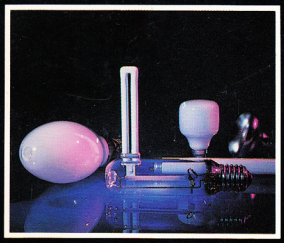
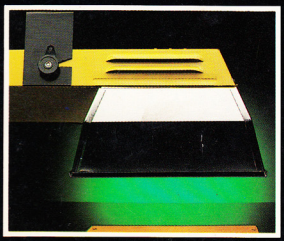
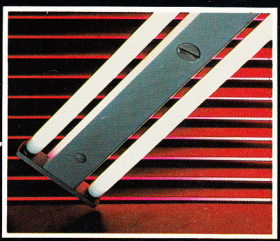
Osram-GEC
LIGHTING CATALOGUE







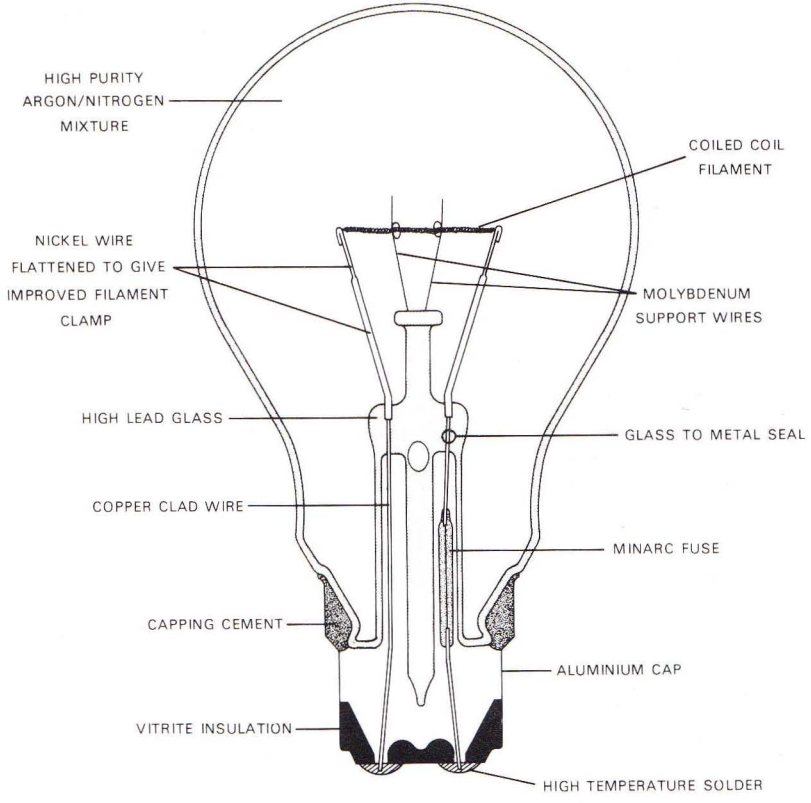
LOOKING AT ENERGY SAVING IN A DIFFERENT LIGHT.

GENERAL LIGHTING SERVICE

GEC manufactures many millions of General Lighting Service lamps a year for commercial and domestic use. All are inspected prior to despatch and process checks are made throughout the many stages of manufacture, from raw materials to finished lamps, to ensure a flow of consistent, high quality products. Samples are taken for extensive evaluation of quality and life.

Within the classification of GLS lamps are sealed beam and standard reflector lamps, decorative round bulb and candle lamps, and special purpose lamps such as pygmy, traffic signal and carbon heater lamps, as well as the more traditional range of lamps.

EXTRALITE (COILED COIL) LAMP



Standards

Most lamps in this section fall within the scope of BS5971 – 'Safety and interchangeability of tungsten filament lamps for domestic and similar general lighting purposes' and IEC Publication 432 2nd edition. Design, manufacturing techniques and quality control procedures are geared to the requirements of these specifications. Extralite, Coiled Coil (GEC) and Single Coil lamps are made to BS161 and IEC Publication 64 where appropriate.

Fusing

The vast majority of lamp types incorporate a unique GEC safety device – the Minarc fuse. At the end of lamp life normal filament failure can result in a short circuit within the lamp which, if inadequately protected, can cause the lamp to explode or break away from the cap. The Minarc fuse, a GEC invention (UK Patent 814314) helps to prevent this. All other lamps are fitted with internal fuses where necessary.

Life, filament temperature and efficacy

Incandescence is the visible radiation obtained by heating a material, which in most lamps is a tungsten filament. The power consumed is measured in watts, and the total light output in lumens. The ratio lumens per watt is known as the efficacy. As the temperature of the filament is increased so the conversion of electrical energy into light (viz the efficacy) improves. See figs. 1 and 2.

Fig. 1. Spectral energy of equal wattage lamps.

