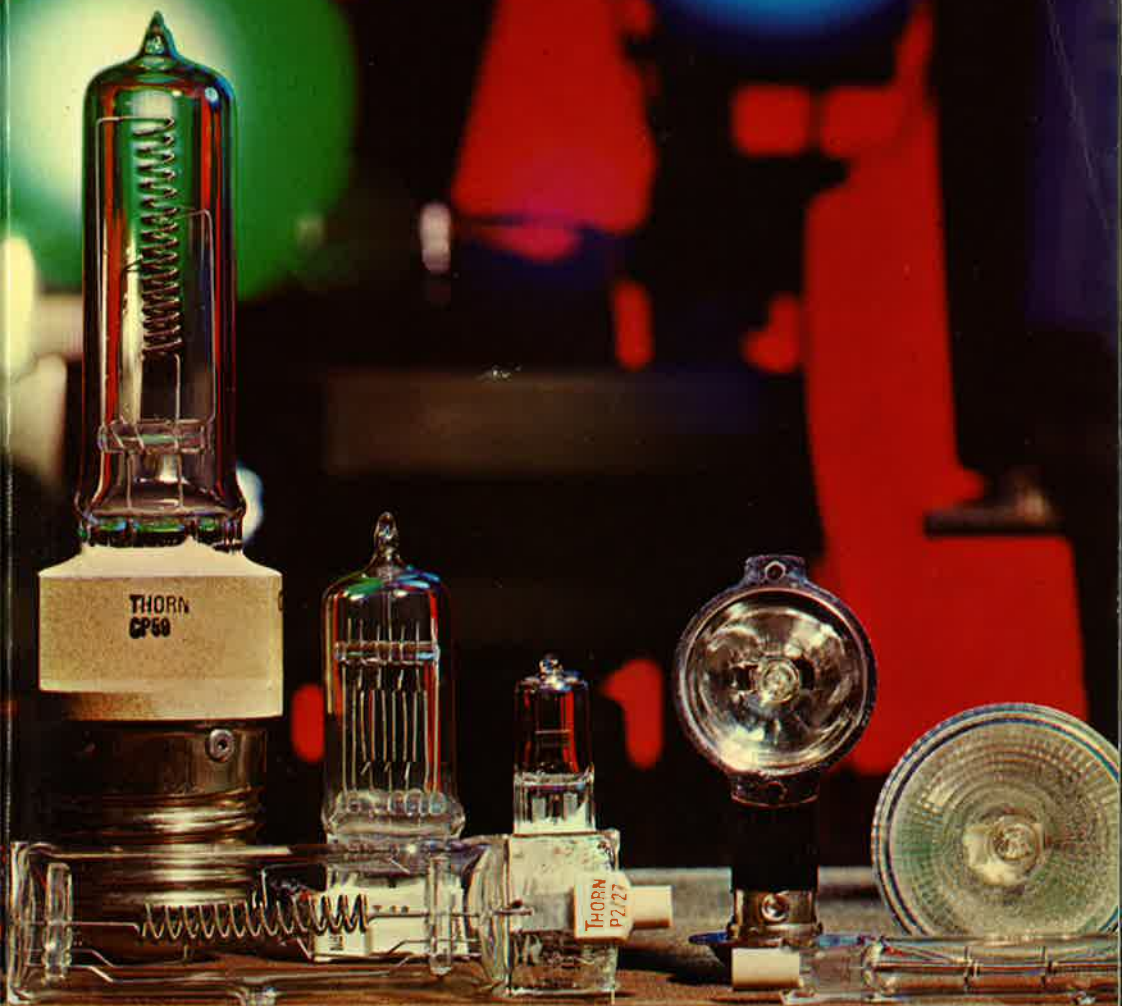


THORN

Photographic
lamps





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Thorn Lighting Limited is constantly developing and improving its products. The right is reserved to change specifications without prior notification or public announcement. All descriptions, illustrations, drawings and specifications in this publication present only general particulars and shall not form part of any contract. The majority of the products described herein are manufactured in the United Kingdom, products not so manufactured will bear an appropriate indication.

Lamp Caps and Filament Formations



BH P46s



P 28s



P40s



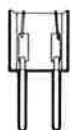
G 17q



B 15s
S.C.C.



PG 22



G 6-35



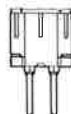
GY 9-53



GY 16



G 22



GX 38q



G 38



GX 9-5



B22d



B15d



G4



E40s



E27s



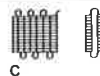
GY 7-9



A



B



C



D



E



F



G



H



J

Tungsten Halogen Equivalent Range

The demand for even higher levels of screen illumination, increased life, lumen maintenance and enhanced colour rendering has led Thorn Lighting to develop a range of Tungsten Halogen projector lamps which are direct replacements for traditional glass conventional lamps.

