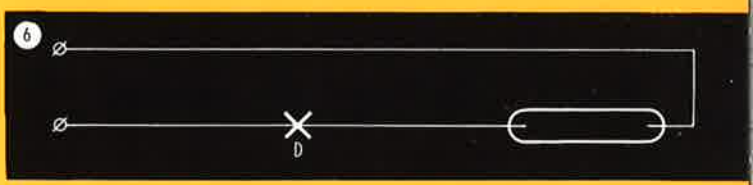
E = 10 000 Ω 30 W D = 130 V 40 W reinforced construction



F = stabilizing tube 13376 F/21 G = relay 103267
H = capacitor 0,1 μF 600 V
B and C refer to the terminals of holder 61479/00

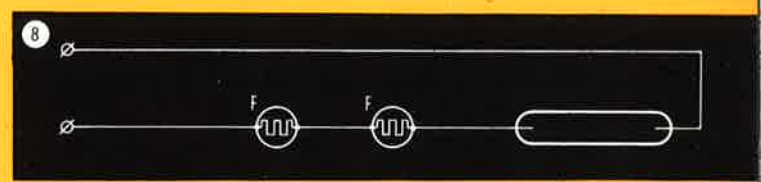


E = 10 000 Ω 30 W D = 1120 Ω 160 W



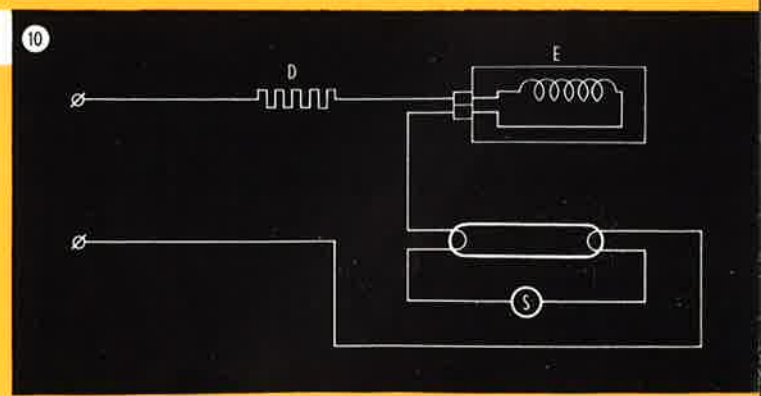
D = STR 6582 (105 V 0.35 A)

D = 120 V 40 W reinforced construction

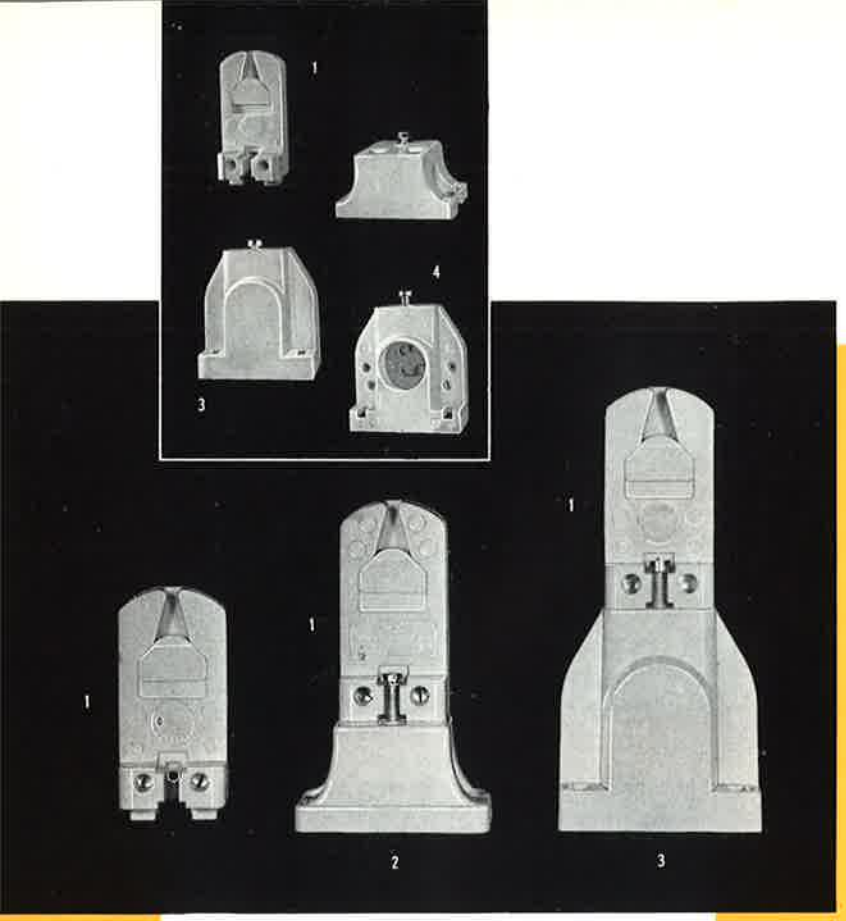


F = stabilizing lamp 13376 F/21

D = 920 Ω 160 W



D = 285 Ω 160 W E = Ballast 58425 AH/01 S = starter G1 (61407/00)

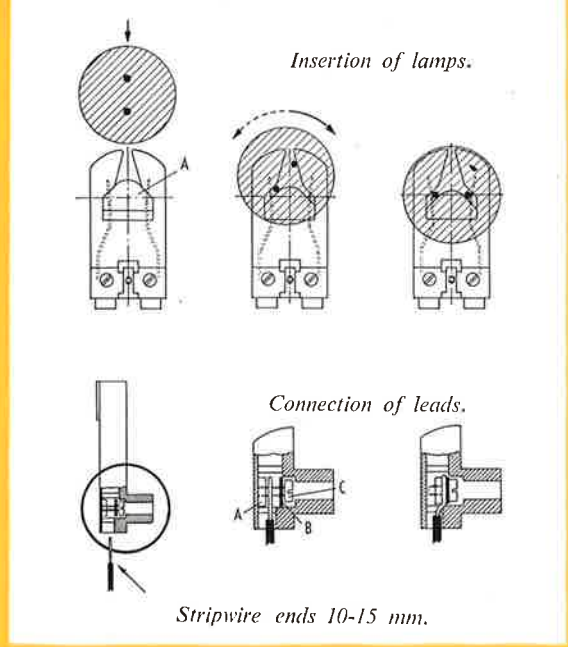


LAMPHOLDERS FOR FLUORESCENT LAMPS

Features of the Philips' lamp- and starter-holders

- *Robust construction*
- *Strong contact springs*
- *Simple connection*

The value of good lampholders as wiring accessories in fluorescent lighting systems cannot be over emphasised. They not only support the lamp but must make firm electrical contact, thus avoiding the risk that the lamp may extinguish due to vibration. Moreover the lamp must be easily removable for cleaning or replacement purposes. The lampholder shape should not interrupt the line of light formed by continuous mounted fluorescent lamps, also the thickness must be reduced to a minimum without interfering with the strength of the lampholder. Philips' lampholders are well moulded to resist wear and tear and are designed so as to be fully shockproof.

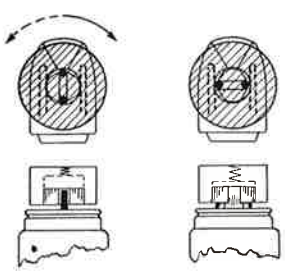


LAMPHOLDERS FOR MEDIUM BI-PIN FLUORESCENT LAMPS

All lampholders are made in such a way that it is impossible to touch live parts after the lamp has been taken from them and during insertion and removal.

1. Normal twist turn lampholder for medium bi-pin fluorescent lamps for mounting on a plane parallel to the lamp axis.
2. Lampholder base without starterholder used when canned ballasts are placed between the lampholders.
3. 4. Lampholder base without and with starterholder incorporated. For use see 2.
5. 6. Spring loaded rotor lampholder for medium bi-pin fluorescent lamps.

Spring loaded rotor into which lamp pins fit, ejects against lamp end when lamp is turned into position. ↓

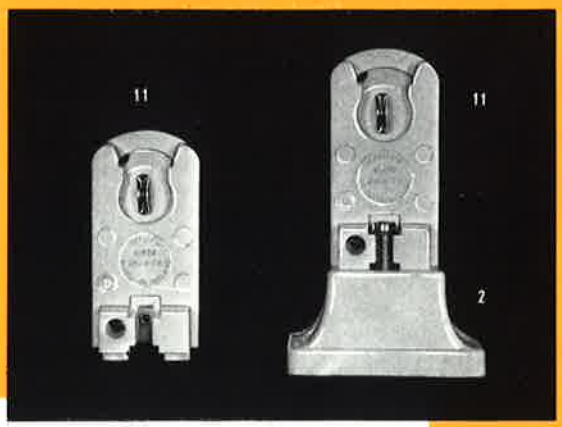


LAMPHOLDER FOR FLUORESCENT LAMPS WITH MINIATURE BI-PIN CAP

A special lampholder of small dimensions for the miniature "TL" 4, 6 and 8 W lamps. Notwithstanding its simplicity, of a robust and well designed construction.

ACCESSORIES FOR "TL"E CIRCULAR LAMPS

8. Lampholder for Philips circular fluorescent lamps. It is of a robust and shockproof construction. This lampholder is wired; one per lamp is needed.
9. Spring tension support which is to be applied for holding the lamp. Two of these lamp supports are needed.
10. Base suits both lampholder and support.

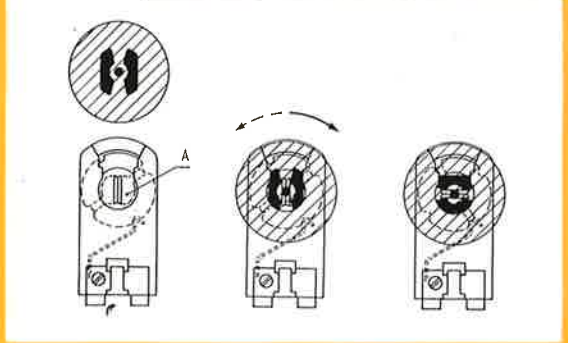


LAMPHOLDERS FOR "TL"S LAMPS

11. For the "TL" S fluorescent lamps a special lampholder is needed to which the single contact bases of these lamps fit. Also this lampholder is manufactured to meet the many requirements which experience has demanded. These lampholders can also be combined with the two types of lampholder bases available in the range.

HOLDERS FOR STARTERS, STABILIZING TUBES AND MAGNETIC RELAYS

Besides the lampholder bases incorporating starterholders as mentioned above a complete range of holders for starters, stabilizing tubes and magnetic relays is available. All holders are well designed and of robust construction. They are built for easy insertion and removal of the accessories under demand and they ensure correct operation by means of strong spring contacts.




12

12. Starterholder with terminals


13

13. Starterholder with soldering lugs


14

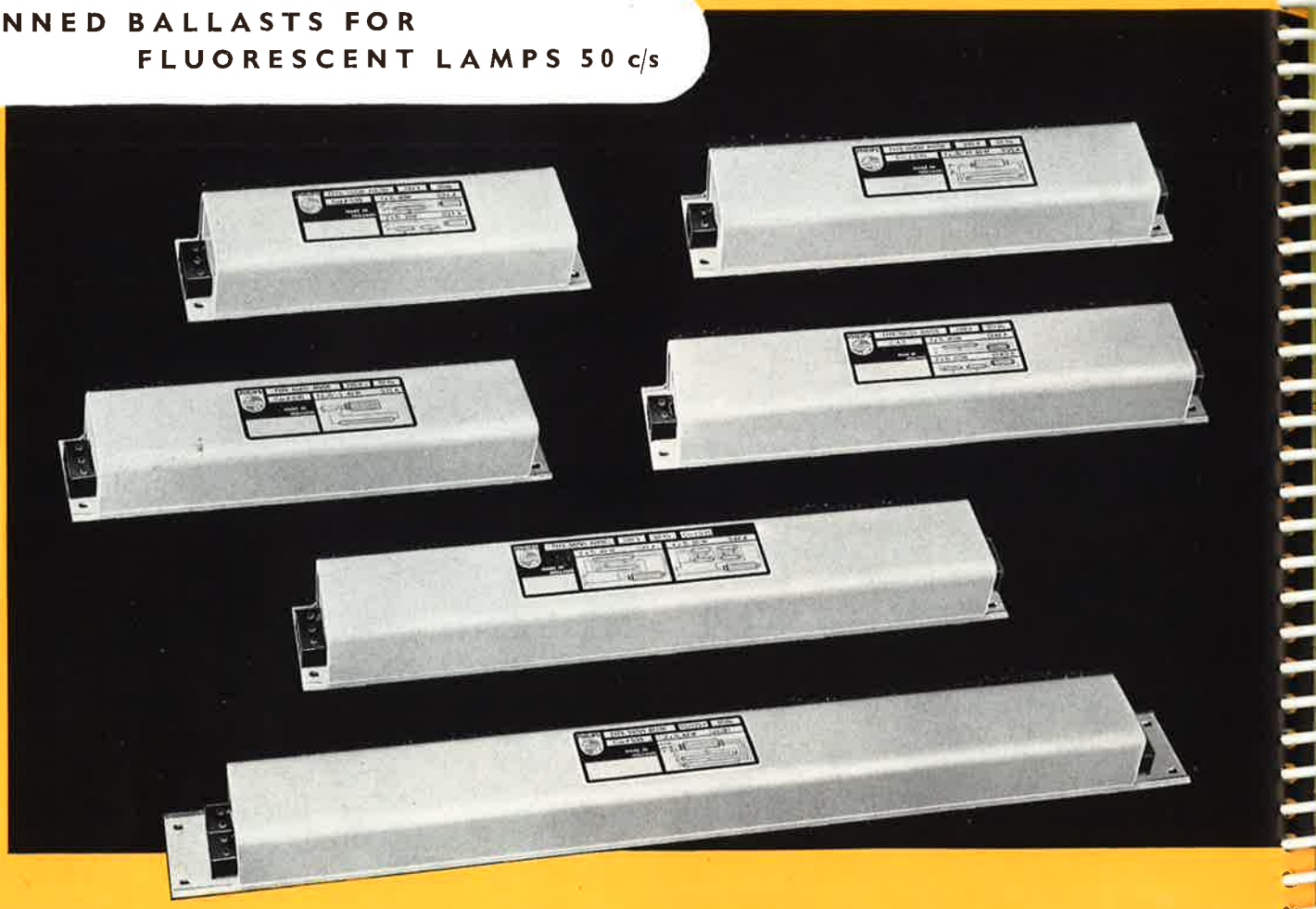
14. Holder for stabilizing tube or relay with four contact bases


15

15. Holder for stabilizing tube with three pin bayonet cap (B 22 III)

Fig.	Description	Catalogue number	Material
1	Lampholder	61468/12	white "Philite"
2	Low base for lampholders	61474/02	white "Philite"
3	High base for lampholders without starterholder	61484/02	white "Philite"
4	High base for lampholders with starterholder	61483/02	white "Philite"
5	Springloaded rotor type lampholder for side mounting	61478/02	white "Philite"
6	Springloaded rotor type lampholder with base	61469/02	white "Philite"
7	Lampholder for miniature bi-pin cap	6580	white "Philite"
8	Lampholder for circular lamps "TL"E with four-pin cap	61487/02	white "Philite"
9	Spring tension support for "TL"E lamps	61486/02	white "Philite"
10	Base for "TL"E lampholders and spring tension support	61488/02	white "Philite"
11	Lampholder for "TL"S lamps	61476/12	white "Philite"
12	Starterholder	61482/02	white "Philite"
13	Starterholder with soldering lugs	61481/00	black "Philite"
14	Holder for four contact stabilizing tubes	61479/00	black "Philite"
15	Holder for stabilizing lamps and tubes with three-prong bayonet cap	61485/00	black "Philite"

CANNED BALLASTS FOR FLUORESCENT LAMPS 50 c/s

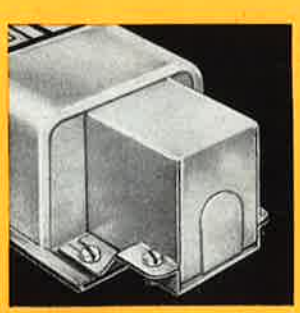


In any fluorescent lighting system the ballast is of vital importance for the lamp depends on the operation of the ballast which is to stabilize the lamp current and in combination with the starter to start the lamp. The lamp characteristics are dependent on a well constructed ballast and so the latter must be designed according to the size and the type of fluorescent lamp used. Ballasts must be able to deal with normal voltage and/or frequency fluctuations without damage being caused to ballast or lamp.

Philips offer an extensive range of fluorescent lamp-ballasts which provide *long*, *trouble free* and *silent* operation which also contributes to long lamp life and high light output. There are three main types:

a. Low power factor inductive.
b. Low power factor capacitive.
c. A high power factor one.

The ballasts given on these pages are of the canned type. The production of Philips' ballasts is a matter of the greatest precision and in manufacture only the top grade materials are used.



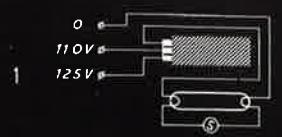
TERMINAL COVER

When local prescriptions necessitate screening of the terminals, a cover provided with two knockouts to suit $^{5}/_{8}''$ installation tubing can be supplied.
Cat. Nr. 61403/00 Weight 60 g.