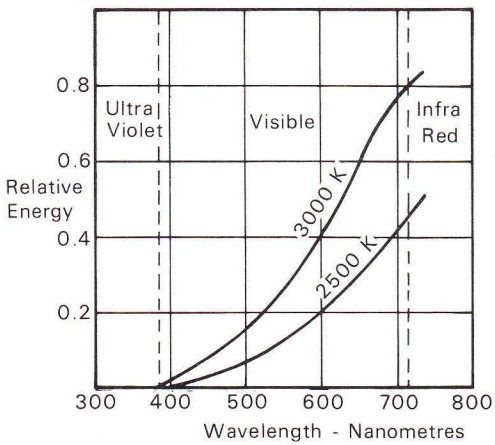
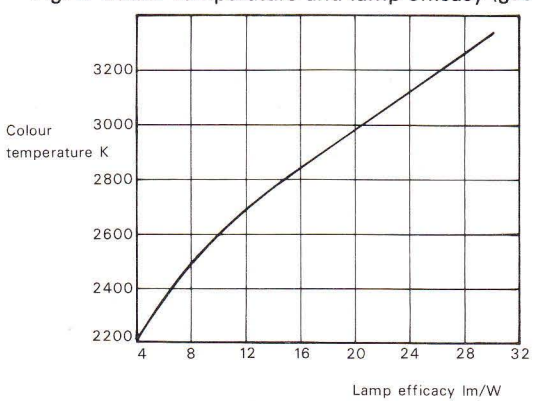
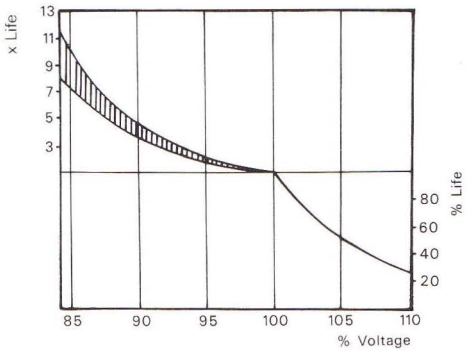


Fig. 2. Colour temperature and lamp efficacy (gas filled).



The life of an incandescent lamp is dependent upon the rate of evaporation of the filament material. With most lamps the efficacy is set as high as possible consistent with the required life. Raising the voltage applied to the lamp also raises light output but this in turn, increases the filament temperature and its rate of evaporation thus reducing life. Likewise, to decrease the voltage has the opposite effect. The effect of voltage variation on various characteristics are given in figs. 3 and 4.

Fig. 3. Effect of voltage variation on life of incandescent lamps.



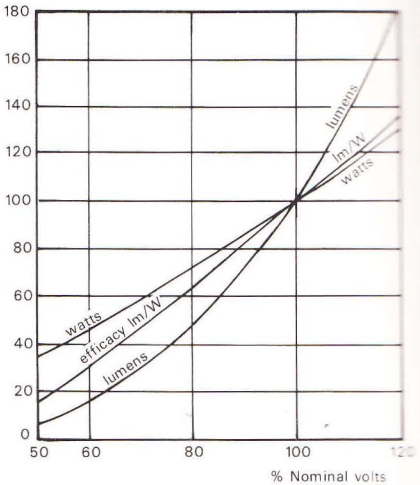
Other factors affecting life

Other factors which can adversely affect the lamp life are vibration and poor ventilation. During the life of a lamp, the filament structure changes and becomes more brittle. Vibration can cause the filament to fracture even when the lamp is not in use. When the lamp is alight, distortion by shock or vibration may close the filament pitch, resulting in hot spots. However, lamps are available which have been specially designed to be better able to stand the conditions when shock and vibration are inevitable.

Poor ventilation will shorten the life of a lamp and this must be taken into account when designing luminaires, so that the lamp or fittings do not overheat. It is additionally recommended that when designing luminaires for mains voltage lamps, attention is given to the requirements of the relevant parts of BS4533.

Although failure of lamps often occurs at switching, there is little evidence that normal switching reduces life although in some instances where the 'on' period is so short that gas filled lamps do not reach normal working pressure, the burning time to failure can be affected.

Fig. 4. Characteristics of incandescent lamps on varying voltage.



Lumen Output

For tungsten filament lamps the values of lumen output are measured initially, i.e. after a short ageing period (to achieve stability). There is a fall during life for non-halogen lamps due to the blackening of the bulb by evaporated tungsten and the thinning of the filament. BS161 requires that lamps within its scope are measured again after 750 hours, and the ratio is described as 'maintenance'. For gas-filled lamps to meet BS161 they must have a maintenance of a least 85%. For the guidance of lighting engineers a value of Lighting Design Lumens for tungsten lamps is given as a typical average through life.