A1 Projector Lamps

Conventional Lamp No.	Average Life	Watts	Tungsten Halogen Replacement Lamp No.	Average Life Hours
A1/17	25	50	A1/263	50
A1/182	25	150	A1/243 †	50
A1/178	25	300	A1/240	50
A1/180	25	500	A1/241	50
A1/205 †	25	500	A1/241	50
A1/206 †	25	750	A1/256	50
A1/207	25	1000	A1/242	50

Class 'T' Theatre Lamps

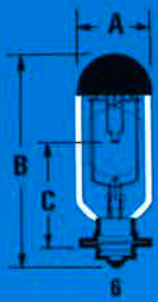
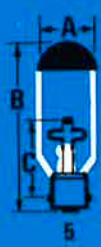
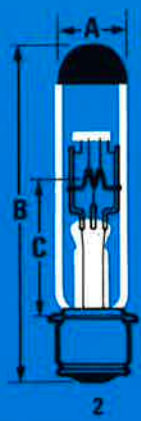
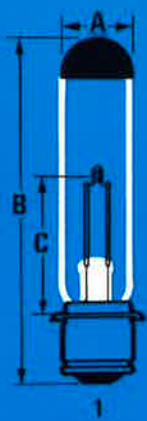
Conventional Lamp No.	Average Life	Watts	Tungsten Halogen Replacement Lamp No.	Average Life Hours
T/1	200	500	T/17	750
T/4 *	200	1000	T/15	750
T/6 *	200	1000	T/14	750
T/2 *	200	1000	T/16	750

A1 Class Watts Reference

Lamp Ref.	Watts	Lamp Ref.	Watts	Lamp Ref.	Watts	Lamp Ref.	Watts
Class A1		A1/167	150	A1/216	150	A1/246	250
A1/4 *	100	A1/178	300	A1/220	50	A1/247	650
A1/5 *	250	A1/180	500	A1/223	250	A1/249	300
A1/6 *	300	A1/182	150	A1/225	50	A1/250 †	50
A1/7 †	500	A1/183	300	A1/227 *	420	A1/252	200
A1/8 *	500	A1/184 *	150	A1/228	600	A1/254 *	500
A1/9 †	750	A1/186	100	A1/229	50	A1/255 *	800
A1/17	50	A1/193	100	A1/230	75	A1/256	750
A1/18	150	A1/194 *	150	A1/231	100	A1/257 *	650
A1/21	100	A1/201 †	300	A1/232	150	A1/258	250
A1/24 *	150	A1/202 *	50	A1/233	650	A1/259	250
A1/37	300	A1/205 †	500	A1/234	150	A1/261	100
A1/45 †	100	A1/206 †	750	A1/235	250	A1/262	150
A1/52	750	A1/207	1000	A1/240	300	A1/263	50
A1/53	750	A1/208 *	1200	A1/241	500	A1/264	600
A1/57 *	1000	A1/209	100	A1/242	1000	A1/265	625
A1/58 *	1000	A1/211 *	150	A1/243 †	150	A1/266	150
A1/59 †	1000	A1/212 †	150	A1/244	500	A1/268	500
A1/91 †	1000	A1/215	100	A1/245	800		

* DELETED FROM RANGE, AVAILABLE WHILST STOCKS LAST.

† MINIMUM PRODUCTION QUANTITY.