IMPORTANT FEATURES OF PHILIPS CANNED BALLASTS

- *Ensure correct lamp operating characteristics*
- *Ensure long lamp life*
- *Low watts loss*
- *Have a standard cross section of* 45 × 64 *mm*
- *Have long life*
- *Have cool operating characteristics*
- *Operate without any noise*
- *Need no maintenance*
- *Meet with C.E.E. specifications*

Number and type of lamps	Nom. voltage V [1]	Mains current A	Losses W	Power factor		Diagram fig.	Length [2] A	Catalogue number	Weight kg
1×TL C14W	110	0.38	6.5	Inductive	0.45	1	105	58495 BT/00	0.8
	125	0.38	7.0		0.40				
2×TL C14W	220	0.42	11	Inductive	0.40	3	150	58485 AH/00	1.3
1×TL C15W	110	0.36	6	Inductive	0.50	1	105	58495 BT/00	0.8
	125	0.36	6		0.45				
	220	0.34	9	Inductive	0.30	2	150	58495 AH/00	1.4
2×TL C15W	220	0.40	10	Inductive	0.45	3	150	58485 AH/00	1.3
1 × TL 20W	110	0.38	5	Inductive	0.60	1	105	58435 BT/00	0.80
	125	0.38	6		0.55				
	110	0.39	7	Capacitive	0.60	1	240	58525 BT/00	1.40
	125	0.39	6		0.55				
	220	0.38	9	Inductive	0.35	2	150	58435 AH/00	1.40
		0.40	8	Capacitive	0.30	2	240	58525 AH/00	1.40
2 × TL 20W	220	0.38	8	Inductive	0.55	3	150	58425 AH/01	1.40
		0.40	10	Capacitive	0.55	4	330	58555 AH/01	2.00
		0.23	9	High	0.95	5	240	58426 AH/00 [3]	1.80
		0.24	10	High	0.95	5	285	58427 AH/00 [4]	2.00
4 × TL 20W	220	0.44	18	High	0.95	6	420	58705 AH/01 [5]	3.30
1 × TL 25W	110	0.37	13	High	0.90	7	330	59416 BT/00	2.30
	125	0.32	18		0.90				
	220	0.29	7	Inductive	0.50	2	150	58415 AH/00	1.00
		0.30	6	Capacitive	0.50	8	285	58505 AH/00	1.55
2 × TL 25W	220	0.30	14	High	0.95	9	330	58715 AH/00 [5]	2.30
1 × TL 40W	110	0.90	18	Inductive	0.60	10	330	59425 BT/00	3.10
	125	0.80	17		0.55				
	110	0.53	14	High	0.90	7	375	59426 BT/00	2.90
	125	0.47	14		0.90				
	220	0.42	9	Inductive	0.55	2	150	58425 AH/01	1.40
		0 44	11	Capacitive	0.55	8	330	58555 AH/01	2.00
		0.23	9	High	0.95	11	240	58426 AH/00 [3]	1.80
		0.24	10	High	0.95	11	285	58427 AH/00 [4]	2.00
2 × TL 40W	110	1.00	27	High	0.95	12	600	59705 BT/00 [5]	4.70
	125	0.88	27		0.95				
	220	0.45	18	High	0.95	9	420	58705 AH/01 [5]	3.30
1 × TL 65W	220	0.66	12	Inductive	0.55	2	195	58465 AH/00	1.85
		0.70	12	Capacitive	0.50	2	330	58565 AH/00	2.20
2 × TL 65W	220	0.73	24	High	0.95	13	555	58765 AH/00 [5]	4.00
2 × TL 20W	110	0.49	12	Duo-circuit	0.95	1	105	+ 58435 BT/00	0.80
	125	0.45	12			1	240	+ 58525 BT/00	1.40
	220	0.27	17	Duo-circuit	0.95	2	150	+ 58435 AH/00	1.40
						2	240	+ 58525 AH/00	1.40
4 × TL 20W	220	0.44	18	Duo-circuit	0.95	3	150	+ 58425 AH/01	1.40
						4	330	+ 58555 AH/01	2.00
2 × TL 25W	220	0,31	13	Duo-circuit	0.95	3	150	+ 58415 AH/00	1.00
						8	285	+ 58505 AH/00	1.55
2 × TL 40W	220	0.45	19	Duo-circuit	0.95	2	150	+ 58425 AH/01	1.40
						8	330	+ 58555 AH/01	2.00
2 × TL 65W	220	0.73	24	Duo-circuit	0.95	2	195	+ 58465 AH/00	1.85
						2	330	+ 58565 AH/00	2.20



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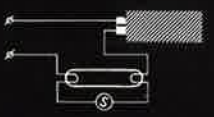
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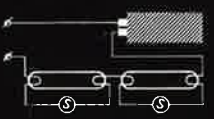
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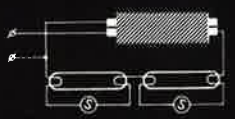
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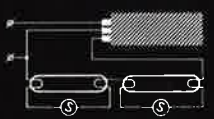
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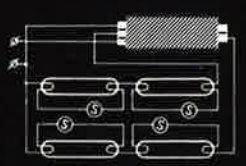
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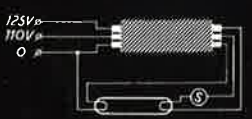

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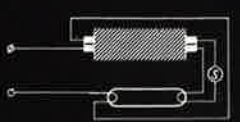
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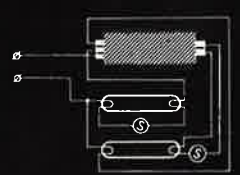
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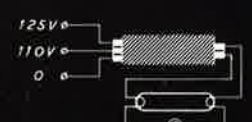

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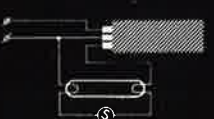
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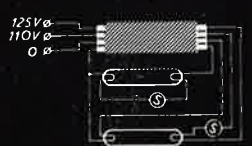

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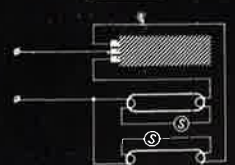
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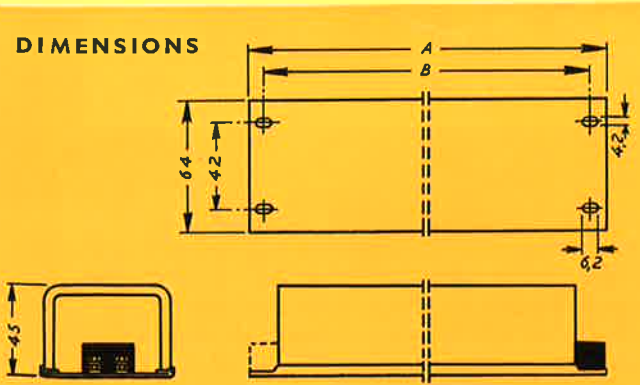
DIMENSIONS



[1]) Consumers voltage:
110V=105—115V
125V=120—130V
220V=210—230V

[2]) See dimensions A—B=15

[3]) With low impedance for audio frequencies

[4]) With high impedance for audio frequencies

[5]) Duo-circuit (anti-stroboscopic)

WIRING DIAGRAMS →

STARTERS

There are two main types. Standard type glow switch starters and safety starters. The safety starter prevents worn out lamps from switching on and off by cutting the lamp out of the circuit when it no longer starts properly.

Description	For lamps	Type	Catalogue number
Normal starters	TL 4W, TL 6W, TL 8W	S 1 [1])	61411/32
	TL 25W, TL 40W "TL"D 30W "TL"E 40W, "TL"B 40W	S 1	61411/32
	"TL"C 14W, "TL"C 15W "TL"D 15W TL 20W	S 2	61411/41
	TL 65W	S 5	61411/81
Starter for direct current	TL 25W, TL 40W	G 1	61407/00
Safety starters	TL 25W	W3	61471/00
	TL 40W "TL"B 40W	W 1	61471/00

[1]) Only for 220V. For 110/125V, starter S 6 Cat. Nr. 61489/00. For series connection of two lamps "TL" 4, 6 or 8W on 220V use two starters of this type.

STABILIZING TUBES

These tubes replace the ballasts with "TL"C fluorescent lamps operating on DC mains. They are twin filament stabilizing resistors which stabilize the lamp current and provide for the pre-heating of the negative electrodes on the full mains or battery supply. They function as current limiter but also as current regulator.

For lamps	Mains voltage	Catalogue number	Diam.	Max length
"TL"C 14W, "TL"C 15W	72 V ⎓	61490/00	32	76
"TL"C 14W, "TL"C 20W	110 V ⎓	61490/00	32	83
2x"TL"R 20W, "TL"R 40W	220 V ⎓	13376 F/21[1])	32	86.5

[1]) With 3-pin bayonet cap

MAGNETIC RELAYS

A magnetic relay is needed for operation of "TL"C 20 W fluorescent lamps on stable 110 V DC mains. It operates together with a stabilizing valve and ensures automatic starting.

For lamps	Voltage	Catalogue number	Diam.	Max. length
1×"TL"C 20W	110 V ⎓	103336	29	46.5
2×"TL"R 20W	220 V ⎓	103267		

STABILIZING LAMPS

STB
STR

STA

Type	Nominal voltage V	Catalogue number	Filament voltage V	Current A	Watts W	Luminous flux lm
STA	220–230	6552	135	0.5	67.5	750
	230	6555	140		70	770
	240	6556	150		75	820
	250	6557	160		80	860
STB	220–230	6562	135	0.5	67.5	770
	230	6565	140		70	800
	240	6566	150		75	860
	250	6567	160		80	920
STR	220	6582	105	0,35	37	450

Stabilizing lamps are to replace the ballast with the application of "TL"S or "TL"R fluorescent lamps. They are available in a silvered bowl finish type STA (inside mirrored) and in the normal inside pearl finish type STB. The combination with fluorescent lamps provide a great improvement in the blending of fluorescent lighting with a concentrated tungsten light source. The combination is economic and simple to install.

FITTINGS

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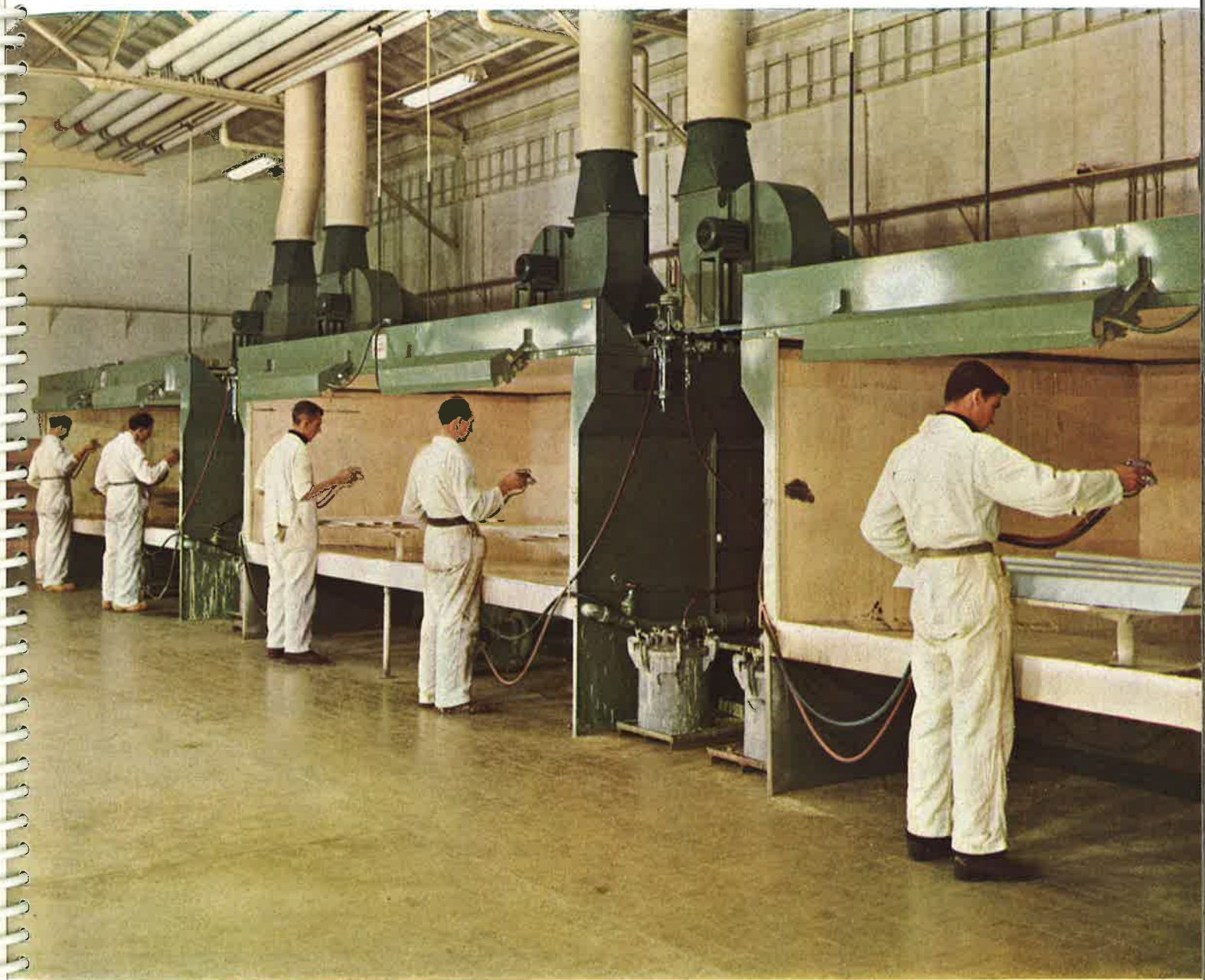
A large pressing shop of a motorcar factory fitted with Philips fittings.

MANUFACTURING AND QUALITY

The performance of lamps, whether they be incandescent, fluorescent or special gas-discharge lamps greatly depends on the fittings in which they are applied.
A lamp may be of superior quality, but it will never live up to the task for which it has been manufactured if the fitting used does not comply with its specific application.
Therefore it is obvious that fitting design plays a very important role. The object in the design stage is to realize a unit that is simple, can be easily mounted and needs as little maintenance as possible, whilst its light output, reflectivity and light distribution meet the highest requirements.
A staff of design engineers is daily at work developing new and better fittings and to always further the light-technical qualities of the existing line.
Philips fittings are made to measure, involving a minimum number or parts which are all easily accessible.
They are completely wired for use and can be mounted straight from the packing.
They are grouped into categories, a particular type of which will be excellently suited to a specified application.
There are fittings for floodlighting, industrial lighting, street lighting, office lighting and residential lighting; for mirrored and germicidal lamps; for glasshouses and commercial purposes etc. etc.
They are not only designed to be practical and handy but also for beauty. In most cases noted designers check the styling before a newly developed fitting is released for production.



Philips have developed a thorough quality control system to ensure that the fittings leaving the factory are of superb quality.

Upon arrival raw materials are tested. Samples are thoroughly examined in the material inspection department.

Spraying of the parts with the required lacquers puts high demands on the lacquers used. Samples are regularly checked for reflectivity, adhesion, thickness etc. etc.

A very modern spraying shop has been installed. The spraying is done under ideal conditions and uniform layers of top quality are applied.

All parts are fully tested before being sent to the assembly line and once they have been assembled to a brand new fitting, this is given a complete final electrical and visual check.

Only then the fittings are ready for packing and shipment, but daily packed fittings are taken from the batches and these are fully tested in a special laboratory to ensure that the shipped lots of units are of the supreme quality upon which manufacturer and customer can fully rely.

The application of fittings and lamps often calls for specialized knowledge in the lighting field and requires perfect acquaintance with the ranges available.

For years now Philips have been operating Lighting Service Departments throughout the world. These institutions have been established to help any applicant to solve the typical lighting problems which are encountered when new installations are to be built.

They give their advice on a free of charge basis and their only object is to be of assistance to the consumers of lamps and fittings.

Too often a building is erected only for daylight whilst in practice a substantial part of the work to be done is performed during the dark hours. Consequently the light installation does not get the attention it really needs.

Many a firm — big or small — has already paid the price of this omission because the original results achieved were so unsatisfactory that they had to call in a lighting expert, who was forced to give advice which was in absolute contradiction to the system already installed.

These troubles can easily be overcome by realizing in the beginning that special attention will have to be paid to the lighting installation and by calling in at once the people who have gained the required experience.

FITTINGS FOR "ATTRALUX" AND "COMPTALUX" LAMPS

In the commercial range of Philips' fittings a complete series of fittings for inside mirrored lamps is available. All these fittings are manufactured to accomodate the "Attralux" and/or "Comptalux" lamps, a perfect light source which is not only decorative, but will also supply the correct effect wherever they are applied. The fittings are of aluminium, and the range comprise adjustable and non-adjustable types with or without suspension tubes.

The DD 10–DD 11 and DD 12 fittings are all finished in white stove enamel. They are well ventilated and can be easily mounted on the ceilings or on conduit boxes. They are supplied with lampholders, wired ready for use. They can be applied to local and directional lighting, supplying dramatic effects in showwindows, showrooms, and exhibition stands.

DD 10 A smart cone shaped aluminium fitting which is adjustable at an angle of 45° to the vertical axis

DD 11 A smart cone shaped non-adjustable aluminium fitting

DD 12 A fitting resembling the DD 11 equipped with a steel suspension tube, length 31½"–800 mm, diameter ½"–13 mm.

The DD 13–DD 14 and DD 15 are a series of practical fittings for built in purposes. They are supplied with lampholders and are easily installed. They can be applied to local and directional lighting supplying dramatic effects in showwindows, showrooms and exhibition stands.

DD 13 A recessed fitting adjustable at an angle of 20° to the vertical axis. Made of aluminium

DD 14 A non adjustable recessed fitting made from sheet steel. To be fixed in the ceiling or on a junction box. The ornamental ring in white stove enamel finish is connected to the body by means of three springs (no screws) for close fixing against the ceiling. The body of the fitting is enamelled brown.

DD 15 A fitting similar to the DD 14 but with ornamental ring with projecting collar. This fitting is suitable for mounting into ceilings where the DD 14 is too high.

The DD 16–DD 17 and DD 18 fittings are of robust construction and are adjustable in various directions. The housing is provided with an ornamental ring for improved appearance and screening. The bodies, ceiling plates and ornamental rings are made of aluminium. Fittings are in white stove enamel finish and the ornamental ring of etched aluminium. They are supplied with lampholders and are wired ready for use. They can be applied to local and directional lighting, supplying dramatic effects to showwindows, showrooms, and exhibition stands.

DD 16 A decorative fitting which is adjustable at an angle of 75° to the vertical axis. The fitting can be turned in the horizontal plane.

DD 17 As DD 16 but supplied with flex and plug so as to supply a removable fitting.

DD 18 As DD 16 but equipped with suspension tube length 31½"–800 mm.

Type	Description	Lamp-holder	Catalogue number	Weight	Dimensions in mm.	
					Diam.	Height
DD 10	With ball and socket joint (blocked)	E 27 B 22	66247 HE/02 66247 HB/02	0.36 kg	158	294
DD 11	Inadjustable	E 27 B 22	66247 HE/00 66247 HB/00	0.23 kg	158	271
DD 12	With suspension tube; inadjustable	E 27 B 22	66247 HE/01 66247 HB/01	0.48 kg	158	1051
DD 13	Adjustable recessed fitting	E 27 B 22	66244 HE/00 66244 HB/00	0.32 kg	210	185
DD 14	Recessed fitting	E 27 B 22	66243 HE/00 66243 HB/00	0.52 kg	217	209
DD 15	Recessed fitting for shallow ceilings	E 27 B 22	66243 HE/01 66243 HB/01	0.57 kg	223	264
DD 16	With ball and socket joint	E 27 B 22	66241 HE/00 66241 HB/00	0.75 kg	162	ca. 260
DD 17	As DD 16 with weighted floor plate	E 27 B 22	66241 HE/02 66241 HB/02	0.80 kg	162	ca. 990
DD 18	As DD16 with suspension tube	E 27 B 22	66241 HE/01 66241 HB/01	0.46 kg	162	ca. 270

Note:
These fittings are suitable for the "Attralux" lamps 13359/44 or "Comptalux" lamps 13110/44.