Lumen outputs

	Coiled Coil		Single Coil							
	240V		240V		110/120V*		50V		25V	
Watts	Initial Lumens	LDL	Initial Lumens	LDL	Initial Lumens	LDL	Initial Lumens	LDL	Initial Lumens	LDL
15			110	100						
25	225	210	215	200	225	210	275	260	290	275
40	410	385	340	320	440	415	480	450	540	510
60	700	660	610	575	760	715	830	780	930	875
75	940	885	870	820						
100	1330	1250	1230	1160	1420	1330	1520	1430	1620	1520
150	2140	2010	2060	1940	2340	2200				
200			2880	2710	3250	3100				
300			4550	4280	5000	4700				
500			8200	7710	8900	8400				
750			13200	12410						
1000			18400	17300	19300	18100				
1500			28700	27000	30000	28200				

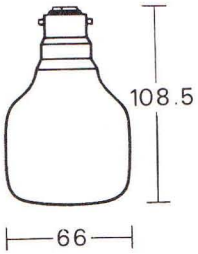
*Measured at 117V.
LDL – Lighting Design Lumens.

Lamp Caps

Standard Designation	IEC Designation	Description
BC	B22d	Bayonet Cap
3 pin BC	B22d-3	Bayonet Cap – 3 pin
ES	E27	Edison Screw
GES	E40	Goliath Edison Screw
SBC	B15d	Small Bayonet Cap
SES	E14	Small Edison Screw
—	S15s	Single Contact Cap (for Striplite)

All line drawings in this catalogue are purely to give a representation of the lamp design, and do not necessarily conform to scale or technical specification. Bulb diameters and overall lengths are maximum values, and the dimension from the cap to the centre of the light source is a nominal value, in millimetres. Lamps require some free space within a luminaire to take into account axiality and eccentricity tolerances. Luminaire manufacturers who need to design with close spacing are requested to seek specific advice. This free space is to cover mechanical interchangeability only, and additional spacing may be necessary to maintain satisfactory luminaire and lamp temperatures.

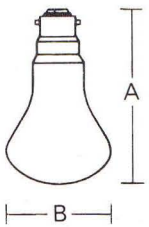
COILED COIL



Accent 2

A unique square shaped lamp for applications where style and long life are important. Twice the life of normal tungsten lamps and designed to produce a softer, warmer light with less glare; ideal for fittings where the lamp is visible.

Watts	Volts	Cap	Finish	Std. Pack
40	240	BC	Soft White	30
60	240	BC	Soft White	30
100	240	BC	Soft White	30



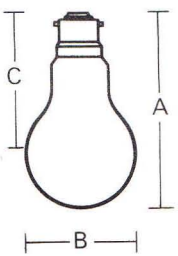
FILTALITE

	A	B
40-100W	103.5	61
150W	128.5	76

Filtalite

A mushroom shaped lamp with a white inner coating which reduces glare.

Watts	Volts	Cap	Finish	Std. Pack
40	240	BC	Soft White	25, 10 × 10, 50
60	240	BC	Soft White	25, 10 × 10, 50
100	240	BC	Soft White	25, 10 × 10, 50
150	240	BC	Soft White	25, 10 × 10



EXTRALITE

BC Cap	A	B	C
25-100W	108.5	61	75
150W	128.5	69	90

(For ES cap - Dimensions A & C are 1.5mm longer)

Extralite - Coiled Coil

A high quality, popular domestic lamp with a coiled coil filament for greater light output. Pearl finish for general lighting and clear for sparkle.

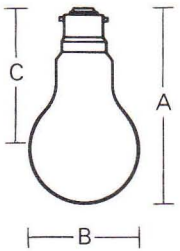
Watts	Volts	Cap	Finish	Std. Pack
25	240	BC	Pearl/Clear	25
40	240, 250	BC/ES	Pearl/Clear	25, 10 × 10, 50
60	240, 250	BC/ES	Pearl/Clear	25, 10 × 10, 50
75	240, 250	BC	Pearl/Clear	25, 10 × 10
100	240, 250	BC/ES	Pearl/Clear	25, 10 × 10, 50
150	240, 250	BC	Pearl/Clear	25, 10 × 10, 30

Lamps with other caps and ratings not specified above can be made to special order; a minimum quantity order of at least 10,000 lamps is required.

Single Coil

Watts	Volts	Cap	Finish	Std. Pack
15	240	BC	Pearl	25
25	25, 50, 110/120 220/230	BC	Pearl	25
40	25, 50, 110/120	BC/ES	Pearl	25
60	25, 50, 110/120	BC/ES	Pearl	25
75	240, 250	BC/ES	Pearl	25
100	25, 50, 110/120	BC/ES	Pearl	25
150	110/120, 220/230 240, 250	BC/ES	Pearl	25
200	110/120 220/230, 240, 250	ES BC/ES	Pearl Pearl/Clear	25 25
300	110/120, 220/230 240, 250	GES	Clear	10
500	110/120, 220/230 240, 250	GES	Clear	10
750	240, 250	GES	Clear	10
1000	240, 250	GES	Clear	10
1500	240, 250	GES	Clear	4

Lamps with other caps, finishes and ratings not specified above can be made to special order; a minimum quantity order of at least 10,000 lamps is required.