CLASS A1 50, 75 and 100 WATT

Diag. No.	Lamp Ref.	Volts	Watts	A Maximum Bulb Diameter	B Maximum Overall Length	C Light Centre Length	Nominal Lumens x1000	Base	Filament Formation	Average Life Hours	Special Features	Operating Position
7	A1/17	8	50	33x44	96	47 ±0.5	—	P30s	J	25	A B G H N	BD
6*	A1/202	8	50	31	96	47 ±1	—	P30s	J	25	A B E H	BD
12	A1/220	12	50	11.5	44	30 ±0.25	1.4	G8.35	J	50	I	BD ±90
9	A1/225	240/250	50	26	67	35 ±1	0.675	S.C.C. BA15s	F4	100	A J	BD
4	A1/229	8	50	50	42	—	—	G6.35	H	50	H I K	HOR
3†	A1/250	8	50	50	50	—	—	Special 2 Tab	H	50	H I K	HOR
8	A1/263	8	50	36	85	47 ±0.5	—	P30s	H	50	B I H I K	BD
4	A1/230	12	75	50	42	—	—	G6.35	D	50	H I L	HOR
1*	A1/4	12	100	26	135	55.5 ±0.5	2.7	P28s	J	25	A	BD
2*	A1/4	115	100	26	135	55.5 ±0.5	1.85	P28s	F3	25	A	BD
2*	A1/4	240/250	100	26	135	55.5 ±0.5	1.65	P28s	F4	25	A	BD
9	A1/21	115	100	26	78	35 ±1	1.85	S.C.C. BA15s	F3	25	A	BD
9	A1/21	240/250	100	26	78	35 ±1	1.65	S.C.C. BA15s	F4	25	A	BD
13†	A1/45	12	100	11.5	45	18 ±0.2	3	PG22	J	50	I	BD ±90
5	A1/186	12	100	26	78	35 ±1	2.8	S.C.C. BA15s	J	25	A	BD
10	A1/193	12	100	26	78	29.5 ±0.5	2.8	BA21s 4 Pin	J	25	—	BD
11	A1/209	12	100	11	45	24+0 -0.5	3	G8.35	J	50	I	BD ±90
12	A1/215	12	100	11	44	30 ±0.25	3	G6.35	J	50	I	BD ±90
4	A1/231	12	100	50	42	—	—	G6.35	H	50	H I L	HOR
22	A1/261	12	100	13	57	27 ±0.25	3	GY9-5	J	50	I	BD ±90

LAMP INFORMATION ON RED BACKGROUND INDICATES THAT THE LAMP OPERATES ON THE TUNGSTEN HALOGEN PRINCIPLE.

SPECIAL FEATURES

- A Obscured top
- B Forced cooling necessary. Maximum bulb wall temperature 500°C
- C Offset filament
- D Solid source filament
- E Internal integral aluminised mirror
- F Internal integral dichroic mirror
- G Silvered bulb
- H Due to incorporated mirror nominal lumens not shown
- I Minimum bulb wall temperature 350°C
- J Pearl bulb

- K External integral aluminised mirror
- L External integral dichroic mirror
- M Internal proximity reflector
- N Tungsten Halogen equivalent available see page 3
- O Linear overhead projector lamp
- P 3 or 4 amp H.B.C. fuse necessary
- Q 5 or 6 amp H.B.C. fuse necessary
- R 6 or 7 amp H.B.C. fuse necessary
- S 10 amp H.B.C. fuse necessary
- T Opalised bulb
- U Satin etched bulb
- V Reflector photoflood

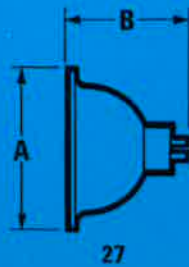
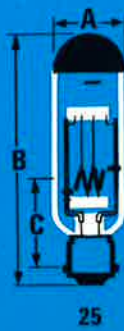
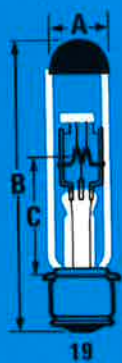
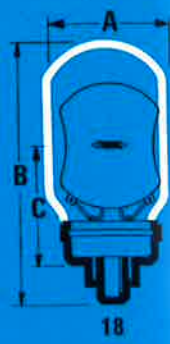
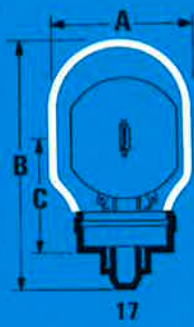
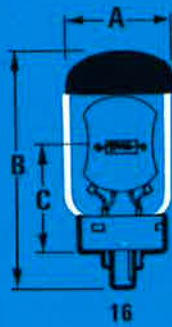
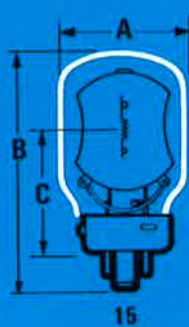
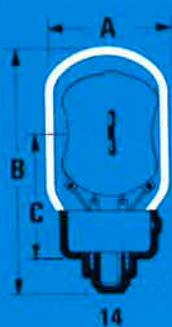
- W Reflector photospot
 - X Light output measured in centre beam candles
 - Y Class CP and T Halogen lamps require separate H.B.C. fuse in the circuit, see instruction leaflet in the carton for individual lamp requirements
 - Z Higher lumens apply to low voltage lamps
- Dual voltage lamps are indicated by oblique e.g. 240/250
Lamp ratings stepped at 10 volt are indicated by a comma e.g. 240, 250

* DELETED FROM RANGE. AVAILABLE WHILST STOCKS LAST.

† MINIMUM PRODUCTION QUANTITY.