PHILIPS for LIGHT

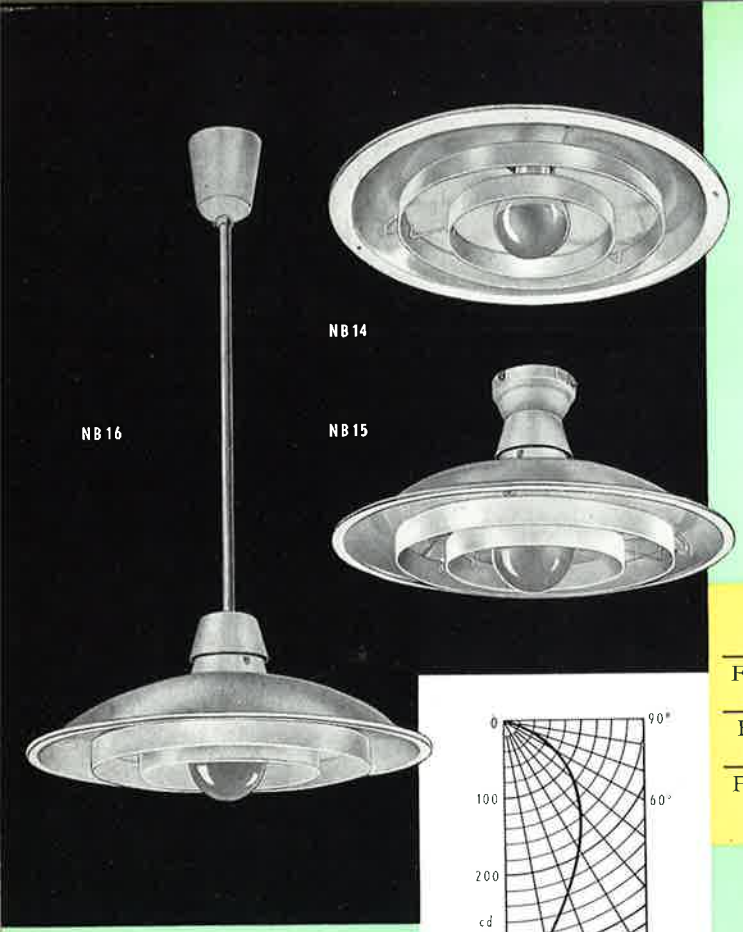
SPOTLIGHT FITTING DD 19

This fitting has been designed for the 150 W 24 V "Attralux" lamp and will be useful for spot and dramatic lighting purposes in shops, show-windows, restaurants, exhibition stands etc. It may serve as a supplementary light source for stage lighting. The fitting is suitable for ceiling, floor and wall mounting. The lamp housing is adjustable through an angle of 90° in all directions. This fitting consists of a base plate on which a transformer is to be mounted, a base cover, a lamp housing, a funnel all made of spun aluminium, and a "Philite" ball joint and a connection tube of nickel plated brass.

TRANSFORMERS To operate the lamp on the required low voltage (24 Volt) a step down transformer 325/24 V is housed in the base of the fitting. For safety, a fuse holder is mounted on the base plate next to the step down transformer.

Nom. voltage	Lamp-holder	Catalogue number [1])	Weight	Dimensions in mm			
				Lamphousing		Transf.housing	
				Diam.	Length	Diam.	Heigth
225	E 27 B 22	66241 HE/13 66241 HB/13	4.25 kg	147	340	167	158
110/125	E 27 B 22	66241 HE/23 66241 HB/23	4.25 kg				

[1]) Including fuse holder, excluding fuse and screw cap.



NB 14: for recessed mounting
NB 15: for ceiling mounting
NB 16: for pendant mounting

Light distribution diagram

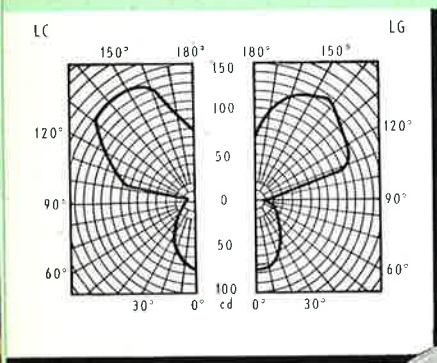
FITTINGS FOR BOWL REFLECTOR LAMPS

To obtain a harmonious unit of the combination of a fitting and. the bowl reflector lamp a special type of fitting has been designed. Together with the lamp this fitting supplies a diffuse illumination whilst a pronounced directed component is maintained. Owing to fitting design and to insertion of two concentric rings serving as louvre, the bright upper part of the lamp is shielded from view. This fitting will prove very satisfactory in workshops, stores, offices classrooms and in domestic use.

	Type	Lamp-holder	Catalogue number	Weight kg	Dimensions Diam.	Dimensions Height
For recessed mounting	NB 14	E 27 B 22	65606 AE/01 65606 AB/01	1.7	450	180
For ceiling mounting	NB 15	E 27 B 22	65605 AE/01 65605 AB/01	1.9	450	222
For pendant mounting	NB 16	E 27 B 22	65604 AE/01 65604 AB/01	1.9	450	750

"PLASTOCEL" FITTINGS

These fittings are specially designed to supply a simple and inexpensive fitting for domestic use. They provide soft lighting and together with a pearl or "Argenta" lamp their results will be extremely satisfying. The fittings are made of a washable material which can best be compared with hammered parchment. They can also be used in class rooms, offices etc. LG and LC for pendant mounting, LH for ceiling mounting.

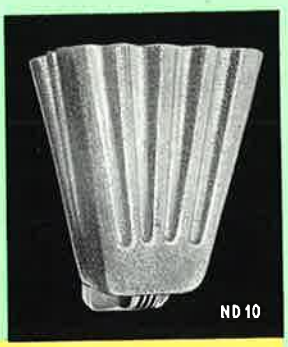


Type	Lamp-holder	Catalogue number	Weight kg	Dimensions Diam.	Dimensions Height
LC [1])	E 27 B 22	65649 AE/01 65649 AB/01	0.70	610	785
LG [1])	E 27 B 22	65648 BE/01 65648 BB/01	0.63	455	785
LH [2])	E 27 B 22	65651 AE/01 65651 AB/01	0.55	455	220

[1]) For 1 lamp max. 200 W
[2]) For 1 lamp max. 150 W

"PLASTOCEL" WALL FITTING

An inexpensive modern beautifully styled "Plastocel" wall fitting which is very suitable for corridors, restaurants, cinemas etc. It is fitted with a white "Philite" unit for wall mounting.

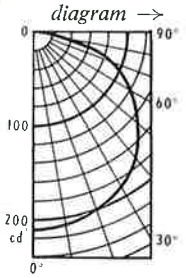


Type	Lamp-holder	Catalogue number	Weight	Dimensions L × W × H
ND 10	E 27 B 22	65626 BE/01 65626 BB/01	0.49 kg	222 × 160 × 300

DISPERSIVE TYPE FITTINGS

These fittings for indoor use are made from heavy gauge steel and are finished in corrosion proof vitreous enamel white inside, grey outside. Even under the most arduous conditions they will render excellent service. The canopy has a fixed wheatherproof 3/8″ conduit. Fittings are supplied complete with lampholder and with a 3/8″ socket or an insulated suspension clip.

Light distribution diagram →



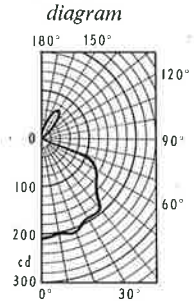
Type	For one lamp max.	Lamp-holder	Catalogue number		Weight kg[3])	Dimensions	
			With socket 3/8″ threaded	With insulated suspension clip		Diam.	Height
NK 10/30	150 W	E 27 B 22	65430 KE/01 65430 KB/01	65430 KE/06 65430 KB/06	1.13	300	270
NK 10/35	200 W [1])	E 27 B 22	65435 KE/01 65435 KB/01	65435 KE/06 65435 KB/06	1.53	350	320
NK 10/42	300 W [1])	E 27 B 22	65442 KE/01 65442 KB/01	65442 KE/06 65442 KB/06	1.93	420	335
	300 W [2])	E 40	65442 KG/01	65442 KG/06	2.40	420	335
NK 10/45	500 W [2])	E 40	65445 KG/91	65445 KG/96	2.32	450	385

[1]) Also suitable for HP 80 W, HP 125 W, HPL 80 W, HPL 125 W and ML 160 W.
[2]) Also suitable for ML 250 W.
[3]) With insulated clip + 0.17 kg.

DISPERSIVE TYPE FITTINGS WITH DETACHABLE REFLECTOR

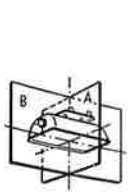
A special type has been designed for tube suspension with open top. This fitting is made from two coat stove enamelled aluminium inside white, outside grey and is supplied complete with lampholder. With the fitting a suspension set is provided consisting of a tube with either a 3/8″ reducing socket or a suspension bracket covered by a ceiling cap. The reflector is suspended from a 3-way bracket and can be easily removed for cleaning.

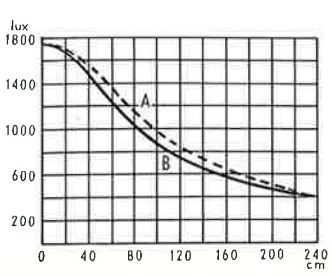
Light distribution diagram



Type	For one lamp max.	Lamp-holder	Catalogue number		Weight kg	Dimensions	
			With reducing socket 3/8″	With suspension bracket and ceiling plate		Diam.	Height
GB	200 W [1])	E 27 B 22	65440 EE/11 65440 EB/11	65440 EE/17 65440 EB/17	0.75	410	248
	500 W [2])	E 40	65445 EG/11	65445 EG/17	1.20	450	350

[1]) Also suitable for HP 80 W, HP 125 W, HPL 80 W, HPL 125 W and ML 250 W.
[2]) Also suitable for ML 250 W.



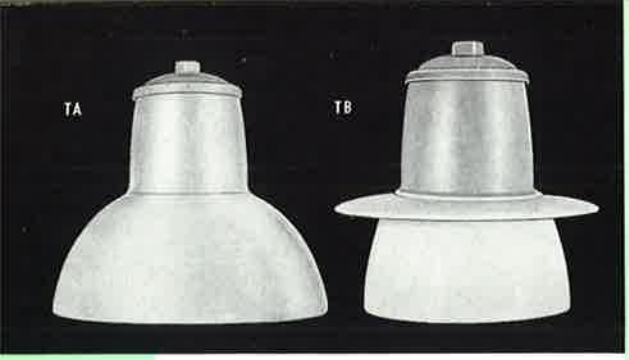


FITTING FOR GREENHOUSES

This fitting is specially designed for the Philips mercury vapour lamp HO 450 W which renders excellent results in greenhouses. The design is based on the natural aircirculation principle. The vitreous enamelled reflector is white inside and grey outside. The cowel-plate, suspension brackets and distance tubes are hot galvanized. The finish is entirely corrosion-proof.

Type	Catalogue number	For lamp	Weight kg	Dimensions L × W × H
HK 11	65721 AZ/20	1 × HO 450 W or 1 × HO 250 W(L)	2.10	375 × 225 × 150

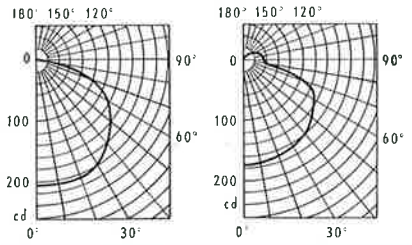
← *Illumination curve for HO 450 W measured in a horizontal plane 1.5 m below the fitting*



FITTINGS FOR OUTDOOR LIGHTING

TA A concentrating type fitting of vitreous enamelled sheet steel. All electrical parts are easily accessible. The fitting has a high optical performance and is fully weather and corrosion proof. Lampholders adjustable for the most suitable light distribution. Suitable for the illumination of highways and approaches.

TB A diffuser type of fitting of galvanized, grey enamelled sheet steel and with a threeply opal glass ring. For further details see type TA. Fitting suitable for the illumination of streets with high buildings or trees.



← *Light distribution diagrams 1000 lm*

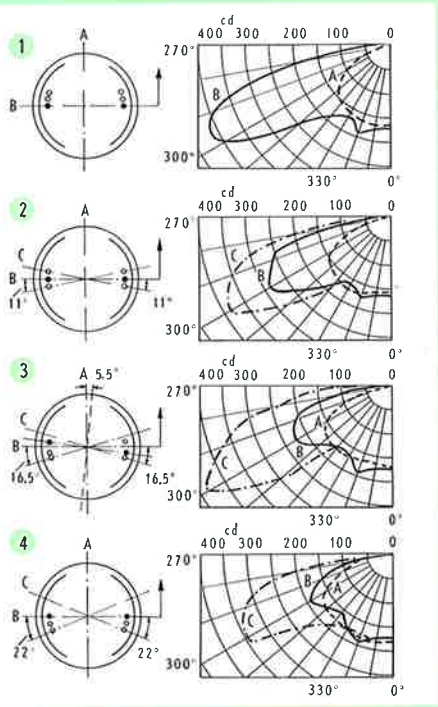
For lamps max.	Lamp-holder	All metal fittings Type TA Catalogue number with socket ½″	All metal fittings Type TA Catalogue number with socket ¾″	Diam. max.	Height	With diffusing band Type TB Catalogue number with socket ½″	With diffusing band Type TB Catalogue number with socket ¾″	Diam. max.	Height	Weight kg
1 × 200W[1]	E 27 B 22	65773 AE/06 65773 AB/06	65773 AE/05 65773 AB/05	310	280	65763 AE/16 65763 AB/16	65763 AE/15 65763 AB/15	325	260	2.75
2 × 200W[1]	2 × E 27 2 × B 22 E27 + B22	65773 AD/06 65773 AA/06 65773 AL/06	65773 AD/05 65773 AA/05 65773 AL/05	350	310	65763 AD/06 65763 AA/06 65763 AL/06	65763 AD/05 65763 AA/05 65763 AL/05	340	300	4.0
1 × 500W[2]	E 40	65774 AG/06	65774 AG/05	360	375	65764 AG/06	65764 AG/05	340	360	3.6
2 × 500W[2]	2 × E 40	65774 AH/06	65774 AH/05	485	390	65764 AH/06	65764 AH/05	480	370	7.5

[1]) also suitable for HPL 80 W, HPL 125 W and ML 160 W. [2]) also suitable for HPL 250 W, HPL 400 W (only for all metal fittings), ML 250 W and HO 250 W.

MIRRORED FITTINGS FOR FLUORESCENT MERCURY LAMPS

One of the latest developments in the field of streetlighting with regard to cut-off streetlighting fittings.
These HR fittings are fitted on the inside with two mirror segments of high grade anodized aluminium. These segments are directing the light in two main directions and are adjustable according to the width of the road and the distance between the poles. This system has the advantage that a most efficient and uniform light distribution on the road surface is achieved even for widely deviating road dimensions whereas the blinding effect is virtually negligible.

Light distribution diagrams for the four positions of the mirrors in the fitting 1000 lm →



Type	For lamps	Lamp-holder	Catalogue number with socket ½″	Catalogue number with socket ¾″	Weight kg	Diam.	Height
HR 11	HPL 80/125 W	E 27 B 22	65793 AE/06 65793 AB/06	65793 AE/05 65793 AB/05	4.0	350	310

FITTINGS FOR "ALTRALUX" LAMPS

An inexpensive lightweight weatherproof and durable fitting specially designed for the "Altrilux" 500 W lamp. Canopy of aluminium, with raincover and watertight gland at the rear.
PR 10: with L-shaped bracket.
PR 11: as PR 10 with mounting bracket, fitting is adjustable in a vertical plane between the arms of the bracket.

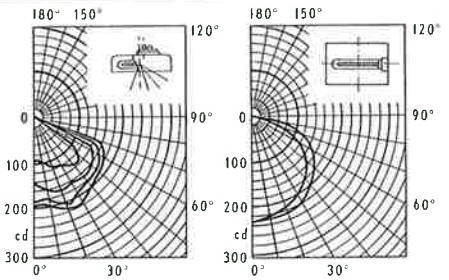
* In the open these fittings should be mounted in such a way that rain can not enter between lamp and canopy.

Type	Lamp-holder	Catalogue number	Weight kg	Dimensions cone
PR 10	E 40	66247 HG/00	1.00	195 × 305
PR 11	E 40	66247 HG/01	1.35	192 × 285

FITTINGS FOR OUTDOOR LIGHTING WITH SODIUM LAMPS

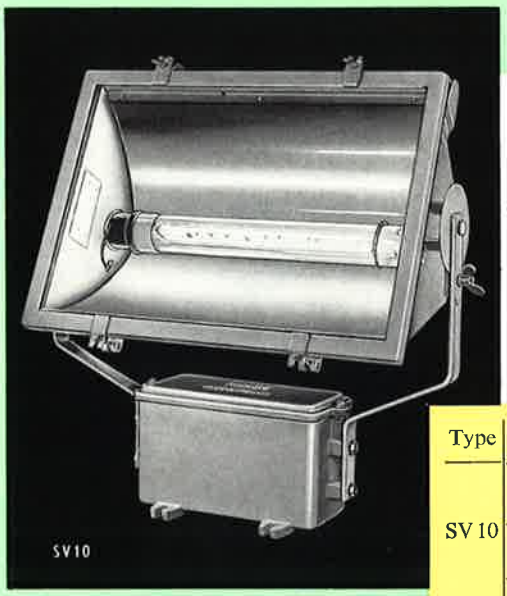
This fitting consists of a grey enamelled sheet steel reflector which is white porcelain enamelled inside and is provided with a grey enamelled cast iron flange for connection to the light pole. The fitting can be used in horizontal position or at an angle of 20°. When installing the correct burning position of sodium lamps has to be taken into account. Specially suitable for outdoor lighting such as approach high ways and industrial indoor lighting.

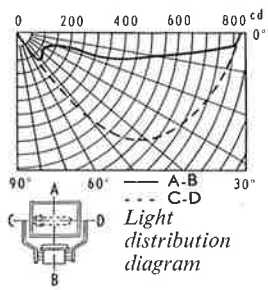
For lamps	Catalogue number	Weight kg	Dimensions
SO 45W or SO 60W	61011/20	3.1	375 × 225 × 165
SO 60W or SO 85W	61010/20	4.3	480 × 300 × 175
SO 140W	61012/20	6.0	600 × 400 × 200
2 × SO 140W	61013/20	6.7	600 × 400 × 200



For roadlighting *For floodlighting*

FLOODLIGHT FITTING FOR SODIUM LAMPS





Light distribution diagram

An adjustable floodlighting for SO 140 W lamps. The lamp ballast is housed in a cast iron box. The fitting is fully rustproof and hermetically sealed to resist all weather conditions. This fitting is very suitable for floodlighting objects of great height, which include officebuildings, historic buildings, factories also for security lighting such as museums, banks, prisons etc. The distance between floodlight and object can be proportionally small.