SINGLE COIL

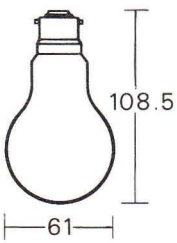
		A	B	C
15-100W	BC	108.5	61	75
150, 200W	BC	165	81	120
300, 500W		239	111.5	178
750, 1000W		299	131.5	225
1500W		344	171.5	250

(For ES cap - Dimensions A & C are 1.5mm longer than BC)

Slumberlite

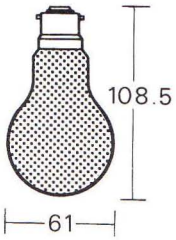
A low wattage night light, ideal for children's bedrooms and security lighting.

Watts	Volts	Cap	Finish	Std. Pack
Low	200/250	BC	Pearl	10



COLOURED

Coloured GLS - Carnival



A range of lamps for special effects and decorative lighting available in six standard colours.

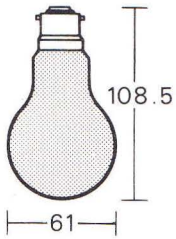
Amber, Blue, Green, Red, Pink and Yellow.

Watts	Volts	Cap	Finish	Std. Pack
15	240	BC/ES	External glaze	10
25	240	BC/ES	External glaze	10
40	240	BC	External glaze	10
60	240	BC	External glaze	10

25W ES cap lamps are available subject to minimum quantity orders.

In exposed conditions use the 15W or 25W in weatherproof holders.

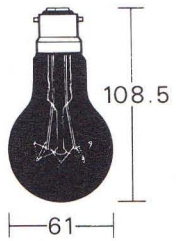
Warmlite



A range of lamps available in three colours producing a soft flattering light suitable for use in bedrooms, living rooms and reception areas, to create a warm, relaxing atmosphere.

Watts	Volts	Cap	Finish	Std. Pack
60	240	BC	Rose Pink	10
60	240	BC	Old Gold	10
60	240	BC	Tangerine	10

Fireglow



A warm red lamp for use in flame effect fires and wherever a rich ruby glow is required.

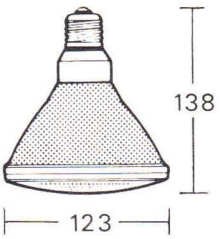
Watts	Volts	Cap	Finish	Std. Pack
40	240	BC	Red Lacquered	25
60	240	BC	Red Lacquered	25, 10 × 10
60	240	3 pin BC	Red Lacquered	25

Sealed Beam Reflectors

PAR 38 Spotlights and Floodlights

Accurate and versatile reflector lamps suitable for interior and exterior use in commercial and display applications.
With 2000 hour nominal life, PAR 38's offer twice the life of standard reflector lamps.

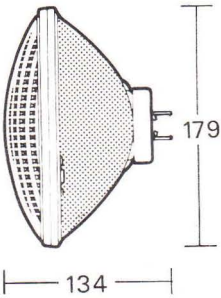
Watts	Volts	Cap	Finish	Std. Pack
Spotlight				
100	240/250	ES	Clear Front	12
150	120	ES	Clear Front	12
150	240/250	ES	Clear Front	12
Floodlight				
100	240/250	ES	Clear Front	12
150	24	ES	Clear Front	12
150	120	ES	Clear Front	12
150	240/250	ES	Clear Front	12
Coloured Floodlight				
100	240/250	ES	Lacquered Front Amber, Blue, Green, Red and Yellow.	12



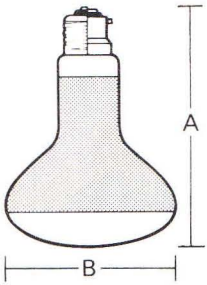
PAR 56

An efficient, precision made lamp, with an internal aluminised reflector, suitable for decorative and display lighting.
Particularly useful for deep or large windows where a long throw of light is required. Available with narrow, medium or wide beam.
Protect from water splashes.

Watts	Volts	Cap	Finish	Std. Pack
300	240	GX16d	Clear Front	6



REFLECTORS



STANDARD REFLECTOR

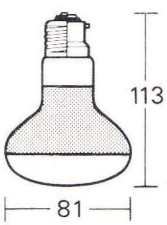
	A	B
75,100W	140	96
150W	180.5	127.5

Blown Glass Reflectors

Standard Reflectors R95 and R125

Internally aluminised blown glass reflector lamps, for a wide variety of commercial, domestic and display applications.
Available with diffuse, clear (silver spot) or externally lacquered coloured front glass.