- A1/17 } Focal Distance 33.5mm
- A1/202 }
- A1/263 }
- A1/229 }
- A1/230 } Focal Distance 32mm
- A1/231 }
- A1/250 }

All dimensions are shown in mm.



CLASS A1 150 WATT

Diag. No.	Lamp Ref.	Volts	Watts	A Maximum Bulb Diameter	B Maximum Overall Length	C Light Centre Length	Nominal Lumens x1000	Base	Filament Formation	Average Life Hours	Special Features	Operating Position
14	A1/18	21.5	150	39	81	39.7 ±1	—	G17q	G	25	BEH	HOR
15*	A1/24	125	150	39×42	81	39.7 ±1	—	G17q	G	25	BCEH	HOR
25	A1/167	240/250	150	26	90	35 ±1	2.7	S.C.C. BA15s	F4	25	A	BD
19*	A1/175	240/250	150	26	135	55.5 ±0.5	2.7	P28s	F4	25	A	BD
21	A1/182	240/250	150	30	76	33.5 ±1	2.7	G17q	F4	25	AN	BD
16*	A1/184	21.5	150	39	91	39.7 ±1	—	G17q	G	25	ABEH	BD
17*	A1/194	21.5	150	48	86	39.7 ±1	—	G17q	G	25	BEH	HOR
18*	A1/210	21.5	150	39	91	39.7 ±1	—	G17q	G	25	BCEH	BD
20*	A1/211	21.5	150	39	91	39.7 ±1	—	G17q	G	25	ABFH	BD ±90
24†	A1/212	24	150	33	103	39.7 ±0 —1.5	4.1	G17q	J	25	ABC	BD
23	A1/216	24	150	13.5	47	32 ±0 —0.25	5	G6.35	J	50	I	BD ±90
27	A1/232	15	150	50	42	—	—	G6.35	H	50	HIL	HOR
26	A1/234	15	150	11.5	45	30 ±0.25	4.7	G6.35	J	50	I	BD ±90
23†	A1/243	240	150	15	76	33.5 ±1	3	G17t	F4	50	AIP	BD
22	A1/262	24	150	60	15	33.3 ±0.25	5	GY9.5	J	50	I	BD ±90
28	A1/266	21	150	51	43	—	—	GY7.9	G	50	HIL	HOR

LAMP INFORMATION ON RED BACKGROUND INDICATES THAT THE LAMP OPERATES ON THE TUNGSTEN HALOGEN PRINCIPLE.

SPECIAL FEATURES

- A Obscured top
- B Forced cooling necessary. Maximum bulb wall temperature 500°C
- C Offset filament
- D Solid source filament
- E Internal integral aluminised mirror
- F Internal integral dichroic mirror
- G Silvered bulb
- H Due to incorporated mirror nominal lumens not shown
- I Minimum bulb wall temperature 350°C
- J Pearl bulb

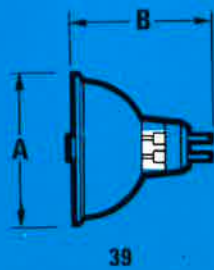
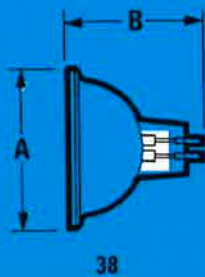
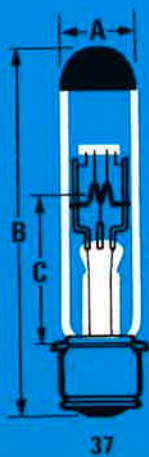
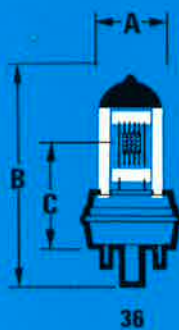
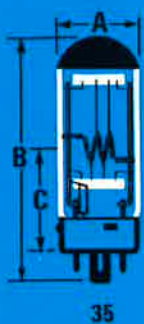
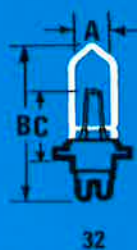
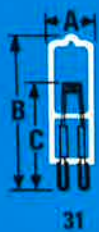
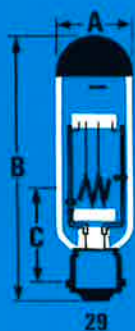
- K External integral aluminised mirror
- L External integral dichroic mirror
- M Internal proximity reflector
- N Tungsten Halogen equivalent available see page 3
- O Linear overhead projector lamp
- P 3 or 4 amp H.B.C. fuse necessary
- Q 5 or 6 amp H.B.C. fuse necessary
- R 6 or 7 amp H.B.C. fuse necessary
- S 10 amp H.B.C. fuse necessary
- T Optatised bulb
- U Satin etched bulb
- V Reflector photoflood