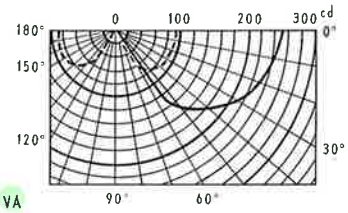
Type	Description	Nominal voltage*)	Power factor	Catalogue number	Weight kg	Dimensions
SV 10	Without capacitor	220 V 115/125 V	0.35 0.35	65809 AH/00 65809 BD/00	30.5 32.5	613 × 220 × 705
	With parallel capacitor	220 V 115/125 V	0.85 0.9/0.85	65809 AH/01 65809 BD/01	32.5 34.3	613 × 220 × 705
	Without ballast and capacitor			65809 ZZ/00	24.5	613 × 220 × 705

FLOODLIGHTING FITTINGS FOR TUNGSTEN LAMPS

VA is a floodlight for general purpose wide angle floodlighting made of vitreous enamelled steel-plate grey outside, white inside, with heat-resisting clear glass front suitable for G.L.S. 300W, 500W, 1000W and 1500W.
VC is a heavy duty projector for narrow and medium beam floodlighting made of heavy gauge galvanized steel with heat-resisting clear glass front with wire safety mesh. Suitable for lamps 500W, type 125 G or 1000W, type 6115 G

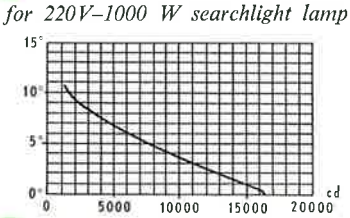
Finish	Glass guard	Mirror	Catalogue number complete	Weight kg	Dimensions L × W × H
With tightening block	clear frosted	smooth smooth	65801 AG/00 65801 AG/01	8.10	440 × 450 × 590
With plate	clear	facetted smooth	65808 AG/00 65808 AG/01	15.05	520 × 425 × 580
With socket	clear	facetted smooth	65808 AG/20 65808 AG/21	11.95	520 × 425 × 582

for 1 lamp max. 1500 W

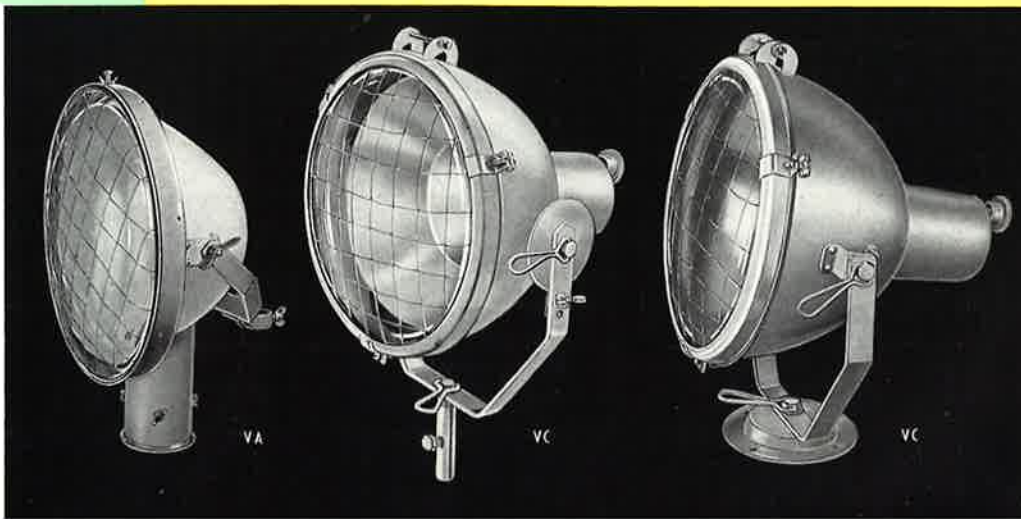


VA

for 220V–1000 W searchlight lamp



VC



TM 10 MOUNTING CHANNELS

This all-in-one mounting channel for 1 or 2 fluorescent lamps 20 W, 25 W, 40 W and 65 W incorporates all accessories (ballasts, starter holders and lampholders) and is fully wired. Upon appearance and finish of these units great care has been bestowed. They are suitable for pendant as well as surface mounting and can be used with or without attachments. Easy and quick mounting facilities, together with superior electrical and mechanical features are the main advantages of these mounting channels. A series of superbly finished attachments which will satisfy even the most critical user are available (see opposite page). A coupling piece for connecting the channels for row mounting is also available Cat. Nr. 66001 ZZ/02.

Type	For lamps	Nominal[1] voltage V	Mains current A	Power factor	Losses W	Catalogue number	Weight kg
TM 10/120	1× "TL"20W	220	0.38	0.35	9	61950 AH/00	3.35
		220	0.40	0.30 *)	8	61958 AH/00	3 45
		110	0.38	0.60	5	61950 BT/00	2.90
		125	0.38	0.55	6		
		110	0.39	0.60 *)	7	61958 BT/00	3.45
		125	0.39	0.55 *)	6		
TM 10/220	2× "TL"20W	220	0.38	0.55	8	61964 AH/00	3.45
		220	0.23	0.95	9	61965AH/00[2]	3.75
		220	0.40	0.55 *)	10	61968 AH/00	4.05
		110	0.76	0.60	10	61960 BT/00	3.60
		125	0.76	0.55	12		
		110	0.49	0.95	12	61962 BT/00	4.30
		125	0.45	0.95	12		
TM 10/125	1× "TL"25W	220	0.29	0.50	7	62150 AH/00	3.40
		220	0.30	0.50 *)	6	62158 AH/00	4.00
		110	0.37	0.90	13	62151 BT/00	4.75
		125	0.32	0.90	13		
TM 10/225	2× "TL"25W	220	0.30	0.95	14	62162 AH/00	5.00
		110	0.74	0.90	26	62161 BT/00	7.40
		125	0.64	0.90	26		
TM 10/140	1× "TL"40W	220	0.42	0.55	9	62420 AH/00	4.50
		220	0.44	0.50 *)	11	62428 AH/00	5.20
		220	0.23	0.95	9	62421AH/00[2]	4.50
		110	0.90	0.60	18	62420 BT/00[3]	6.30
		125	0.80	0.55	17		
		110	0.53	0.90	14	62421 BT/00	6.00
		125	0.47	0.90	13		
TM 10/240	2× "TL"40W	220	0.45	0.95	19	62435 AH/00	5.50
		220	0.84	0.55	18	62430 AH/00	5.50
		220	0.45	0.95	17	62432 AH/00	6.40
		110	1.00	0.95	27	62432 BT/00	8.10
		125	0.88	0.95	27		
TM 10/165	1× "TL"65W	220	0.66	0.55	12	62450 AH/00	5.60
		220	0.70	0.50	12	62458 AH/00	5.90
TM 10/265	2× "TL"65W	220	0.73	0.95	24	62462 AH/00	7.90

[1]) Consumers voltage: 220 V = 210-230 V 125 V = 120-130 V 110 V = 105-115 V
[2]) Low impedance for audio frequencies
[3]) Cannot be used in combination with 62428 AH/00
*) capacitive

DIMENSIONS OF CHANNEL:
20W = 635 × 86 × 63
40W = 1245 × 86 × 63

FEATURES OF TM 10 MOUNTING CHANNELS

- *Built-in Philips canned ballasts guarantee full and troublefree lamp life, high light-output, smooth starting and no maintenance*
- *Philips' spring loaded rotor type lampholders ensure perfect electrical contact and positive lamp locking*
- *Wired accessories speed up mounting and avoid faulty connections*
- *Shock proof terminals for safety*
- *Special terminal and spring contact construction simplifies electrical connections*
- *Non-tarnish 260° F stove enamelled white finish*
- *Hinged lampholders simplify packing, thus reducing freights and assisting economic storage*
- *Plastic screw head covers prevent screwdriver damaging finish*

ATTACHMENTS TO MOUNTING CHANNELS TM 10

A most complete series of attachments to be used with the TM 10 mounting channel is available for commercial and residential lighting.

TB 13 attachment for 2 fluorescent lamps 40 W; side panels are made from Transflex, the reeded plastic bottom panel screens the lamps from view.

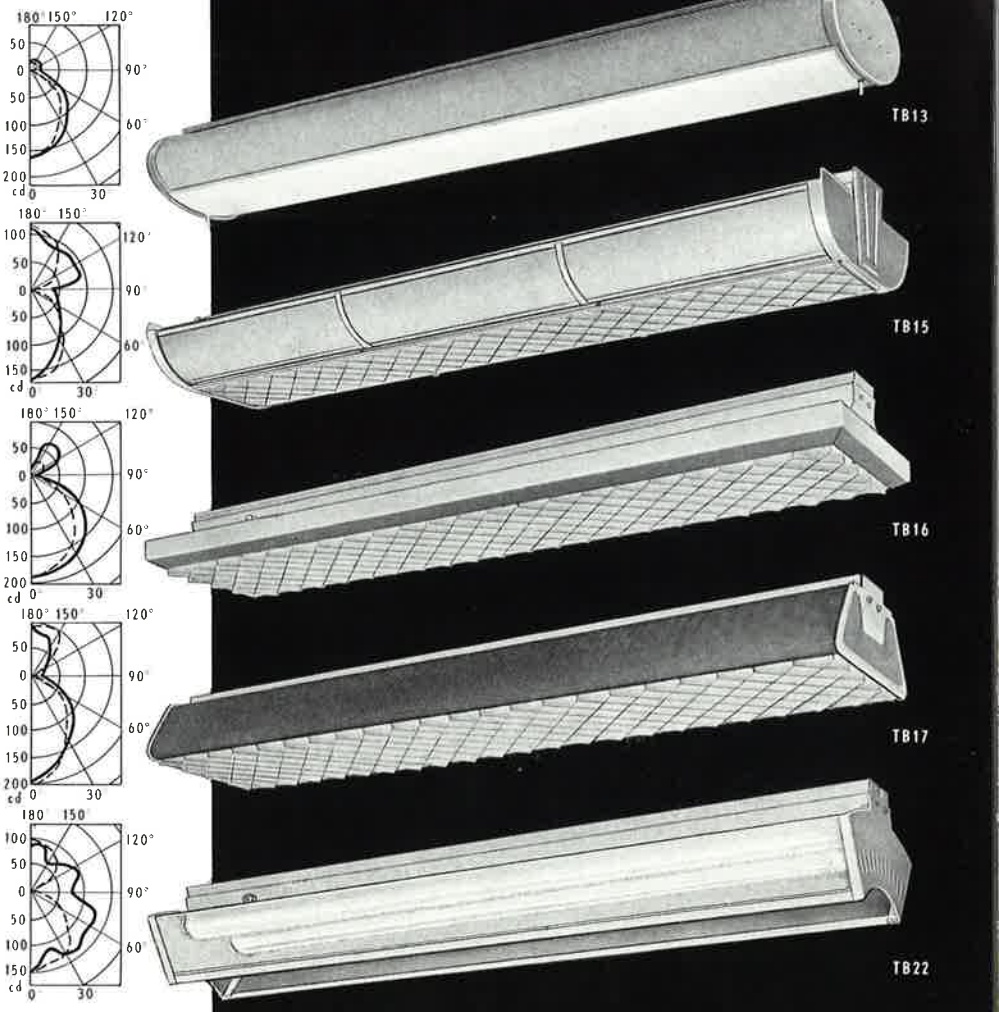
TB 15 attachment for 2 fluorescent lamps 20 W, 40 W or 65 W side panels are made from translucent plastic, the bottom consists of a white plastic louvre.

TB 16 [1]) all metal attachment for 2 fluorescent lamps 40 W. The profiled rectangular metal frame is provided with a 1-piece louvre.

TB 17 attachment for two fluorescent lamps 40 W. The Transflex side panels and the 1-piece plastic louvre promote comfortable lighting at high efficiency.

TB 22 attachment for two fluorescent lamps 40 W. The side panels consist of inside-frosted or hammered cathedral glass plates. These are not supplied by us but have to be ordered individually.

[1]) Only for individual mounting.

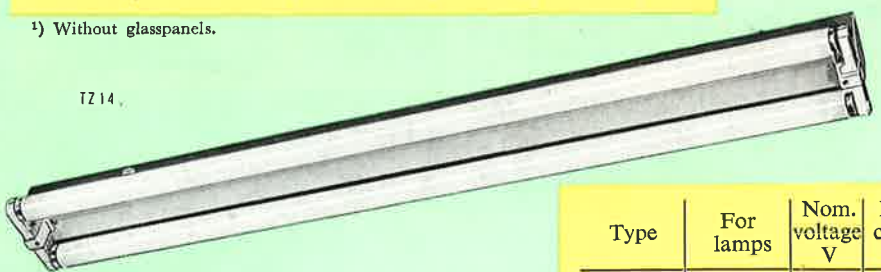


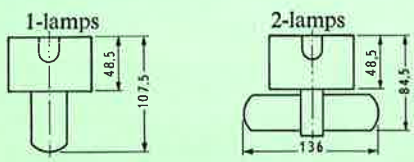
Type	For lamps	Catalogue number	Weight kg	Dimensions mm
TB13/240	2×"TL" 40W	76414ZZ/00	4.95	1278×264×137
TB15/220	2×"TL" 20W	76427ZZ/00	1.65	66×354×137
TB15/240	2×"TL" 40W	76424ZZ/00	2.50	1270×354×137
TB15/265	2×"TL" 65W	76426ZZ/00	2.95	1665×354×137
TB16/240	2×"TL" 40W	76442ZZ/00	3.85	1300×280×128
TB17/240	2×"TL" 40W	76642ZZ/00	2.40	1248×266×132
TB22/240	2×"TL" 40W	66260AA/01[1])	1.00	1245×260×177

[1]) Without glasspanels.

WIRING CHANNEL TZ 14

A simple wiring channel for one or two fluorescent lamps for ceiling mounting. It is equipped with a Philips canned ballast, lamp- and starterholders and is fully wired. The rail is made of sheet steel and is provided with the necessary knock-outs for use in continuous row mounting. On the top sides are also knock-outs for the lead-in wires.





DIMENSIONS OF CHANNEL

1228 × 72.5 × 48.5

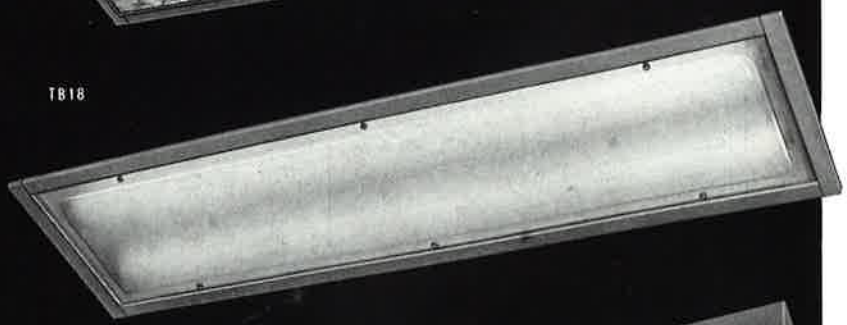
Type	For lamps	Nom. voltage V	Mains current A	Losses W	Power factor	Catalogue number	Weight kg
TZ 14/140	1×"TL" 40W	220	0.42	9	0.55	62610 AH/01	3.6
			0.23	9	0.95	62611 AH/01	4.0
		110	0.90	18	0.60	62610 BT/01	7.0
		125	0.80		0.50		
		110	0.53	14	0.90	62611 BH/01	5.1
		125	0.47				
TZ 14/240	2×"TL" 40W	220	0.45	17	0.95	62622 AH/01	5.5
		110	1.00	27	0.95	62622 BT/01	7.0
		125	0.88				

COMBINATION OF ONE-LAMP UNITS FOR DUO-CIRCUIT

2×"TL" 40W	220	0.45	19	0.95	+	62610 AH/01 62618 AH/01	3.6 4.2

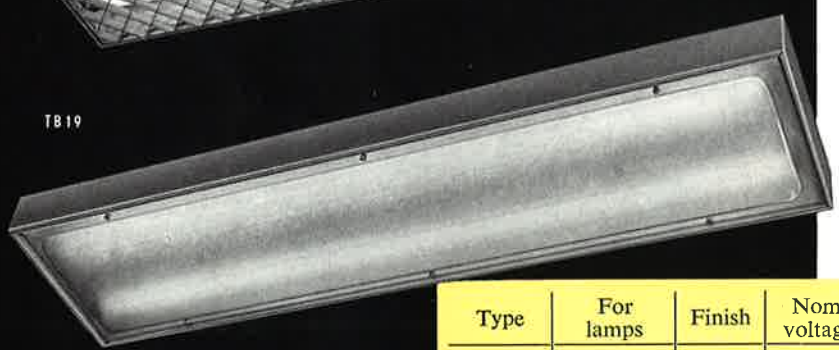
TB 18

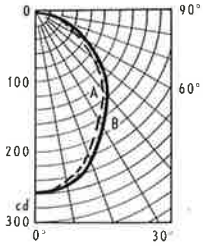
TB 18

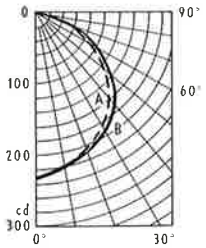


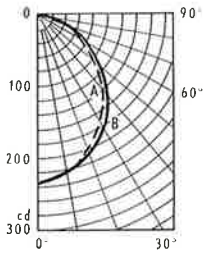
TB 19

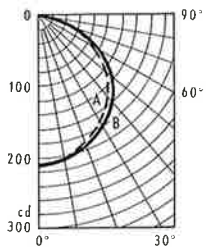
TB 19











TB 18

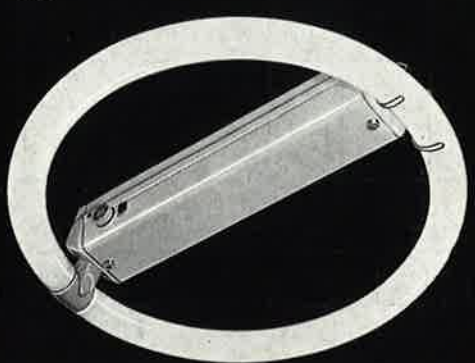
This complete lighting unit for two fluorescent lamps 40 W is for recessed mounting into ceilings. The fitting comprises an enamelled sheet steel body, a removable gear carrier and a plastic panel or louvre.

TB 19

This complete lighting unit for two fluorescent lamps 40 W is for celing mounting. The fitting consists of a white enamelled sheet steel body, removable gear carrier and a plastic bottom panel or louvre.

Type	For lamps	Finish	Nom. voltage	Power factor	Catalogue number	Weight kg	Dimensions L × W × H
TB 18/240	2 × "TL" 40W	With louvre	220 110/125	0.95	76944 AH/00 76944 BT/00	12.8 14.6	1300×344×90
		With panel	220 110/125	0.95	76944 AH/01 76944 BT/01	12.6 12.4	1300×344×92
TB 19/240	2 × "TL" 40W	With louvre	220 110/125	0.95	76942 AH/00 76942 BT/00	11.8 13.3	1254×300×90
		With panel	220 110/125	0.95	76942 AH/01 76942 BT/01	11.6 13.1	1254×300×92

TM 21



MOUNTING UNIT TM 21

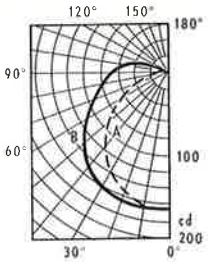
Mounting unit comprising a 220V/50 c/s ballast, a lampholder and a built- in starterholder especially designed for use with one circline 40 W fluorescent lamp. This decorative and simple circular fluorescent lamp will find numerous applications for both residential and commercial lighting.