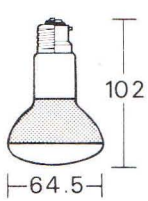
Watts	Volts	Cap	Finish	Std. Pack
75	240/250	BC/ES	Diffuse/Clear (Silver Spot)	10
100	240/250	BC/ES	Diffuse/Clear (Silver Spot)	10
150	240/250	BC/ES	Diffuse	10
150	240/250	ES	Clear (Silver Spot)	10
Coloured				
75	240/250	BC/ES	Lacquered, Amber, Blue, Green, Red and Yellow	10



R080 Reflector

A smaller blown glass reflector lamp suitable for commercial and domestic use in spotlights and downlighters where an unobtrusive appearance is required. Available with diffuse, clear (silver spot) or externally lacquered coloured front glass.

Watts	Volts	Cap	Finish	Std. Pack
40	240/250	BC/ES	Clear	10
60	240/250	BC/ES	Diffuse	10
75	240/250	BC/ES	Clear (Silver Spot)	10
100	240/250	BC/ES	Diffuse	10
Coloured				
40	240/250	BC/ES	Lacquered, Amber, Blue, Green, Red and Yellow	10



R63 Reflector

A popular small reflector lamp for commercial, domestic and display lighting. Available with diffuse and externally lacquered coloured front.

Watts	Volts	Cap	Finish	Std. Pack
40	240/250	BC/ES	Diffuse	10
60	240/250	BC/ES	Diffuse	10
Coloured				
40	240/250	BC/ES	Lacquered Blue, Green Red and Yellow	10

(Lamps with ES caps are 1.5mm longer than BC types)

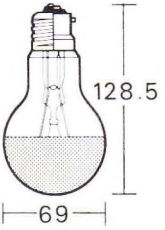
R50 Reflector (Available late 1985)

A small, compact reflector lamp ideally suited for downlighters, spotlights and task lighting.

Watts	Volts	Cap	Finish	Std. Pack
40	240/250	SES	Diffuse	10

Bowl Silver

Used with an external reflector it gives a sharp, narrow spot with minimal light spill, ideal for display lighting. Also widely used in modern lighting fittings for special decorative lighting effects.



Watts	Volts	Cap	Finish	Std. Pack
60	240/250	BC/ES	Clear with internal aluminised crown	25
100	240/250	BC/ES		25
60	240/250	3 pin BC		25

Infra Red Reflector. Soft glass bulb (not for domestic use)

Localised instant heat and light combined for industrial and commercial applications e.g. paint drying, outhouses and loading bays. A red front version is available to significantly reduce visible light output - for special use with animals.

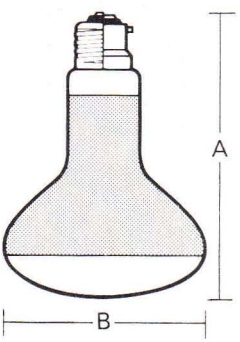
Watts	Volts	Cap	Finish	Std. Pack
275	110/130	ES	Pearl	10
275	220/250	BC	Pearl	10
275	220/250	ES	Pearl	10
275	220/250	ES	Red Front*	10

* Operate lamp with cap up +90°. Operation in any other position may cause deterioration of the red filter.

Infra Red Reflector. Hard glass bulb

Suitable for domestic, commercial and industrial use, this lamp is made from a special glass which reduces the possibility of shattering to a minimum if splashed with liquids.

Watts	Volts	Cap	Finish	Std. Pack
275	220/250	BC	Clear	10
275	220/250	ES	Clear	10

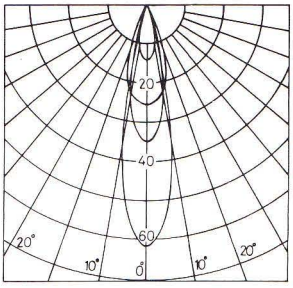


INFRA RED

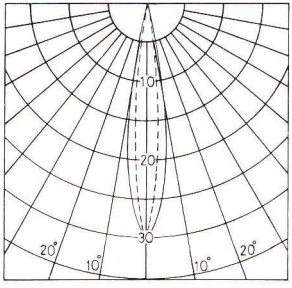
BC Cap	A	B
275W Pearl	180.5	127.5
275W Red	188	127.5
275W Hard Glass	186.5	128

(Lamps with ES caps are 1.5mm longer than BC types)

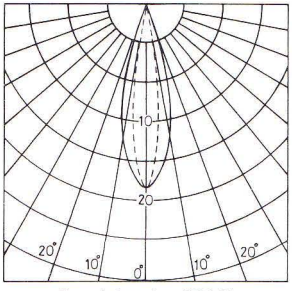
BEAM DATA



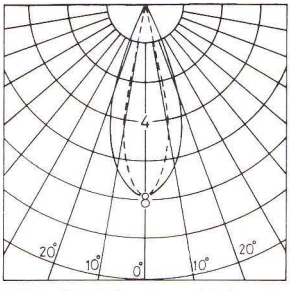
Candelas (× 100)