- W Reflector photospot
 - X Light output measured in centre beam candles
 - Y Class CP and T Halogen lamps require separate H.B.C. fuse in the circuit, see instruction leaflet in the carton for individual lamp requirements
 - Z Higher lumens apply to low voltage lamps
- Dual voltage lamps are indicated by oblique e.g. 240/250
Lamp ratings stepped at 10 volt are indicated by a comma e.g. 240, 250

- A1/18 } Focal Distance 43.5mm
- A1/184 }
- A1/194 }
- A1/211 }
- A1/24 – Focal Distance 57.2mm
- A1/210 – Focal Distance 56.0mm
- A1/266 – Focal Distance 69.0mm.

All dimensions are shown in mm.

* DELETED FROM RANGE, AVAILABLE WHILST STOCKS LAST.
† MINIMUM PRODUCTION QUANTITY.



CLASS A1 200, 250 and 300 WATT

Diag. No.	Lamp Ref.	Volts	Watts	A Maximum Bulb Diameter	B Maximum Overall Length	C Light Centre Length	Nominal Lumens x1000	Base	Filament Formation	Average Life Hours	Special Features	Operating Position
38	A1/252 24	200	50	45	—	—	—	G5.3	G	25	HIL	HOR
37*	A1/5 115	250	33	135	55.5 ± 0.5	5.5	P28s	F3	50	A	BD	BD
37*	A1/5 240/250	250	33	135	55.5 ± 0.5	5.5	P28s	F5	50	A	BD	BD
31	A1/223 24	250	13.5	55	33 ± 0.25	8.5	G6.35	J	50	I	BD ± 90	BD ± 90
32	A1/235 24	250	12.5	56	23 ± 0.2	8.5	PG22	J	50	I	BD ± 90	BD ± 90
39	A1/246 24	250	50	50	—	—	G6.35	J	50	HIL	HOR	HOR
40	A1/258 24	250	44	47.5	—	—	GY7-9	G	50	HIL	HOR	HOR
38	A1/259 24	250	50	45	—	—	G5.3	G	25	HIL	HOR	HOR
37*	A1/6 115	300	33	135	55.5 ± 0.5	7.4	P28s	F3	25	A B	BD	BD
37*	A1/6 240/250	300	33	135	55.5 ± 0.5	6.9	P28s	F5	25	A B	BD	BD
29	A1/37 115	300	28	105	35 ± 1	7.4	S.C.C. BA15s	F3	25	A B	BD	BD
29	A1/37 240/250	300	28	105	35 ± 1	6.9	S.C.C. BA15s	F5	25	A B	BD	BD
35	A1/178 240/250	300	33	103	39.7 ± 1	6.9	G17q	F5	25	A B N	BD	BD
30	A1/183 240/250	300	31	81	35 ± 1	6.9	S.C.C. BA15s	F5	25	A B	BD	BD
34†	A1/201 240/250	300	33	103	39.7 ± 1	—	G17q	F5	25	A B H M N	BD	BD
36	A1/240 240/250	300	15	87	39.7 ± 1	7.2	G17i	F4	50	AIP	BD	BD
33	A1/249 240/250	300	15	62	40 ± 0.5	7.2	G6.35	F4	50	AIP	BD	BD

LAMP INFORMATION ON RED BACKGROUND INDICATES THAT THE LAMP OPERATES ON THE TUNGSTEN HALOGEN PRINCIPLE.

SPECIAL FEATURES

- A Obscured top
- B Forced cooling necessary. Maximum bulb wall temperature 500°C
- C Offset filament
- D Solid source filament
- E Internal integral aluminised mirror
- F Internal integral dichroic mirror
- G Silvered bulb
- H Due to incorporated mirror nominal lumens not shown
- I Minimum bulb wall temperature 350°C
- J Pearl bulb

- K External integral aluminised mirror
- L External integral dichroic mirror
- M Internal proximity reflector
- N Tungsten Halogen equivalent available see page 3
- O Linear overhead projector lamp
- P 3 or 4 amp H.B.C. fuse necessary
- Q 5 or 6 amp H.B.C. fuse necessary
- R 6 or 7 amp H.B.C. fuse necessary
- S 10 amp H.B.C. fuse necessary
- T Opalised bulb
- U Satin etched bulb
- V Reflector photoflood

- W Reflector photospot
 - X Light output measured in centre beam candles
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 - Z Higher lumens apply to low voltage lamps
- Dual voltage lamps are indicated by oblique e.g. 240/250
Lamp ratings stepped at 10 volt are indicated by a comma e.g. 240, 250