Type	For lamps	Nominal voltage[1])	Power factor	Catalogue number	Weight kg	Dimensions L × W × H
TM 21	"TL"E 40W	220	0.55 0.50[1]) 0.95	62660 AH/00 62668 AH/00 62661 AH/00	2.1 2.4 2.3	358×64×64

[1]) Capacitive, for combination with unit 62660AH/00

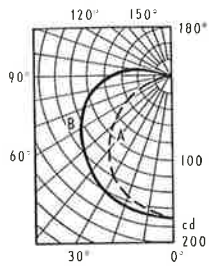
FITTINGS FOR SHIP OR VEHICLE LIGHTING

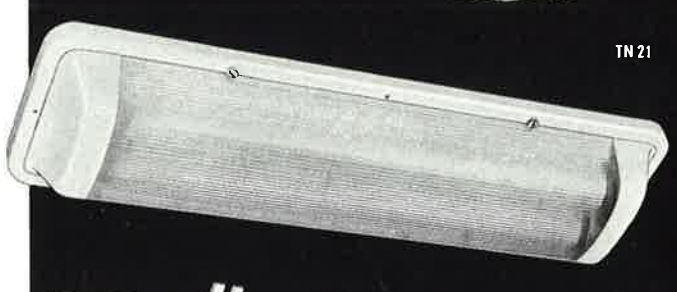
The TN range of fittings has been specially designed for ship and vehicle lighting. All fittings are suitable for either AC or DC mains.



TN 20

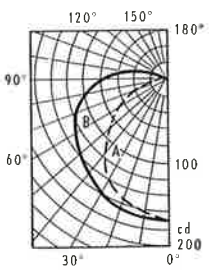
A drip watertight heavy duty fitting for two fluorescent lamps 20 W. Consists of a hot-galvanized sheetsteel housing provided with a special bracket and a plastic cover in a metal frame. The electrical unit is removable.





TN 21

A robust and dustproof fitting for two fluorescent lamps 20 W. It has been specially designed for recessed mounting. The fitting is composed of a sheet steel ceiling box which enters into the ceiling, an electrical unit and a plastic cover.



TN 22

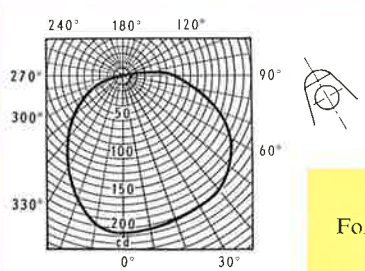
This fitting is identical to the TN 21 with the exception that it has been specially designed for ceiling mounting. For mounting to the ceiling it is fitted with four lugs.

FOR ALTERNATING CURRENT

Type	For lamps	Nom. voltage	Power factor	Catalogue number	Weight kg	Dimensions L × W × H
TN 20	2×"TL" 20W	220 110/125	0.95 0.95	78022 AH/00 78022 BT/00	14.3 13.8	830×245×170
TN 21	2×"TL" 20W	220 110/125	0.95 0.95	78022 AH/10 78022 BT/10	5.4 6.3	720×200×120
TN 22	2×"TL" 20W	220 110/125	0.95 0.95	78022 AH/20 78022 BT/20	6.7 7.6	726×208×130

FOR DIRECT CURRENT

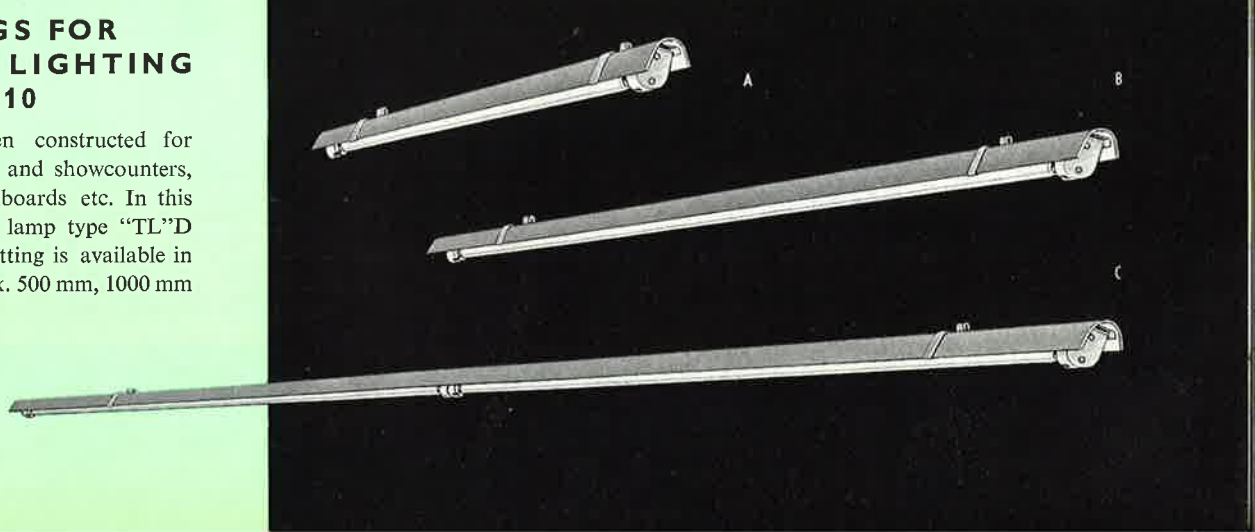
TN 20	2×"TL"R 20W 2×"TL"C 20W	220 110	— —	78022 AH/01 78022 BF/01	11.8 11.5	830×245×170
TN 21	2×"TL"R 20W 2×"TL"C 20W	220 110	— —	78022 AH/11 78022 BF/11	4.5 4.2	720×200×120
TN 22	2×"TL"R 20W 2×"TL"C 20W	220 110	— —	78022 AH/21 78022 BF/21	5.8 5,5	726×208×130 726×208×130

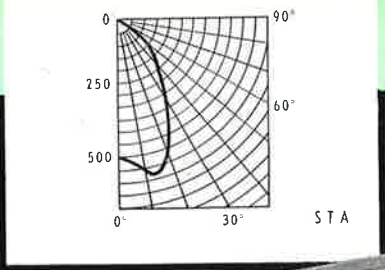


For lamps	Reflector			Mounting rail		Suspension bracket	
	Catalogue number	Fig.	Weight kg	Catalogue number	Weight kg	Catalogue number	Weight kg
"TL"D 15W	77301 ZR/10	A	0.14	77301 ZA/00	0.27	77301 ZB/10	0.01
"TL"D 30W	77301 ZR/11	B	0.26	77301 ZA/01	0.46		
One or more	77301 ZR/12	C	0.5	—	—		

FITTINGS FOR SHOWCASE LIGHTING TZ 10

This fitting has been constructed for lighting in showcases and showcounters, and for corners, wallboards etc. In this fitting the fluorescent lamp type "TL"D has to be used. The fitting is available in three lengths of approx. 500 mm, 1000 mm and 2000 mm.





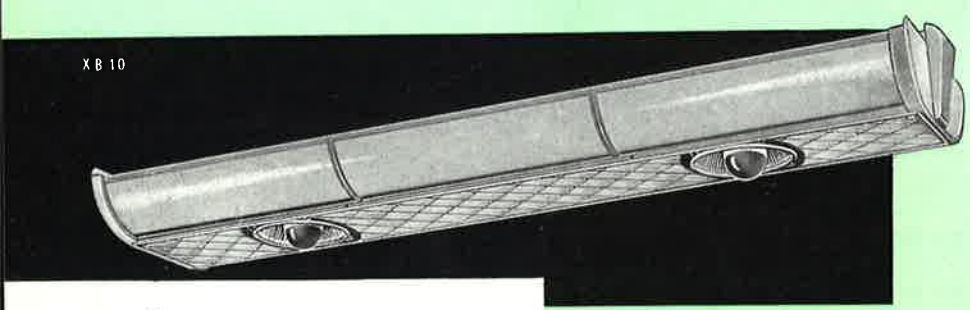
← *Light distribution diagram of STA lamps 1000 lm.*

FOR "TL"S LAMPS XZ 10-XZ 11

A simple mounting rail for the application of "TL"S fluorescent lamps with stabilizing lamps therefore no ballasts and no starters. These mounting rails of light weight construction are fully wired complete with lampholders and can be easily installed. The reflector for the stabilizing lamp is of silvered finish.

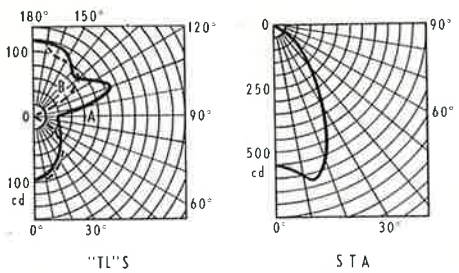
Type	Description	Catalogue number	Weight kg	Dimensions *) L × W × H
XZ 10/240	For 1 × "TL"S 40W lamp + 1 STA lamp	77113 AC/01	1.50	1390 × 142 × 110
XZ 11/240	For 2 × "TL"S 40W lamps + 2 STA lamps	77114 AC/01	1.95	1508 × 142 × 110

*) Cross section rail 35 × 30.



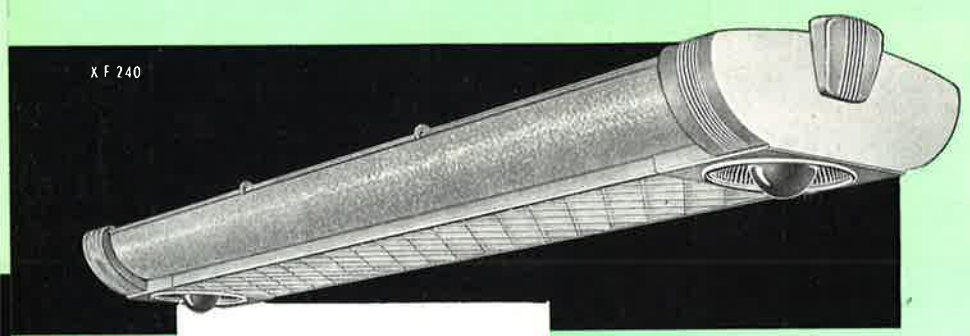
XB 10/240

A perfect direct fitting for two "TL"S fluorescent lamps and two stabilizing lamps. Side screens of translucent plastic and a louvre of plastic. Both reflectors are of silvered finish. Supplies a perfect blending of fluorescent and tungsten lighting. Can be used for individual and continuous row mounting (coupling strips available) and can be surface mounted as well as suspended.



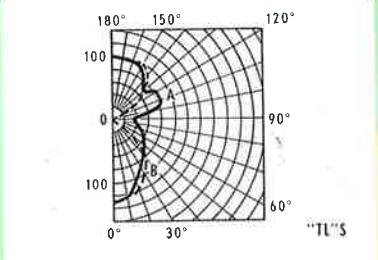
← *Light distribution diagrams 1000 lm.*

Description		Catalogue number	Weight kg	Dimensions L × W × H
Pendant mounting	Individually	77025 AB/06	4.6	1280 × 348 × 128
	Continuous rows	77025 AB/16	4.8	1230 × 348 × 128
Ceiling mounting	Individually	77025 AB/26	4.7	1280 × 348 × 128
	Continuous rows	77025 AB/36	5.3	1230 × 348 × 128



XF 240

A superbly styled open top fitting for two "TL"S fluorescent lamps and two stabilizing lamps. Apart from styling is identical to the XB 10 fitting. This fixture is of distinctive simplicity, can be quickly installed, is easy to clean and is of sturdy construction. It supplies a perfect blend of fluorescent and tungsten light.



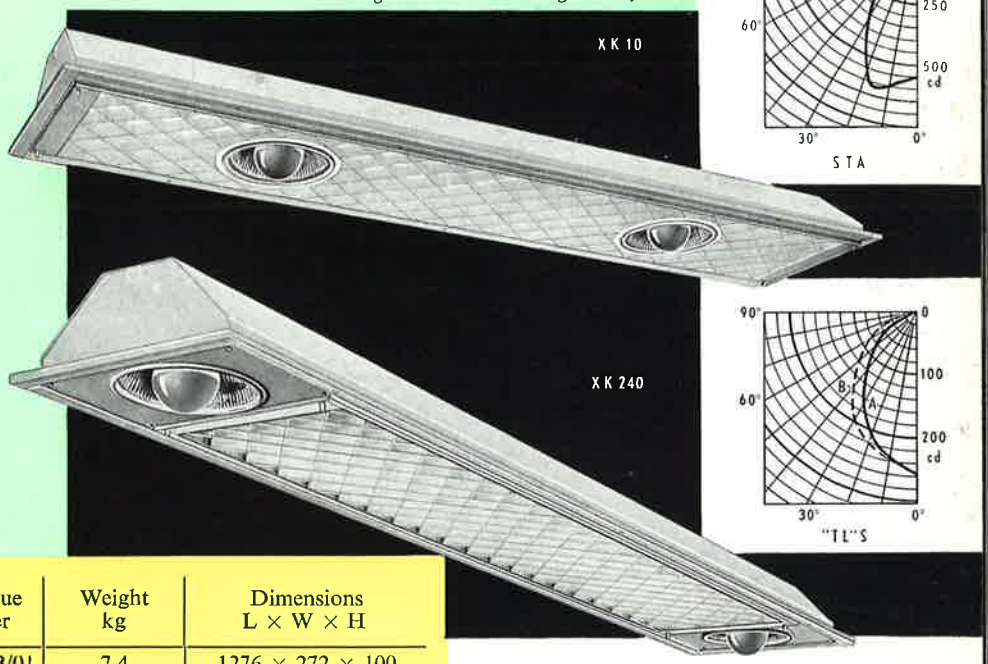
← *Light distribution diagram of "TL"S lamps, for STA lamps see above 1000 lm.*

Description	Catalogue number	Weight kg	Dimensions L × W × H
For pendant mounting	77024 AB/06	4.4	1492 × 308 × 135
For continuous rows	77024 AB/16	4.4	1456 × 308 × 135

XK 10 AND XKA 240

Utility fittings both for two "TL"S fluorescent lamps and two stabilizing lamps. The fluorescent lamps are screened by a plastic louvre which ensures maximum eye comfort and even illumination. Reflectors for stabilizing valves are inside mirrored. These fittings can be suspended mounted, built in or surface mounted.
Excellently suitable for lighting of department stores, shops, showrooms, classrooms etc.

Light distribution diagrams →

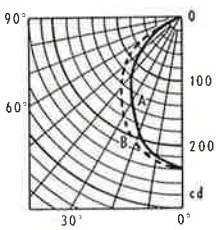


STA

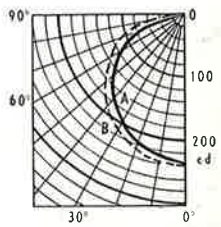
"TL"S

Type	Description	Catalogue number	Weight kg	Dimensions L × W × H
XK 10/240	With louvre	77665 AB/01	7.4	1276 × 272 × 100
XKA 240	With louvre	77604 AB/01	8.5	1595 × 272 × 100
	Without louvre	77604 AB/11	6.9	

The XKA 240 can be used without or with louvre, see light distribution diagrams →



With louvre

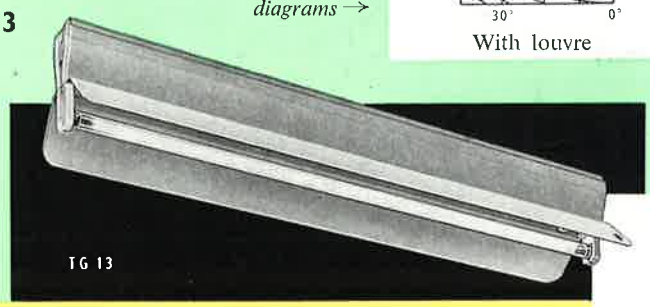


Without louvre

FOR GERMICIDAL LAMPS

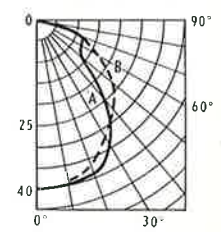
TG 13

A mounting channel designed for the application of TUV germicidal lamps. Available both for the TUV 15 W (TG 13/15) and TUV 30 W (TG 13/30) lamps with or without reflector. By adapting the reflector shape to the irradiated object or space, the efficiency of the germicidal radiation scheme can often be increased. These reflectors should be made locally from mirror surface aluminium or aluminium foil.



For lamps		Voltage V	Power factor	Catalogue number: Mounting unit	Catalogue number: Reflector	Weight[1] kg	Dimensions [1] L×W×H
TUV 15W	Low power factor	110	0.55	62345 BF/00	76013 ZZ/00	2.0	468×190×140
		125	0.50	62345 BG/00		2.0	
		220	0.35	62345 AH/00		2.4	
TUV 30W	Low power factor	225	0.45	62346 CH/00	76030 ZZ/00	3.4	925×190×140
	Combination for duo-circuit		0.90	62346 CH/00		3.4	
				62348 CH/00		4.0	

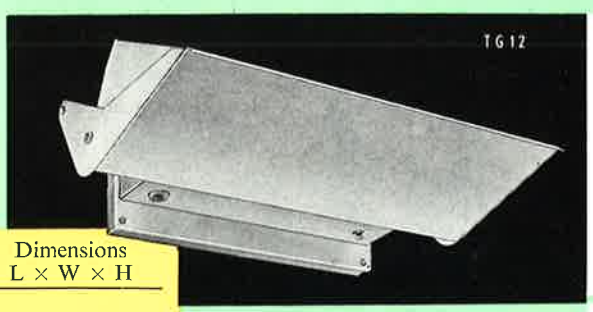
[1]) Mounting unit + reflector

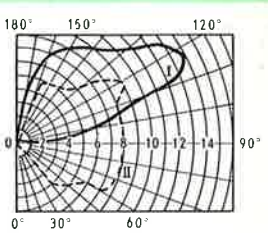


Radiation distribution diagrams of UV 2537 Å in μW/cm²

TG 12

An adjustable wall fitting for the TUV 15 W germicidal lamp. It has been basically designed for the medical field but will serve equally well in the industrial field wherever high hygienic requirements are to be met. Should be mounted at least 7 feet above floor level. A small indicator lights up when the lamp is switched on.