Candelas (× 1000)



Candelas (× 1000)



Candelas (× 1000)

Sealed Beam Reflector Lamps

PAR 38 SPOT AND FLOODLIGHT

Lamp	Typical Peak Beam Intensity	Half Peak Beam Angle
100W Spot	3500cds	20°
100W Flood	1450cds	33°
150W Spot	6200cds	20°
150W Flood	2600cds	33°

PAR 56 NARROW SPOT

Lamp	Typical Peak Beam Intensity	Half Peak Beam Angle
300W Spot	30000cds	16° Parallel to plane of ceramic base. 10° Right angles to plane of base

PAR 56 MEDIUM FLOOD

Lamp	Typical Peak Beam Intensity	Half Peak Beam Angle
300W Flood	16000cds	25° Parallel to plane of ceramic base. 12° Right angles to plane of base

PAR 56 WIDE FLOOD

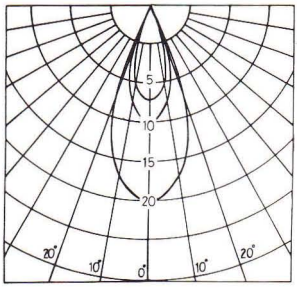
Lamp	Typical Peak Beam Intensity	Half Peak Beam Angle
300W Flood	7800cds	34° Parallel to plane of ceramic base. 21° Right angles to plane of base.

Above are typical figures for mains voltage clear lamps, measured at mid-point of the quoted dual voltage.

BEAM DATA

STANDARD REFLECTOR R95 & R125

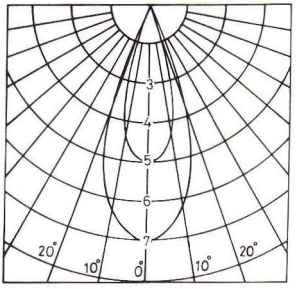
Lamp	Typical Peak Beam Intensity	Half Peak Beam Angle
75W	700cds	35°
100W	1000cds	35°
150W	2000cds	35°



Candelas (× 100)

ROBO REFLECTOR

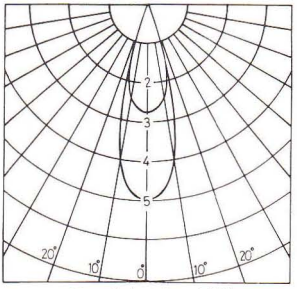
Lamp	Typical Peak Beam Intensity	Half Peak Beam Angle
60W	500cds	40°
100W	700cds	40°



Candelas (× 100)

R63 REFLECTOR

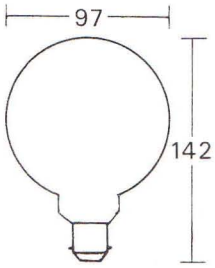
Lamp	Typical Peak Beam Intensity	Half Peak Beam Angle
40W	275cds	32°
60W	500cds	32°



Candelas (× 100)

Above are typical figures for diffuse types only, i.e. not for silver spot or colours, measured at the mid-point of the quoted dual voltage.

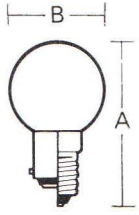
DECORATIVE



95mm Round Bulb (Available late 1985)

A large, round decorative lamp with a soft white inner coating to reduce glare. Suitable for decorative luminaires and ceiling fittings where the lamp is visible.

Watts	Volts	Cap	Finish	Std. Pack
60	240	BC	Silverlight	10
100	240	BC	Silverlight	10



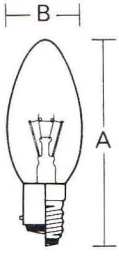
45mm Round Bulb

Watts	Volts	Cap	Finish	Std. Pack
25	240	BC/SBC/SES	Silverlight	10
40	240	BC/SBC/SES	Silverlight	10

Clear lamps available to special order.

45mm ROUND BULB

		A	B
25,40W	BC	72.5	46
	SBC	76	46
	SES	77.5	46



Plain Candle

Watts	Volts	Cap	Finish	Std. Pack
35mm				
25	240	BC/SBC/SES	Clear	10
25	240	BC/SBC/SES	Silverlight	10
40	240	BC/SBC/SES	Clear	10
40	240	BC/SBC/SES	Silverlight	10
60	240	BC/SBC/SES	Clear	10
60	240	BC/SBC/SES	Silverlight	10
45mm				
60	240	BC/SBC	Clear	10
60	240	BC/SBC	Silverlight	10

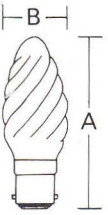
Pearl lamps available to special order.