A1/252 - Focal Distance 32mm

A1/259 -

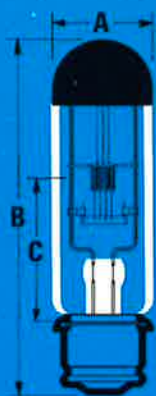
A1/246 - Focal Distance 32mm

A1/258 - Focal Distance 65.8mm

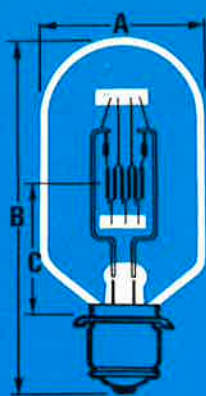
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* DELETED FROM RANGE, AVAILABLE WHILST STOCKS LAST.

† MINIMUM PRODUCTION QUANTITY.



41



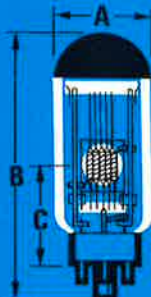
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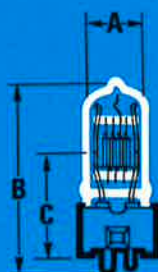
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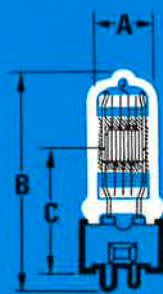
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47



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CLASS A1 420 and 500 WATT

Diag. No.	Lamp Ref.	Volts	Watts	A	B	C	Nominal Lumens x1000	Base	Filament Formation	Average Life Hours	Special Features	Operating Position
				Maximum Bulb Diameter	Maximum Overall Length	Light Centre Length						
43*	A1/227	120	420	13.5	66.5	—	11	R7s	G	75	IO	HOR ±4
41†	A1/7	115	500	33	135	55.5 ±0.5	12.5	P28s	C8	25	A B	BD
41†	A1/7	240/250	500	33	135	55.5 ±0.5	11.4	P28s	C11	25	A B	BD
42*	A1/8	115	500	66	135	55.5 ±0.5	11.5	P28s	A6	50	—	BD
42*	A1/8	240/250	500	66	135	55.5 ±0.5	11	P28s	A8	50	—	BD
44	A1/180	240/250	500	33	103	39.7 ±1	11.4	G17q	C8	25	A B N	BD
45†	A1/205	240/250	500	33	103	39.7 ±1	—	G17q	C8	25	A B H N	BD
46	A1/241	240/250	500	23	94	39.7 ±1	—	G17i	C10	50	A H I M P	BD
47	A1/244	240/250	500	23	75	36.5 ±0.5	14.5	GY9-5	A8	75	I P	BD ±90
48*	A1/254	240/250	500	23	75	36.5 ±0.5	—	GY9-5	A8	75	H I M P	BD ±90
46	A1/268	240	500	23	94	39.7 ±1	—	G17i	C10	50	H I M P	BD

LAMP INFORMATION ON RED BACKGROUND INDICATES THAT THE LAMP OPERATES ON THE TUNGSTEN HALOGEN PRINCIPLE.

SPECIAL FEATURES

- A Obscured top
- B Forced cooling necessary. Maximum bulb wall temperature 500°C
- C Offset filament
- D Solid source filament
- E Internal integral aluminised mirror
- F Internal integral dichroic mirror
- G Silvered bulb
- H Due to incorporated mirror nominal lumens not shown
- I Minimum bulb wall temperature 350°C
- J Pearl bulb

- K External integral aluminised mirror
- L External integral dichroic mirror
- M Internal proximity reflector
- N Tungsten Halogen equivalent available see page 3
- O Linear overhead projector lamp
- P 3 or 4 amp H.B.C. fuse necessary
- Q 5 or 6 amp H.B.C. fuse necessary
- R 6 or 7 amp H.B.C. fuse necessary
- S 10 amp H.B.C. fuse necessary
- T Opalised bulb
- U Satin etched bulb
- V Reflector photoflood

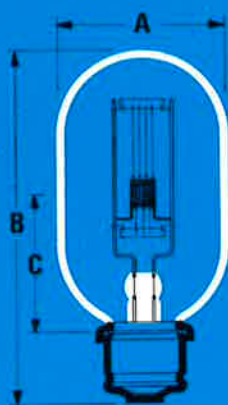
- W Reflector photospot
- X Light output measured in centre beam candles
- Y Class CP and T Halogen lamps require separate H.B.C. fuse in the circuit, see instruction leaflet in the carton for individual lamp requirements
- Z Higher lumens apply to low voltage lamps

Dual voltage lamps are indicated by oblique e.g. 240/250
Lamp ratings stepped at 10 volt are indicated by a comma e.g. 240, 250

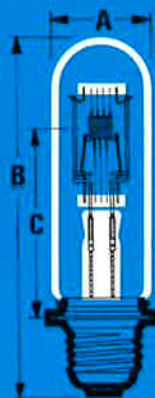
N.B.
A1/268 is not interchangeable with the A1/241,
A1/205 or A1/180

All dimensions are shown in mm.