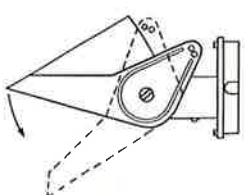


– – – Reflector downwards
——— Reflector upwards

Voltage V	Catalogue number	Weight kg	Dimensions L × W × H
225	76015 CA/03	5.9	525×315×160
125	76015 CC/03	5.4	
110	76015 CB/03	5.4	
Without ballast	76015 ZZ/02*)	4.4	

*) Without neon lamp

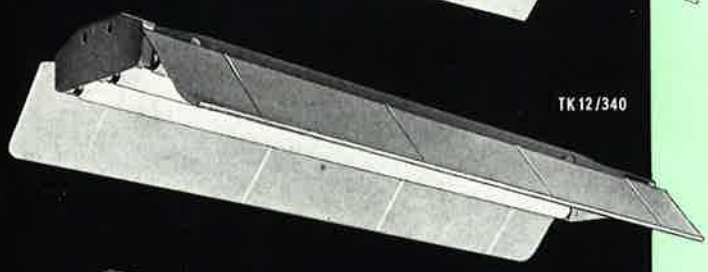
It can be used for upper air radiation (reflector turned up) or to irradiate lower parts of rooms and the equipment in it (reflector swung down). →



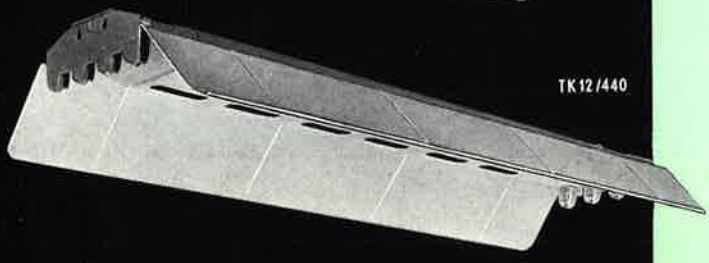
TK HIGH EFFICIENCY TROUGH FITTINGS

TK12/240

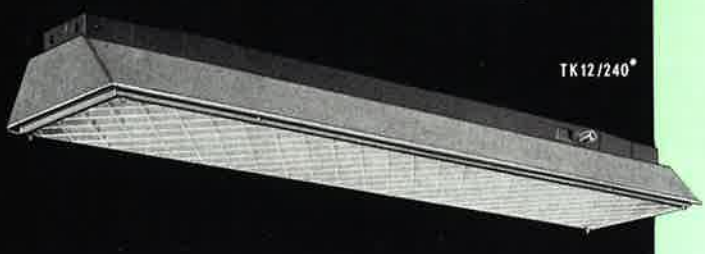
TK13/140



TK12/340



TK12/440



TK12/240*

A complete series of industrial trough fittings, has been designed to meet increasing requirements for industrial installations. They are extremely simple, soundly constructed and show a great improvement upon the industrial fittings so far available in the market. The range offers the following types: Stove enamelled (260°F) finish:

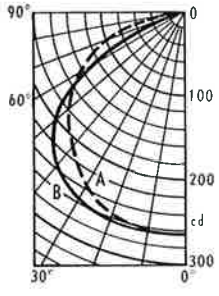
a. with closed top reflector TK 12 for 1, 2, 3 and 4 fluorescent lamps 40 W and 1 and 2 fluorescent lamps 65 W
b. with slotted top reflector TK 13 for 1, 2, 3 and 4 fluorescent lamps 40 W and 1 and 2 fluorescent lamps 65 W

Vitreous enamelled finish
With closed top reflector TK 14 for 1 and 2 fluorescent lamps 40 W or 65 W.
Additional parts are available in stove enamelled finish.

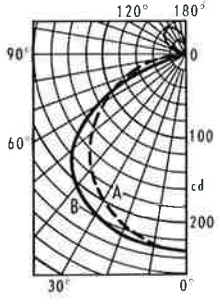
All TK fittings are equipped with suitable Philips canned ballasts and spring loaded rotor lampholders. The reflector can be removed and cleaned quickly, tools not needed for this.

↓ *Light distribution diagrams 1000 lm.*

Stove enamelled

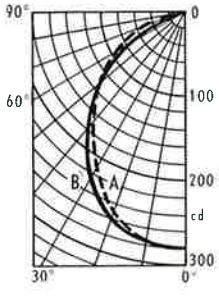


TK12/240
closed top

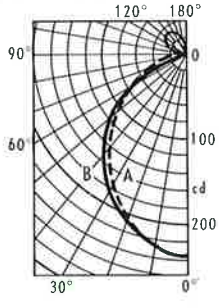


TK13/240
open top

Stove enamelled, with louvre

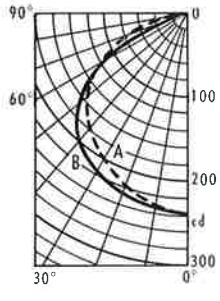


TK12/240
closed top



TK13/240
open top

Vitreous enamelled

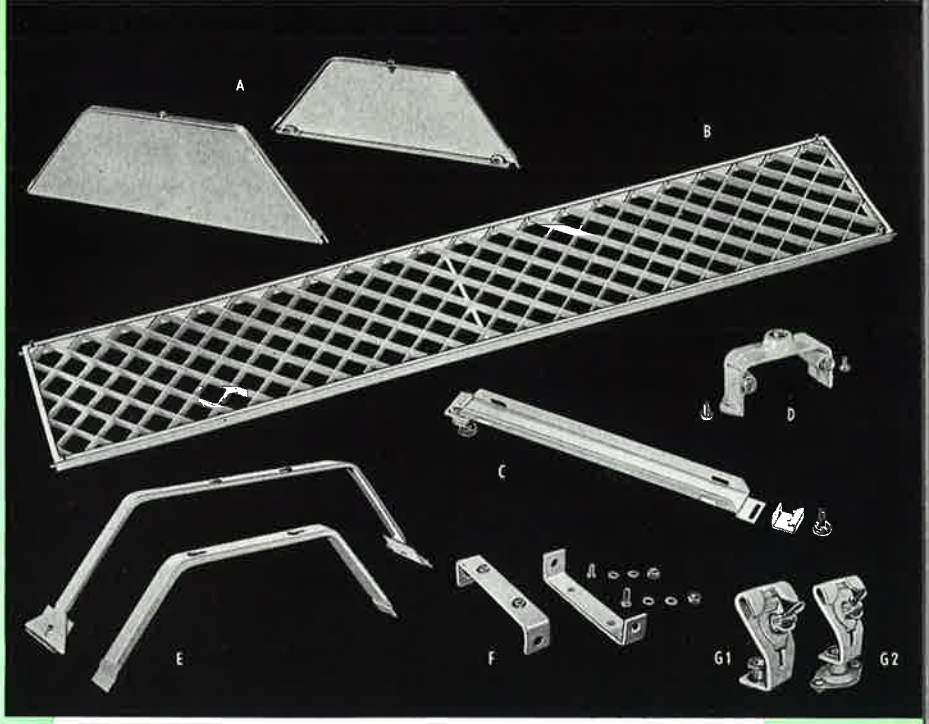


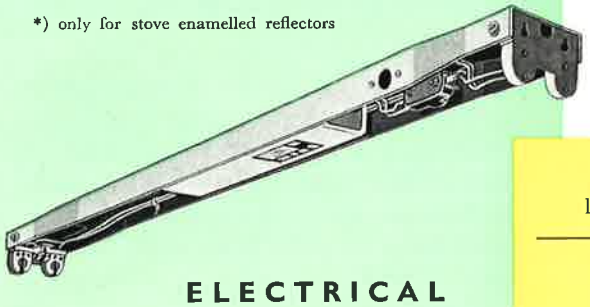
TK14/240
closed top

SPECIAL PURPOSE PARTS

A. Endplates can be easily fixed to the reflector. *)
B. Stove enamelled louvre for one or two 40 W and 65 W fluorescent lamp fitting. *)
C. Louvre couplings are needed when mounting louvres in rows. *)
D. Couplings for electrical units are needed when mounting in rows.
E. Shielding strips are to avoid light spill between two reflectors when they are mounted in a row. *)
F. Suspension brackets are to be used for chain suspension.
G. Suspension hooks are to be used when hanging the fittings from suspending cables.

*) only for stove enamelled reflectors





ELECTRICAL UNITS

The units are equipped with Philips canned ballasts and spring loaded rotor type lampholders (see pages C14-C17). The lampholders are mounted on hinged brackets, which during transport are turned into the unit. For mains connection a terminal block is provided and also an earthing screw. Knock-outs for leading in the wires are provided. Inside the unit are clips for clamping the continuous wiring, if any. The lampholder brackets are supplied with large screws for fixing the reflector. All units are made of sheet steel and finished with two coats of highly durable (260°F) dark grey stove enamel

For lamps	Nominal voltage	Power-factor	Catalogue number unit	Weight kg	Length
1×"TL" 40 W	110–125	0.60	62360 BT/20	4.65	1234
	110–125	0.55	62361 BT/20[2])	4.6	
	220	0.90	62361 AH/20[2])	3.25	
	220	0.95	62360 AH/20	2.9	
	220	0.55	62368 AH/20[1])	3.6	
2×"TL" 40 W	110–125	0.95	62362 BT/20	6.6	1234
	220	0.95	62362 AH/20	4.9	
	220	0.55	62363 AH/20	4.35	
3×"TL" 40 W	220	0.85	62372 AH/20	6.3	1234
		0.85	62377 AH/20[3])	6.9	
		0.55	62370 AH/20	5.7	
4×"TL" 40 W	220	0.95	62382 AH/20	8.7	1234
		0.55	62380 AH/20	7.6	
1×"TL" 65 W	220	0.53	62580 AH/20	4.1	1534
	220	0.51[1])	62588 AH/20[4])	4.4	
2×"TL" 65 W	220	0.95	62582 AH/20	6.3	1534
	220	0.53	62585 AH/20	5.9	

[1]) Capacitive for combination with unit 62360 AH/20 [2]) Low impedance for audio frequencies [3]) For combination with 62472 AH/20 [4]) Capacitive for combination with 62580 AH/20

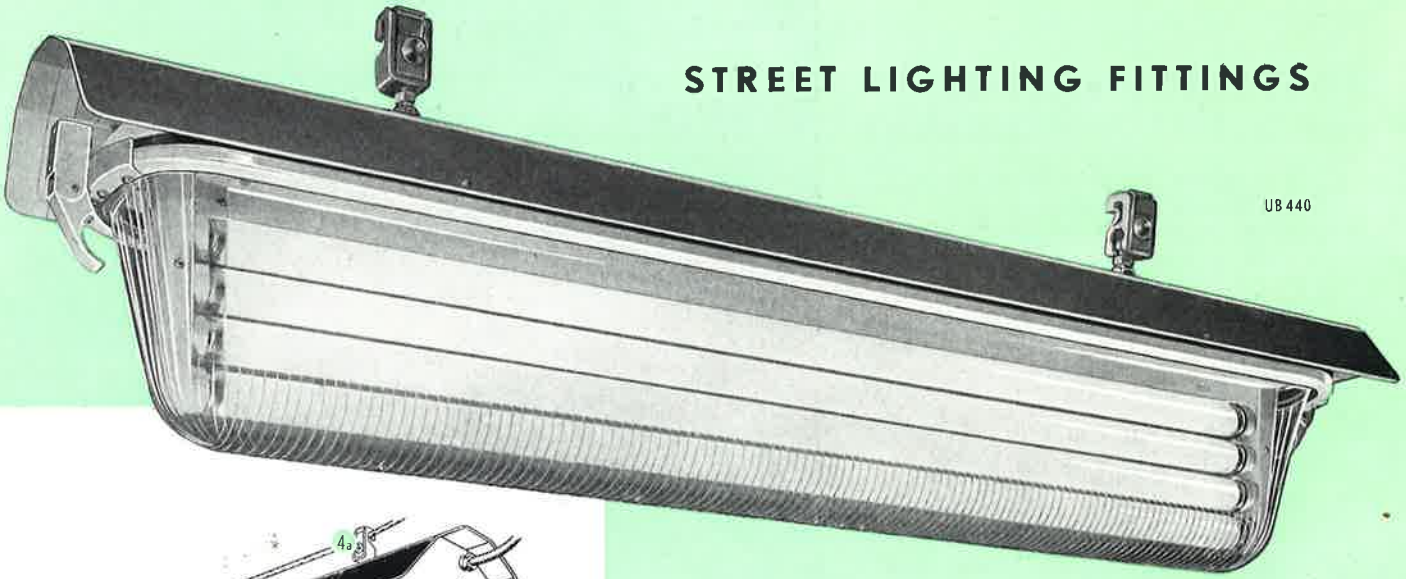
REFLECTORS

Available are a stove enamelled finish, closed top (TK 12) or slotted top (TK 13) and a vitreous enamelled finish closed top (TK 14) reflector. The vitreous enamelled types are recommended for industrial installations where there is an acid atmosphere. All reflectors are made of sheet steel and finished white inside.

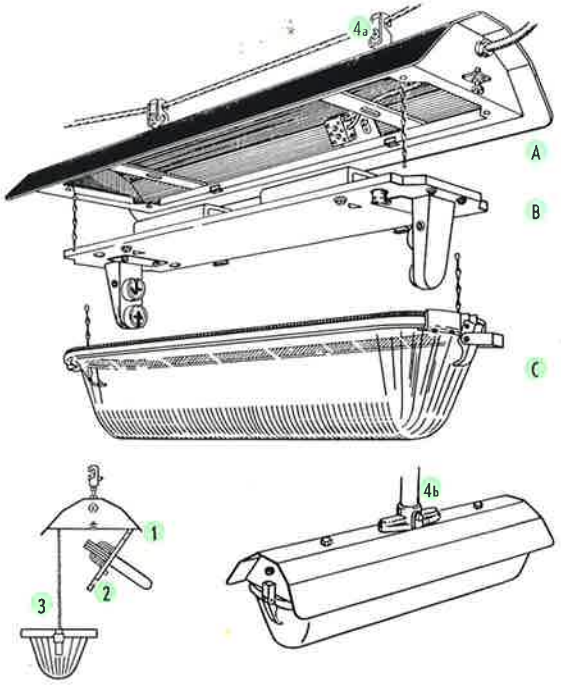
Type	Finish	For lamps	Catalogue number	Weight kg	Dimensions L × W × H
TK 12 (closed top)	Stove enamelled	1–2 × 40 W	76042 ZZ/00	2.7	1262 ×250×124.5
		3–4 × 40 W	76082 ZZ/00[1])	5.6	1262 ×430×160
		1–2 × 65 W	76062 ZZ/00	3.4	1562.5×250×124.5
TK 13 (slotted top)	Stove enamelled	1–2 × 40 W	76042 ZZ/20	2.3	1262 ×250×124.5
		3–4 × 40 W	76082 ZZ/20[1])	5.3	1262 ×430×160
		1–2 × 65 W	76062 ZZ/20	3.0	1562.5×250×124.5
TK 14 (closed top)	Vitreous enamelled	1–2 × 40 W	76042 ZZ/40[1])	3.8	1262 ×250×124.5
		1–2 × 65 W	76062 ZZ/40[1])	4.8	1562,5×250×124,5

[1]) No endplates available

STREET LIGHTING FITTINGS



UB 440



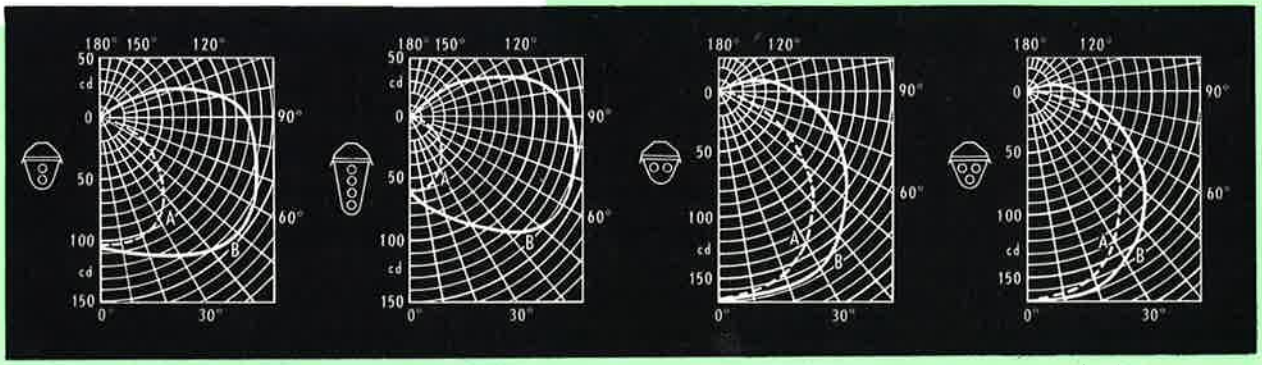
A. The canopy
B. The electrical unit
C. The plastic cover
1. Electrical unit hooked into canopy
2. Pawls with spring to lock electrical unit into position
3. Chain for holding cover when fitting is opened
4a. Suspension hooks to hang fixtures from a suspending cable
4b. Suspension flange for the 20 W fittings

All fittings in this series follow the highest photometric, electrical and mechanical requirements which have to be met in public lighting. They have been specially designed for street lighting applications and as such have greatly contributed to the spreading of fluorescent lamps in this particular field. The Philips range consists of two series.

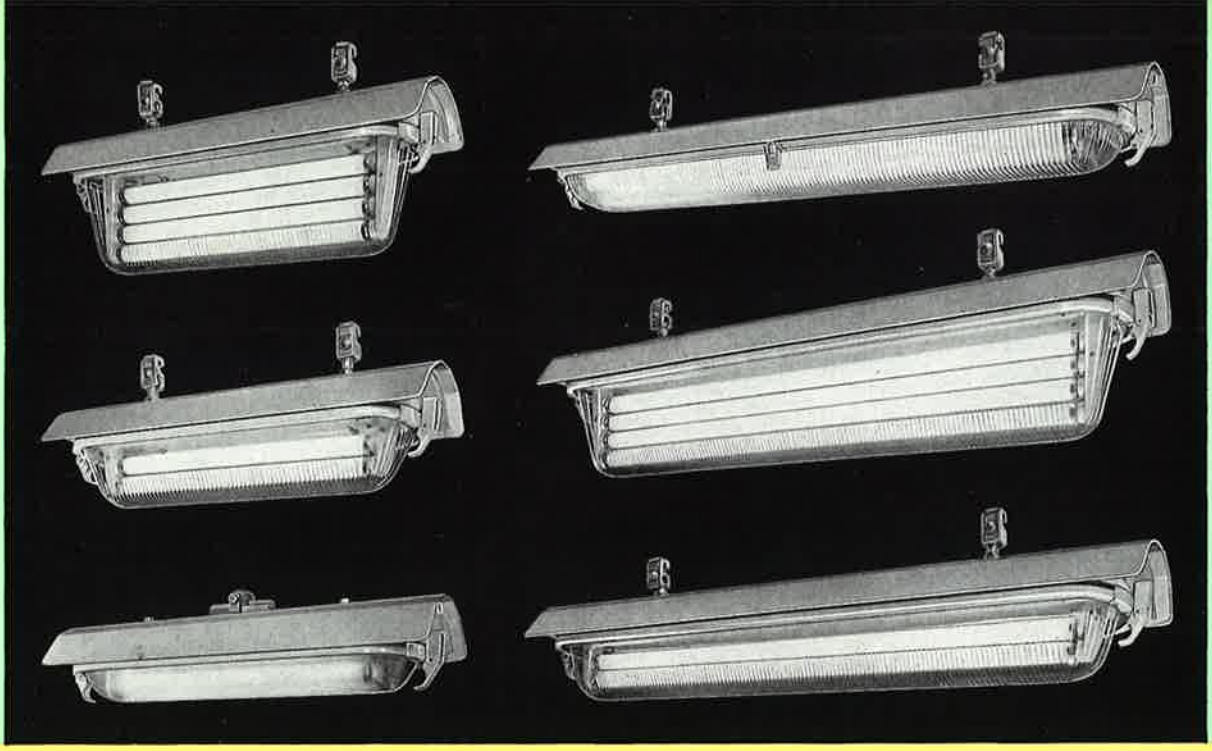
The UB series with the lamps placed one above the other (wide beam spread system) and the TR series with the lamps placed side by side (medium beam spread system).