PLAIN CANDLE

		A	B
25-60W	BC	95.5	36
	SBC	99.5	36
	SES	101.5	36
60W	BC	124.5	46
	SBC	127.5	46

Twisted Candle

Watts	Volts	Cap	Finish	Std. Pack
35mm				
40	240	BC/SBC	Clear	10
40	240	BC/SBC	Pearl	10
60	240	BC/SBC	Clear	10
60	240	BC/SBC	Pearl	10
47mm				
60	240	BC	Clear	10
60	240	BC	Pearl	10

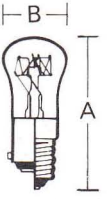


TWISTED CANDLE

		A	B
40,60W	BC	101	36
	SBC	106	36
60W	BC	126	48

Pygmy 28mm

Watts	Volts	Cap	Finish	Std. Pack
15	110/120	BC/SBC	Clear	10
15	240	BC/SBC/SES	Clear	10
25	240	BC/SBC	Clear	10
Coloured				
15	240	BC/SBC	Amber, Blue, Green, Pink, Red and Yellow	10



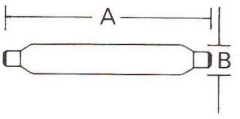
PYGMY

		A	B
15,25W	BC	61	29
	SBC	67	29
	SES	68	29

Striplite

Linear light source of initial low cost suitable for bedheads, mirrors, cookers and concealed lighting in display cabinets. Available in clear or opal and in two lengths (221 and 284mm).

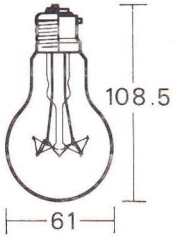
Watts	Volts	Cap	Finish	Std. Pack
221mm				
30	240	S15s	Clear/Opal	25
60	240	S15s	Clear/Opal	25
284mm				
30	240	S15s	Clear/Opal	25
60	240	S15s	Clear/Opal	25



STRIPLITE

	A	B
30,60W	221	26
	284	26

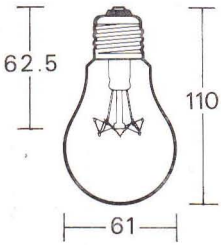
SPECIAL PURPOSE



Rough Service

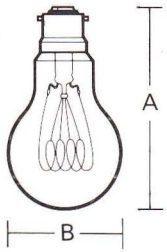
Special design to resist shock and vibration. Ideally suited for hand inspection lamps.

Watts	Volts	Cap	Finish	Std. Pack
40	110/120	BC	Pearl	25
40	220/250	BC	Pearl	25
60	110/120	BC	Pearl	25
60	220/250	BC/ES	Pearl	25
100	110/120	BC/ES	Pearl	25
100	220/250	BC/ES	Pearl	25



Traffic Signal

Watts	Volts	Cap	Finish	Std. Pack
65	240/250	ES	Clear	25



Carbon Heater

Lamps with large size carbon filaments for special heating or decorative lighting effects.

Nominal Watts	Volts	Cap	Finish	Std. Pack
65	230/250	BC/ES	Clear	25
130	230/250	BC/ES	Clear	25
200	230/250	BC	Clear	25

CARBON HEATER

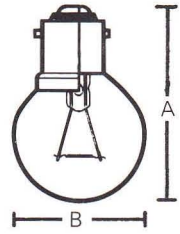
BC Cap.	A	B
65W	113.5	61
130,200W	128.5	69

(Lamps with ES caps are 1.5mm longer than BC types).

38mm Bus Lamp

Interior lighting for buses, coaches, caravans and boats. Also used in low volt emergency lighting installations.

Watts	Volts	Cap	Finish	Cat. No.	Std. Pack
12	12	BC	Pearl	804	150
12	12	SBC	Pearl	805	150
24	12	BC	Pearl	809	150
24	12	SBC	Pearl	810	150
12	24	SBC	Clear	812	150
12	24	BC	Pearl	816	150
12	24	SBC	Pearl	817	150
20	24	BC	Pearl	821	150

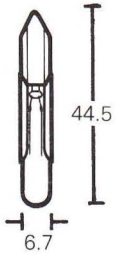


	A	B
BC	57	39
SBC	60	39

Telephone Switchboard Lamps

British Telecom Type No. 2/2A

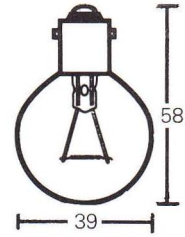
Amps	Volts	Type	Finish	End Colour	Std. Pack
0.040	6	No. 2	Clear	Grey	100
0.100	12		Clear	Red/Yellow	100
0.045	17	No. 2	Clear	Orange	100
0.050	24	No. 2A	Clear	Yellow	100
0.100	24	No. 2	Clear	Yellow	100
0.036	45	No. 2	Clear	Blue/White	100
0.100	50		Clear	White	100
0.060	60		Clear	Mauve	100



British Telecom Type No. 8

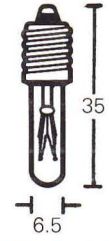
Available with a clear or coloured finish – Blue, Green, Red or Yellow.