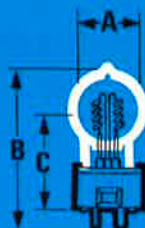
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† MINIMUM PRODUCTION QUANTITY.



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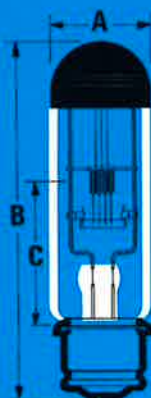
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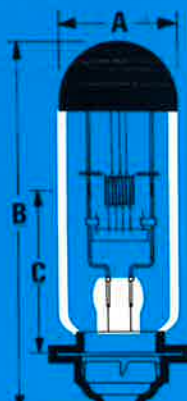
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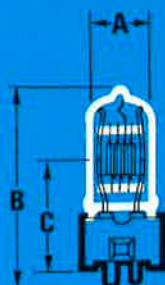
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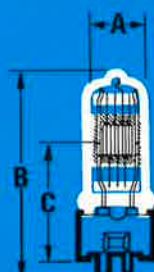
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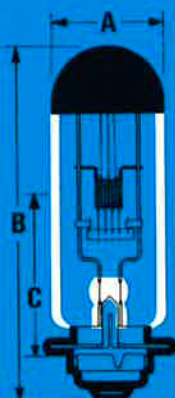
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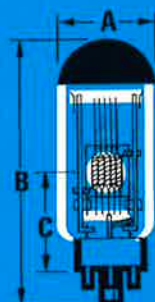
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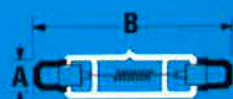
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58



59



60

CLASS A1 600, 625, 650 and 750 WATT

Diag. No.	Lamp Ref.	Volts	Watts	A	B	C	Nominal Lumens x1000	Base	Filament Formation	Average Life Hours	Special Features	Operating Position
				Maximum Bulb Diameter	Maximum Overall Length	Light Centre Length						
60	A1/228	120	600	13.5	91.5	—	17	R7s	G	75	IO	HOR ±4
60	A1/228	240/250	600	13.5	91.5	—	16.25	R7s	G	75	IO P	HOR ±4
52	A1/264	120	600	23	65	36.5 ±1	16	GY9.5	G	75	IR	BD ±90
56	A1/265	240	625	23	87	44.5 ±0.55	—	GY9.5	A8	75	HIMP	BD ±90
51	A1/233	240/250	650	23	65	36.5 ±1	16.5	GY9.5	E2	75	IP	BD ±90
55	A1/247	115	650	23	75	36.5 ±0.5	18.25	GY9.5	A8	75	IR	BD ±90
55	A1/247	240	650	23	75	36.5 ±0.5	17.75	GY9.5	A8	75	IP	BD ±90
56*	A1/257	240	650	23	75	36.5 ±0.5	—	GY9.5	A8	75	HIMP	BD ±90
53†	A1/9	115	750	39	140	55.5 ±0.5	19.5	P28s	C8	25	AB	BD
53†	A1/9	240/250	750	39	140	55.5 ±0.5	18	P28s	C10	25	AB	BD
50	A1/52	115	750	37	153	81 ±0.5	19.5	P39s	C8	25	BC	BU
54	A1/53	115	750	39	135	59 ±0.5	19.5	B.H. P46s	C8	25	AB	BD
54	A1/53	240/250	750	39	135	59 ±0.5	18	B.H. P46s	C10	25	AB	BD
58†	A1/206	115	750	39	118	39.7 ±1	—	G17q	C8	25	ABH MN	BD
58†	A1/206	240/250	750	39	118	39.7 ±1	—	G17q	C10	25	ABH MN	BD
59	A1/256	240	750	23	94	39.7 ±1	—	G17t	C10	50	AHMQ	BD