These fittings consist of a sheet steel canopy, an electrical unit, a plastic cover of high transparency and a suspension system. Lampholders, starter holders, ballasts and wiring are mounted on the electrical unit which is easily hooked to the canopy. Canopy and cover offer complete protection against rain, dust and insects. All metal parts are made fully rustproof by hot galvanizing and are enamelled by Philips' special process.

Light distribution diagrams



UB 220 UB 440 TR 11/220 TR 11/340



UB 420

UB 220

TR 11/220

TR 11/240
TR 11/340

UB 440

UB 240

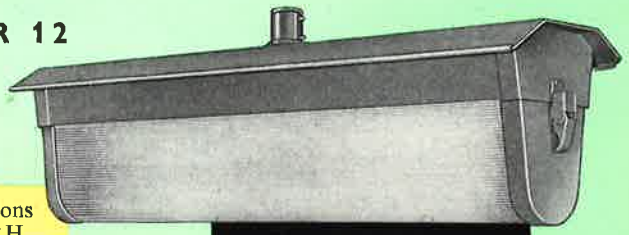
For lamps	Type	Nom. voltage V	Losses W	Power factor	Catalogue number (complete) [1] With 2 suspension clamps	Catalogue number (complete) [1] With 1-point suspension flange	Weight kg	Dimensions (without suspension) mm. L×W×H
2 × "TL"/20W	UB 220	220	18	0.35	77822 AH/00	77822 AH/01	14.5	915 × 248 × 200
		220	17	0.95	77822 AH/10	77822 AH/11	14,5	
		125/110	11	0.60	77822 BT/00	77822 BT/01	14.5	
		125/110	12	0.95	77822 BT/10	77822 BT/11	14.0	
	TR 11/220	220	18	0.35	77922 AH/00	77922 AH/01	14.0	915 × 248 × 183
		220	17	0.95	77922 AH/10	77922 AH/11		
		125/110	11	0.60	77922 BT/00	77922 BT/01		
		125/110	12	0.95	77922 BT/10	77922 BT/11		
4 × "TL"/20W	UB 420	220	18	0.55	77824 AH/00 *)	77824 AH/01 *)	15.0	915 × 248 × 325
		220	18	0.95	77824 AH/10 *)	77824 AH/11 *)	15.5	
		125/110	22	0.60	77824 BT/20 *)	77824 BT/21 *)	15.5	
2 × "TL"/40W	UB 240	220	18	0.55	77842 AH/00 *)	—	20.5	1525 × 248 × 200
		220	19	0.95	77842 AH/10 *)	—	21.5	
		125/110	36	0.60	77842 BT/00 *)	—	24.0	
		125/110	29	0.90	77842 BT/20 *)	—	24.0	
	TR 11/240	220	18	0.55	77942 AH/00 *)	—	20.0	1525 × 248 × 183
		220	19	0.95	77942 AH/10 *)	—	20.0	
		125/110	36	0.60	77942 BT/00 *)	—	23.5	
		125/110	29	0.90	77942 BT/20 *)	—	23.0	
3 × "TL"/40W	TR 11/340	220	27	0.55	77943 AH/00 *)	—	21.0	1525 × 248 × 183
		220	28	0.95	77943 AH/10 *)	—	22.5	
		125/110	45	0.80	77943 BT/20 *)	—	25.0	
		125/110	41	0.95	77943 BT/30 *)	—	25.0	
4 × "TL"/40W	UB 440	220	36	0.55	77844 AH/00 *)	—	23.5	1525 × 248 × 325
		220	36	0.95	77844 AH/10 *)	—	25.0	
		125/110	54	0.95	77844 BT/10 *)	—	28.0	

[1]) Catalogue number is including suspension, excluding lamps and starters.

*) Suitable for nocturnal operation.

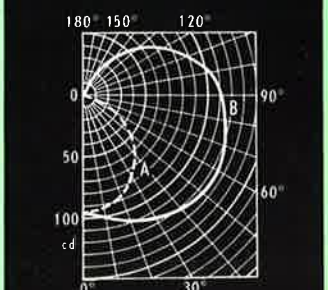
TR 12

A lightweight and inexpensive street lighting fitting for two 20 W fluorescent lamps. The aluminium canopy is fitted with barrel socket for single point suspension. The electrical unit contains a control gear. The plastic cover has two aluminium end plates. All metal parts are stove enamelled; silver grey outside and white inside.



Type	Nominal Voltage	Power factor	Total power	Catalogue number	Weight kg	Dimensions L×W×H
TR12/220	220	0.55	49	77722 AH/20	4.40	710×168×182
	220	0.55*	51	77722 AH/30	5.00	
	110	0.60	50	77722 BT/00	4.70	
	125	0.55	52			
	110	0.95	52	77722 BT/10	5.25	
	125	0.95	52			

*) Capacitive for combination with 77722 AH/20



Light distribution diagram →

SUSPENSION SYSTEM TZ 17

This suspension system has been developed to match all Philips fluorescent lamp fittings for indoor lighting. It is available in three different versions

a. for twin-stem suspension of 25 W, 40 W and 65 W fittings

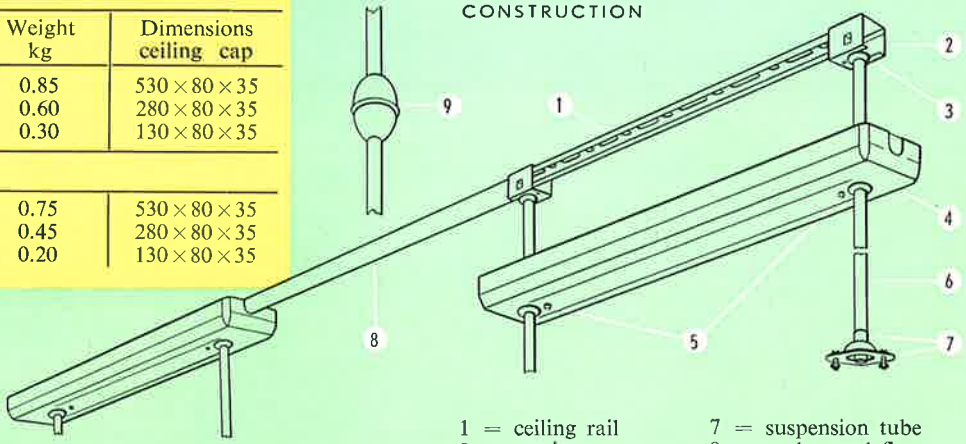
b. for twin-stem suspension of 20 W fittings

c. for single-stem suspension to suit row-mounting fittings and TK trough fittings

Type	Catalogue [1]) number	Weight kg	Dimensions ceiling cap
With rods 53 cm			
TZ 17/45	66046 ZZ/01	0.85	530 × 80 × 35
TZ 17/20	66045 ZZ/01	0.60	280 × 80 × 35
TZ 17/00	66044 ZZ/01	0.30	130 × 80 × 35
Without rods.			
TZ 17/45	66046 ZB/01	0.75	530 × 80 × 35
TZ 17/20	66045 ZB/01	0.45	280 × 80 × 35
TZ 17/00	66044 ZB/01	0.20	130 × 80 × 35

[1]) Also available in finish: light grey stove enamel Cat. Nr. 66044../09

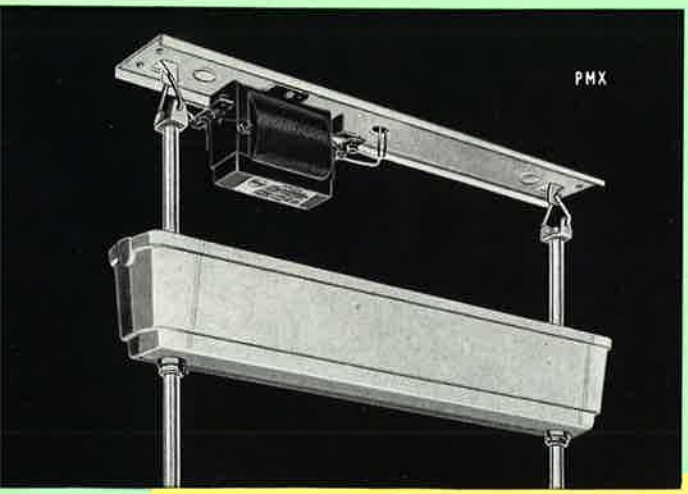
CONSTRUCTION



1 = ceiling rail
2 = carrier
3 = supporting ring
4 = stop-cam
5 = ceiling cap
6 = 2 screws
7 = suspension tube
8 = socket and flange
9 = connection rail
10 = connection cover
11 = connection socket

ROW-MOUNTING

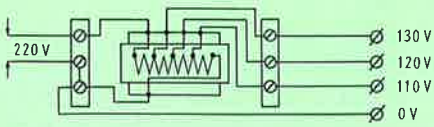
The TZ 17 suspension systems are constructed in such a way that they can be easily row-mounted. For this purpose special connection covers (8) are available. To lengthen the suspension rods special connection sockets (9) are manufactured.



SUSPENSION SYSTEM PMXA WITH STEP-UP TRANSFORMER

In some cases — when fluorescent lamps are to be installed on 110–130 V 50–60 c/ mains — a step-up transformer is needed. For such cases the PMXA suspension system has been designed. It incorporates a 110 V–130 V step-up transformer mounted against a ceiling rail to suit, 2 "TL" S 40-W fluorescent lamps stabilized by 2 × 68 W STA or STB lamps or 1 resp. 2 "TL" 65 W lamps fluorescent lamps. Rail and transformer are protected by a white "Philite" cover.

CONNECTION DIAGRAM



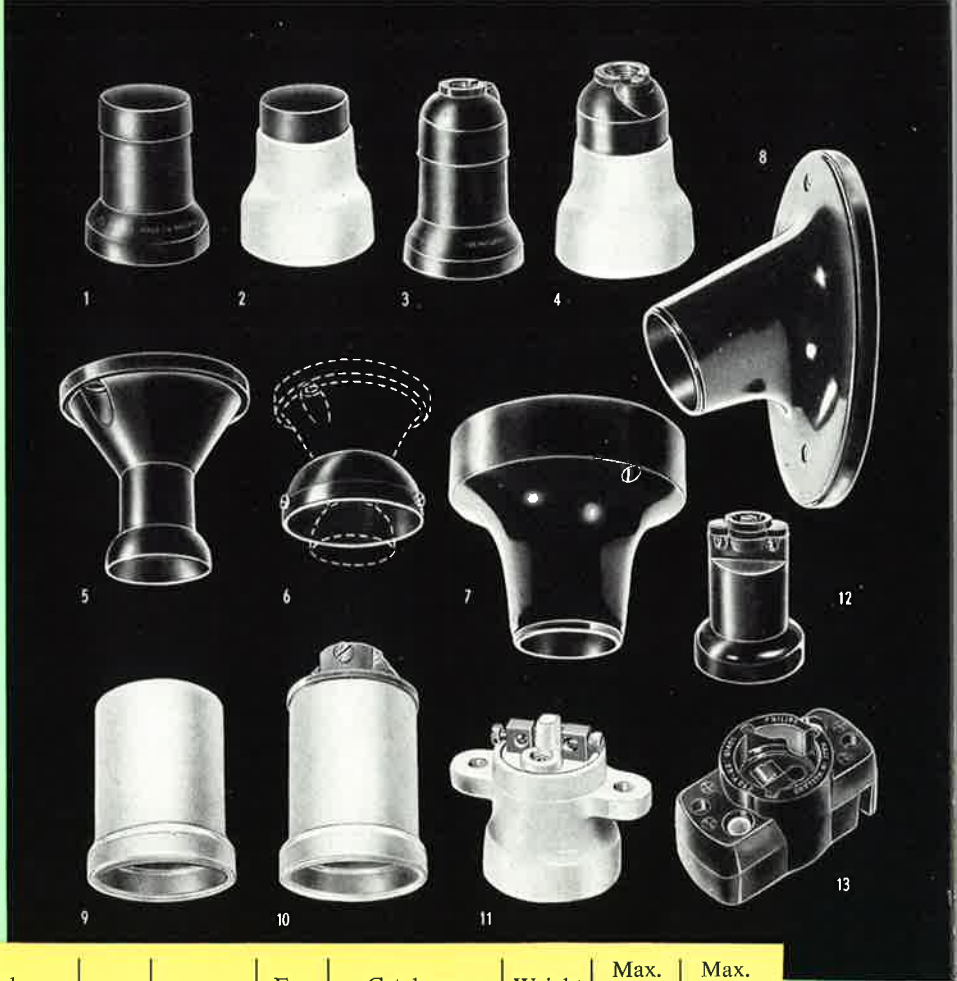
PMXA (with transformer Cat. Nr. 59490 AA/00)

For lamps	Nom. voltage V	Mains current A	Power factor	Tube length	Catalogue number	Weight kg	Dimensions ceiling cap
4× "TL" 65W [1])	110 120 130	1.60 1.45 1.35	0.95	530 mm 290 mm without tubes	66042 ZZ/01 66042 ZZ/02 66042 ZB/01	3.50 3.45 3.40	545 × 95 × 55
				PMXS (without transformer Cat. Nr. 59490 AA/00)			
2× "TL" S 40W and 2 ST. lamps	110 120 130	2.1 1.9 1.8	0.95	530 mm 290 mm without tubes	66043 ZZ/01 66043 ZZ/02 66043 ZB/01	1.40 1.35 1.30	545 × 95 × 95

[1]) Mounting channel TM 10/265 Cat. Nr. 62462 AH/00 or 2 × TM 10/165 Cat. Nr. 62450 AH/00 + 62458 AH/00

LAMPHOLDERS

A great variety of lampholders is manufactured to meet the requirements which are regularly made. The range comprises "Philite" and porcelain holders for domestic and industrial purposes, and great care has been bestowed on the quality of these lampholders. The picture shows a number of the foremost types and, via the numbers indicated with the holder, from the table giving technical details can be seen which is which.



Description	Material and finish	Fig.	Type	For cap	Catalogue number	Weight g	Max. length mm	Max. diam. mm
With flat cap and entrance for mounting on a plate	Black "Philite"	1	E 27/00 B 22/00	E 27 B 22	65908 AE/00 65908 AB/00	40	58	43.5
	Porcelain	3	E 27/00P	E 27	65909 AE/00	86	58	50
With cap threaded 3/8″×26 T.P.I. Whit. (A 10)	Black "Philite"	2	E 27/10 B 22/10	E 27 B 22	65908 AE/10 65908 AB/10	40	70	43.5
	Porcelain	4	E 27/10P	E 27	65909 AE/10	86	70	50
With cap threaded 1/2″×26 T.P.I. Whit. (A 13)	Black "Philite"	2	E 27/13 B 22/13	E 27 B 22	65908 AE/13 65908 AB/13	40	70	43.5
	Porcelain	4	E 27/13P	E 27	65909 AE/13	86	70	50
With cap threaded 5/8″×26 T.P.I. Whit. (A 16)	Black "Philite"	2	E 27/16 B 22/16	E 27 B 22	65908 AE/16 65908 AB/16	40	70	43.5
	Porcelain	4	E 27/16P	E 27	65909 AE/16	86	70	50
Ceiling lampholder	Black "Philite"	5	—	E 27 B 22	65908 AE/20 65908 AB/20	29	81	82
	White stove enamelled		—	E 27 B 22	65908 AE/30 65908 AB/30			
Shade carrier	Black "Philite" White stove enamelled	6	— —	— —	65908 ZZ/01 65908 ZZ/11	25	30	83
Ceiling rosette	Black "Philite"	7	PB 12	E 27 B 22	65612 AE/00 65612 AB/00	140	95	110
	White stove enamelled			E 27 B 22	65612 AE/01 65612 AB/01			
Wall bracket	Black "Philite"	8	PS 11	E 27 B 22	65613 AE/00 65613 AB/00	180	77	144
	White stove enamelled			E 27 B 22	65613 AE/01 65613 AB/01			
For surface mounting	Porcelain	9	E 40/01	E 40	65909 BG/01		80	65
With cap threaded T.P.I. Whit. { 1/2″×26(A13) / 5/8″×26(A16)	Porcelain with cast iron cap	10	E 40/13 E 40/16	E 40	65909 BG/13 65909 BG/16	340	96	65
For recessed mounting	Porcelain	11	— —	E 27 E 40	65909 CE/01 65909 CG/01	130 260	60 82	55 67
Striplight lampholder	Black "Philite"	12	—	E 27	65908 ZE/99	25	57	44
For surface mounting	Black "Philite"	13	—	B 22	103528	35	60×32×30 [1]	

[1]) Length × width × height

MISCELLANEOUS PRODUCTS

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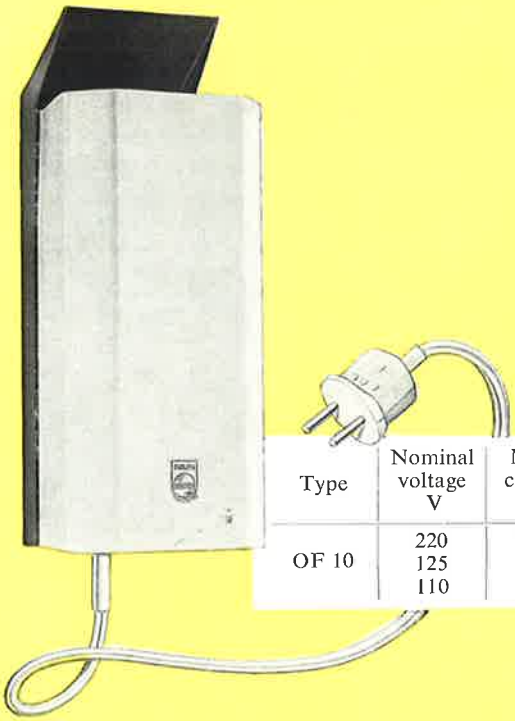


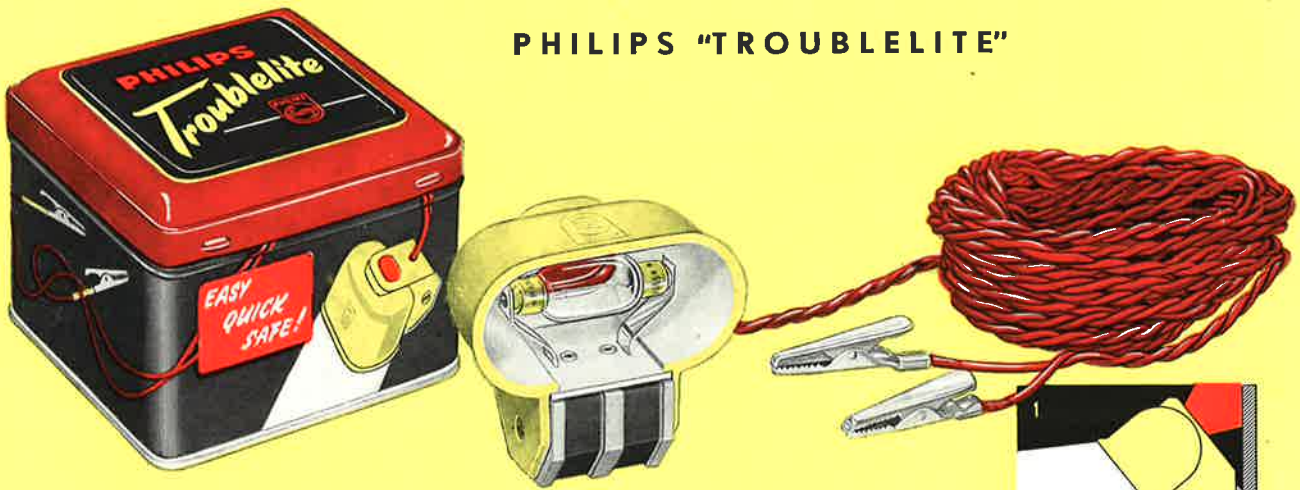
PHILIPS OZONIZER

This instrument is an electrical deodorizer, providing a highly effective, truly destructive and successful method of eliminating or considerably minimizing undesirable odours. The instrument consists of one ozone lamp OZ 4 W and its associated ballast and a fitting supplied completely wired with external flex and plug. The ozonizer is ideal for use in hotels, restaurants, bars, shops etc. or for homes and offices. It should always be hung above eye level but in such a position as to permit an ample irradiation of circulating air.