Watts	Volts	Cap	Finish	Std. Pack
10	50	SBC	Clear or Coloured	100



Telewriter Lamps

Watts	Volts	Cap	Finish	Std. Pack
2.5	50	MES	Clear	50
3.6	60	MES	Clear	50



TUNGSTEN HALOGEN

GEC tungsten halogen lamps celebrate their 25th anniversary this year.

This introduction of the halogen lamp into Europe in 1961 represented the first major advance in incandescent lighting since the coiled coil lamp in the early 1930s.

The basic difference between the conventional tungsten filament lamp and the halogen lamp is that a trace of halogen is added to the filling gas.

The halogen sets up a regenerative cycle by which evaporated tungsten is removed from the bulb wall and returned to the vicinity of the filament. This virtually eliminates blackening of the bulb wall and allows the light output of the lamp to remain almost constant throughout its life.

Class M and K halogen lamps are made in quartz glass to withstand the high bulb wall temperature required for the halogen cycle to operate.

Single-Ended Lamps (Class M)

Class M32 and M28 are compact light sources which offer high lumen output and can be operated in any position. These lamps are ideal for shop display lighting, traffic control systems, optical systems and task lighting.

The M40 offers the user a long life lamp which can be used in compact modern luminaires.

Linear Lamps (Class K)

These lamps have the advantage of immediate and full light output on switching. They also offer excellent colour rendering and are suitable for floodlighting buildings, general area floodlighting, display and shop lighting, and theatre lighting.

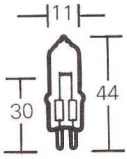
The new 200 watt is ideal for indoor use when fitted in an enclosed floodlight.

These lamps are made to IEC standard (publication 357).

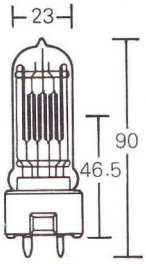
Class M

Single Ended Tungsten Halogen Lamps

Application: Display Lighting, Task Lighting and Traffic Signals.



M/28, M/32



M/40

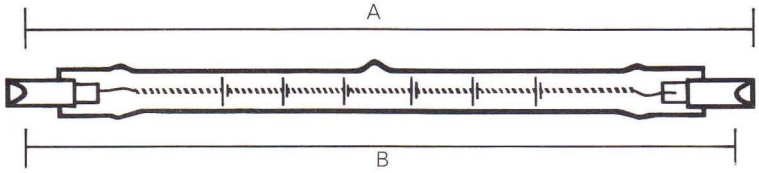
Operating Temperature: Pinch seal should not exceed 350°.

Traffic Signal Operation: M32 still achieves 3000 hours total burning time from a 30 second on/off cycle.

Lamp Type	Watts	Volts	Cap	Nominal Lumens	Objective Life (Hrs)	Operating Position	Standard Pack
M32	50	12	GY6.35	900	3000	Any	40
M28	100	12	GY6.35	2150	2000	Any	40
M40	500	240	GY9.5	8500	2000	VBD ± 90°	32

These lamps are suitable for use in **Hawk, EGL** and **Capital** floodlights. (See section 11.)

Cap: R7s-15
Operating Position: Horizontal ± 15°.
Objective Life: 2000 hours
Finish: Clear (Frosted available to order)
Operating Temperature: Pinch seal should not exceed 350°C
Max Bulb Diameter: 12mm (Excluding Pip)
Recommended Fusing: Rapid Acting HBC Type



Lamp Type	Watts	Volts	Nominal Lumens	Approx Colour Temp (K)	Contact to Ceramic Max A (mm)	Contact to Contact B (mm) ± 1.6	Recom-mended Fusing	Standard Pack
K/11	200	115/120	3100	2800	117.6	114.2	4A	50
		220/230	3100	2800	117.6	114.2	2A	50
		240/250	3100	2800	117.6	114.2	2A	50
K/9	300	110/115	5250	2900	117.6	114.2	6A	50
		115/120	5250	2900	117.6	114.2	6A	50
		220/230	5000	2850	117.6	114.2	4A	50
		240/250	5000	2850	117.6	114.2	4A	50
K/1	500	110/115	10500	3000	117.6	114.2	6A	50
		115/120	10500	3000	117.6	114.2	6A	50
		220/230	9500	2950	117.6	114.2	4A	50
		240/250	9500	2950	117.6	114.2	4A	50
K/3	750	220/230	15000	3000	189.1	185.7	6A	25
		240/250	15000	3000	189.1	185.7	6A	25
K/4	1000	110/115	22000	3050	189.1	185.7	10A	25
		115/120	22000	3050	189.1	185.7	10A	25
		220/230	21000	3050	189.1	185.7	6A	25
		240/250	21000	3050	189.1	185.7	6A	25
K/5	1500	220/230	32000	3050	254.1	250.7	10A	25
		240/250	32000	3050	254.1	250.7	10A	25