Type	Nominal voltage V	Mains current A	Power factor	Total W	Catalogue 1) number	Weight kg	Dimensions
OF 10	220 125 110	0.05 0.08 0.09	0.95	11	65627 AH/00 65627 BG/00 65627 BF/00	0.810 0.825 0.825	217 × 90 × 76 mm

[1]) Complete with lamp, Cat. Nr. of lamp only 57901M/30

PHILIPS "TROUBLELITE"

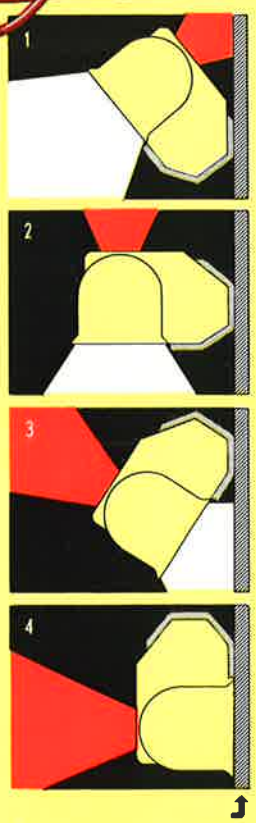


A handy gadget that will assist every car driver in the dark of the night. This lighting instrument has a connection wire of 5 meters length and is equipped with a strong permanent magnet made of Philips' Ferroxdure, which retains its extraordinary gripping power over a lengthy period so that even after years of use it sticks as firm as a limpet to any steel section of the car. The flex is provided with two strong crocodile clips for connection to the current source. The front of the "Troublelite" casts a strong beam of white light whilst from the rear a red beam shows. When not in use the "Troublelite" is fully protected in a metal box.

Voltage	Catalogue number	Type of lamp	Weight kg
6 12 24	7912/06 7912/12 7912/24	6866 12866 13866	0.33
Without lamp Cat. Nr. 7912/00			

The "Troublelite" can be fixed in 4 positions thanks to the shape of the magnet:

1. *Downward beam — under the bonnet. In this position the light can be easily directed to where it is needed.*
2. *Placed horizontally the "Troublelite" gives a direct vertical beam. Extremely handy for map reading in the car.*
3. *In this position the lamp will assist for tyre troubles but also as a rear light whilst in that case the white beam will illuminate the number plate.*
4. *When only a red beam rear light is needed, place the "Troublelite" in this position.*



NEON VOLTAGE AND POLARITY INDICATOR

This instrument is a most useful addition to the tool kit of anyone who may have to make sure whether the mains or circuits are live or not. Apart from testing for potential, the indicator can be used for indicating polarity on DC mains. It is suitable for AC mains 80 V to 750 V and DC mains 100 V to 750 V. It has two moulded "Philite" casings which are connected by a 39″ length of tough rubber cable. Insulated collars prevent accidental hand contact with the probes. Cat. Nr. 7829. Max. length incl. cable 1271 mm.

PENCIL TYPE VOLTAGE INDICATOR

This indicator is suitable for use on AC or DC mains for voltages between 110 V and 500 V. It consists of a black "Philite" holder into one end of which a metal probe has been fitted. The probe is connected, via a resistor, to one electrode of a small neon lamp, the other electrode of which is connected to the metal cap and clip with which the indicator is provided. Cat. Nr. 7830/15. Length 115 mm.

HIGH-TENSION INDICATOR

By emitting a reddish neon light these indicators clearly show that a high-tension wire is "live". So risks in electric power stations, switch rooms, transformer houses, laboratories etc. will be considerably reduced. They are also a welcome asset in high frequency technique e.g. in radio broadcasting stations. In such applications only one electrode of the indicator need make contact with the high frequency cable. If there is no risk of the indicator being damaged, it can be attached to the cable by means of two metal clamps.

Catalogue number	Min. ign. voltage	Voltage				Dimensions	
		on 2 electrodes		on 1 electrode		Length	Diam.
		Min.	Max.	Min.	Max		
4049	1500	2000	20.000	15.000	50.000	265	18
9503	1500	2000	20.000	15.000	50.000	310	24

HOLDER FOR HIGH-TENSION INDICATOR

This holder is made of "Pertinax" and constitutes a cylinder with some longitudinal slots through which the neon tube can be seen. The two ends of the cylinder are each fitted with a metal cap with a hook. The hooks form the external contact of the holder. It is for permanent use between two phases, between one phase and earth or with only one phase. Cat. Nr. 17105. Length between hooks 380 mm. Diam. 35 mm.

AIRPORT LIGHTING

Philips with their vast experience in the manufacture of all kind of light sources, have thoroughly investigated the problems connected with airport lighting. Resulting from this research a full range of Airport lighting equipment has been developed. This range has been approved by several international institutions in this particular field.
The range of airport lighting equipment includes:

- approach lights
- lead-in lights
- threshold lights
- runway lights
- taxiway lights
- obstruction lights
- apron floodlights
- lamp transformers
- constant current regulators
- control panels
- cables
- diesel generator sets etc.

With a view to the complex of special demands which are involved with any airport lighting installation it is advisable to apply for details to your nearest Philips office, which will gladly supply the information required.

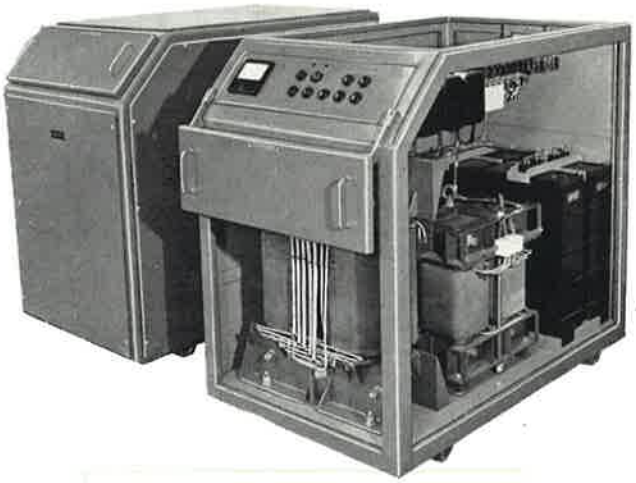
High intensity flush type Runway light PS 10

Rubbercovered series isolating transformer.

High Intensity Approachlight PS 12.

High Intensity elevated Runway light PS 16.

Constant Current Regulators with brightness and circuit selectors.



Elevated Taxiway light and low intensity Runway light PS 22.

High intensity elevated Runway light PS 21.

Flush type Taxiwaylight and low intensity Runway light PS 11.

Lead-in light PS 14.

Airport lighting Control desk.

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MISCELLANEOUS PRODUCTS

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Philips "Troublelite" E 2
Neon tension indicator E 3
Pencil tension indicator E 3
High tension indicator E 3

AIRPORT LIGHTING F 1

CONVERSION TABLES OF DIMENSIONS AND WEIGHTS INTO BRITISH UNITS

Conversion of mm into inches
1–99 mm (0.5 mm = ± 1/64")

Examples: 23 mm = 29/32"
87 mm = 3 27/64"

mm	0	1	2	3	4	5	6	7	8	9
0	0	3/64	5/64	1/8	5/32	13/64	15/64	9/32	5/16	23/64
10	25/64	7/16	15/32	33/64	35/64	19/32	5/8	43/64	45/64	3/4
20	25/32	53/64	55/64	29/32	15/16	63/64	1 1/32	1 1/16	1 7/64	1 9/64
30	1 3/16	1 7/32	1 17/64	1 19/64	1 11/32	1 3/8	1 27/64	1 29/64	1 1/2	1 17/32
40	1 37/64	1 39/64	1 21/32	1 11/16	1 47/64	1 49/64	1 13/16	1 27/32	1 57/64	1 59/64
50	1 31/32	2 1/64	2 3/64	2 3/32	2 1/8	2 11/64	2 13/64	2 1/4	2 9/32	2 21/64
60	2 23/64	2 13/32	2 7/16	2 31/64	2 33/64	2 9/16	2 19/32	2 41/64	2 43/64	2 23/32
70	2 3/4	2 51/64	2 53/64	2 7/8	2 29/32	2 61/64	3	3 1/32	3 5/64	3 7/64
80	3 5/32	3 3/16	3 15/64	3 17/64	3 5/16	3 11/32	3 25/64	3 27/64	3 15/32	3 1/2
90	3 35/64	3 37/64	3 5/8	3 21/32	3 45/64	3 47/64	3 25/32	3 13/16	3 55/64	3 57/64

Conversion of mm into inches
10–1500 mm

Examples: 330 mm = 13"
437 mm = 430 mm + 7 mm =
16 59/64" + 18/64" = 17 13/64"

mm	0	10	20	30	40	50	60	70	80	90
100	3 15/16	4 21/64	4 23/32	5 1/8	5 33/64	5 29/32	6 19/64	6 11/16	7 3/32	7 31/64
200	7 7/8	8 17/64	8 21/32	9 1/16	9 29/64	9 27/32	10 15/64	10 5/8	11 1/32	11 27/64
300	11 13/16	12 13/64	12 19/32	13	13 25/64	13 25/32	14 11/64	14 9/16	14 61/64	15 23/64
400	15 3/4	16 9/64	16 17/32	16 59/64	17 21/64	17 23/32	18 7/64	18 1/2	18 57/64	19 19/64
500	19 11/16	20 5/64	20 15/32	20 55/64	21 17/64	21 21/32	22 3/64	22 7/16	22 53/64	23 15/64
600	23 5/8	24 1/64	24 13/32	24 51/64	25 13/64	25 19/32	25 63/64	26 3/8	26 49/64	27 11/64
700	27 9/16	27 61/64	28 11/32	28 47/64	29 9/64	29 17/32	29 59/64	30 5/16	30 45/64	31 7/64
800	31 1/2	31 57/64	32 9/32	32 43/64	33 5/64	33 15/32	33 55/64	34 1/4	34 41/64	35 3/64
900	35 7/16	35 53/64	36 7/32	36 39/64	37	37 13/32	37 51/64	38 3/16	38 37/64	38 31/32
1000	39 3/8	39 49/64	40 5/32	40 35/64	40 15/16	41 11/32	41 47/64	42 1/8	42 33/64	42 29/32
1100	43 5/16	43 45/64	44 3/32	44 31/64	44 7/8	45 9/32	45 43/64	46 1/16	46 29/64	46 27/32
1200	47 1/4	47 41/64	48 1/32	48 27/64	48 13/16	49 7/32	49 39/64	50	50 25/64	50 25/32
1300	51 3/16	51 37/64	51 31/32	52 23/64	52 3/4	53 5/32	53 35/64	53 15/16	54 21/64	54 23/32
1400	55 1/8	55 33/64	55 29/32	56 19/64	56 11/16	57 3/32	57 31/64	57 7/8	58 17/64	58 21/32
1500	59 1/16	59 29/64	59 27/32	60 15/64	60 5/8	61 1/64	61 27/64	61 13/16	62 13/64	62 19/32

Conversion of grams into drams
1–99 g

Examples: 41 g = 23 1/4 dr
86 g = 48 1/2 dr

g	0	1	2	3	4	5	6	7	8	9
0	0	1/2	1	1 3/4	2 1/4	2 3/4	3 1/4	4	4 1/2	5
10	5 3/4	6 1/4	6 3/4	7 1/4	8	8 1/2	9	9 1/2	10 1/4	10 3/4
20	11 1/4	11 3/4	12 1/2	13	13 1/2	14	14 3/4	15 1/4	15 3/4	16 1/4
30	17	17 1/2	18	18 1/2	19 1/4	19 3/4	20 1/4	21	21 1/2	22
40	22 1/2	23 1/4	23 3/4	24 1/4	24 3/4	25 1/2	26	26 1/2	27	27 1/2
50	28 1/4	28 3/4	29 1/4	30	30 1/2	31	31 1/2	32 1/4	32 3/4	33 1/4
60	33 3/4	34 1/2	35	35 1/2	36	36 3/4	37 1/4	37 3/4	38 1/4	39
70	39 1/2	40	40 3/4	41 1/4	41 3/4	42 1/4	43	43 1/2	44	44 1/2
80	45 1/4	45 3/4	46 1/4	46 3/4	47 1/2	48	48 1/2	49	49 3/4	50 1/4
90	50 3/4	51 1/4	52	52 1/2	53	53 1/2	54 1/4	54 3/4	55 1/4	55 3/4

Conversion of grams into ounces
10–1000 g

Examples: 120 g = 4 1/4 ozs
233 gr = 230 g + 3 g =
8 ozs + 1/8 ozs = 8 1/8 ozs

g	0	10	20	30	40	50	60	70	80	90
0	0	1/4	3/4	1	1 1/2	1 3/4	2	2 1/2	2 3/4	3 1/4
100	3 1/2	4	4 1/4	4 1/2	5	5 1/4	5 3/4	6	6 1/4	6 3/4
200	7	7 1/2	7 3/4	8	8 1/2	8 3/4	9 1/4	9 1/2	10	10 1/4
300	10 1/2	11	11 1/4	11 3/4	12	12 1/4	12 3/4	13	13 1/2	13 3/4
400	14	14 1/2	14 3/4	15 1/4	15 1/2	16	16 1/4	16 1/2	17	17 1/4
500	17 3/4	18	18 1/4	18 3/4	19	19 1/2	19 3/4	20	20 1/2	20 3/4
600	21 1/4	21 1/2	22	22 1/4	22 1/2	23	23 1/4	23 3/4	24	24 1/4
700	24 3/4	25	25 1/2	25 3/4	26	26 1/2	26 3/4	27 1/4	27 1/2	28
800	28 1/4	28 1/2	29	29 1/4	29 3/4	30	30 1/4	30 3/4	31	31 1/2
900	31 3/4	32	32 1/2	32 3/4	33 1/4	33 1/2	34	34 1/4	34 1/2	35

Conversion of kg into pounds
0.1–9.9 kg

Examples: 4.3 kg = 9 1/2 lbs
7.75 kg = 7.7 kg + 0.05 kg =
17 lbs + 1/8 lbs = 17 1/8 lbs

kg	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0	0	1/4	7/16	11/16	7/8	1 1/8	1 5/16	1 1/2	1 3/4	2
1	2 3/16	2 7/16	2 5/8	2 7/8	3 1/16	3 5/16	3 1/2	3 3/4	4	4 3/16
2	4 7/16	4 5/8	4 7/8	5 1/16	5 5/16	5 1/2	5 3/4	5 15/16	6 3/16	6 3/8
3	6 5/8	6 13/16	7 1/16	7 1/4	7 1/2	7 11/16	7 15/16	8 3/16	8 3/8	8 5/8
4	8 13/16	9 1/16	9 1/4	9 1/2	9 11/16	9 15/16	10 1/8	10 3/8	10 9/16	10 13/16
5	11	11 1/4	11 7/16	11 11/16	11 7/8	12 1/8	12 3/8	12 9/16	12 13/16	13
6	13 1/4	13 7/16	13 11/16	13 7/8	14 1/8	14 5/16	14 1/2	14 3/4	15	15 5/16
7	15 7/16	15 5/8	15 7/8	16 1/16	16 5/16	16 9/16	16 3/4	17	17 3/16	17 7/16
8	17 5/8	17 7/8	18 1/16	18 5/16	18 1/2	18 3/4	18 15/16	19 3/16	19 3/8	19 5/8
9	19 13/16	20 1/16	20 1/4	20 1/2	20 3/4	20 15/16	21 3/16	21 3/8	21 5/8	21 13/16

Conversion of kg into pounds
1–99 kg

Examples: 35 kg = 77 1/4 lbs
47.5 kg = 47 kg + 0.5 kg =
103 1/2 lbs + 1 1/8 lbs =
104 5/8 lbs

kg	0	1	2	3	4	5	6	7	8	9
0	0	2 1/4	4 1/2	6 1/2	8 3/4	11	13 1/4	15 1/2	17 3/4	19 3/4
10	22	24 1/4	26 1/2	28 3/4	30 3/4	33	35 1/4	37 1/2	39 3/4	42
20	44 1/4	46 1/4	48 1/2	50 3/4	53	55 1/4	57 1/2	59 1/2	61 3/4	64
30	66 1/4	68 1/2	70 3/4	72 3/4	75	77 1/4	79 1/2	81 1/2	83 3/4	86
40	88 1/4	90 1/2	92 1/2	94 3/4	97	99 1/4	101 1/2	103 1/2	105 3/4	108
50	110 1/4	112 1/2	114 3/4	116 3/4	119	121 1/4	123 1/2	125 3/4	127 3/4	130
60	132 1/4	134 1/2	136 3/4	139	141	143 1/4	145 1/2	147 3/4	150	152
70	154 1/4	156 1/2	158 3/4	161	163 1/4	165 1/4	167 1/2	169 3/4	172	174 1/4
80	176 1/4	178 1/2	180 3/4	183	185 1/4	187 1/2	189 1/2	191 3/4	194	196 1/4
90	198 1/2	200 1/2	202 3/4	205	207 1/4	209 1/2	211 3/4	213 3/4	216	218 1/4