CLASS A1 800, 1000 and 1200 WATT

Diag. No.	Lamp Ref.	Volts	Watts	A	B	C	Nominal Lumens x1000	Base	Filament Formation	Average Life Hours	Special Features	Operating Position
				Maximum Bulb Diameter	Maximum Overall Length	Light Centre Length						
55	A1/245	240/250	800	23	84	44.5 ±0.5	21.5	GY9.5	C8	75	IQ	BD ±90
56*	A1/255	240/250	800	23	87	44.5 ±0.5	—	GY9.5	C8	75	HIMQ	BD ±90
49*	A1/58	240/250	1000	66	140	55.5 ±0.5	25	P28s	C10	25	A	BD
53†	A1/59	115	1000	39	140	55.5 ±0.5	27	P28s	C8	25	AB	BD
53†	A1/59	240/250	1000	39	140	55.5 ±0.5	25	P28s	C10	25	AB	BD
57†	A1/91	115	1000	39	135	59 ±0.5	27	B.H. P46s	C8	25	AB	BD
57†	A1/91	240/250	1000	39	135	59 ±0.5	25	B.H. P46s	C10	25	AB	BD
58	A1/207	115	1000	39	118	39.7 ±1	—	G17q	C8	25	ABH MN	BD
58	A1/207	240/250	1000	39	118	39.7 ±1	—	G17q	C10	25	ABH MN	BD
59	A1/242	240/250	1000	23	94	39.7 ±1	—	G17t	C10	50	AHMQ	BD
58*	A1/208	115	1200	39	118	39.7 ±1	—	G17q	C10	10	ABH M	BD

LAMP INFORMATION ON RED BACKGROUND INDICATES THAT THE LAMP OPERATES ON THE TUNGSTEN HALOGEN PRINCIPLE.

SPECIAL FEATURES

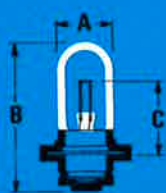
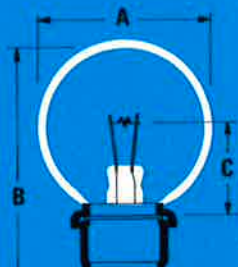
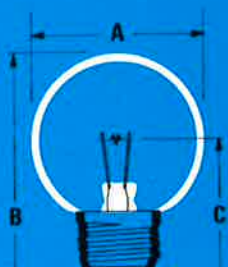
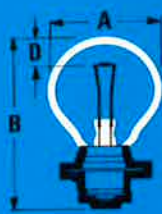
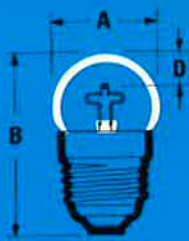
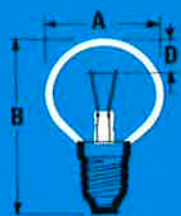
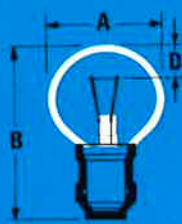
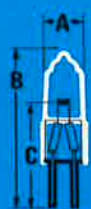
- A Obscured top
- B Forced cooling necessary. Maximum bulb wall temperature 500°C
- C Offset filament
- D Solid source filament
- E Internal integral aluminised mirror
- F Internal integral dichroic mirror
- G Silvered bulb
- H Due to incorporated mirror nominal lumens not shown
- I Minimum bulb wall temperature 350°C
- J Pearl bulb
- K External integral aluminised mirror
- L External integral dichroic mirror
- M Internal proximity reflector
- N Tungsten Halogen equivalent available see page 3
- O Linear overhead projector lamp
- P 3 or 4 amp H.B.C. fuse necessary
- Q 5 or 6 amp H.B.C. fuse necessary
- R 6 or 7 amp H.B.C. fuse necessary
- S 10 amp H.B.C. fuse necessary
- T Opalised bulb
- U Satin etched bulb
- V Reflector photoflood

- W Reflector photospot
- X Light output measured in centre beam candles
- Y Class CP and T Halogen lamps require separate H.B.C. fuse in the circuit, see instruction leaflet in the carton for individual lamp requirements
- Z Higher lumens apply to low voltage lamps

Dual voltage lamps are indicated by oblique e.g. 240/250
Lamp ratings stepped at 10 volt are indicated by a comma e.g. 240, 250

All dimensions are shown in mm.

* DELETED FROM RANGE, AVAILABLE WHILST STOCKS LAST.
† MINIMUM PRODUCTION QUANTITY.



CLASS M CINE FILM EDITOR LAMPS

Diag. Lamp No.	Ref.	Volts	Watts	A	B	C	Nominal Lumens x1000	Base	Filament Formation	Average Life Hours	Special Features	Operating Position
				Maximum Bulb Diameter	Maximum Overall Length	Light Centre Length						
61	M29	6	10	8.5	30	19.5 ± 0.25	0.2	G4	D	100	—	ANY
61	M30	6	20	8.5	30	19.5 ± 0.25	0.45	G4	D	100	—	ANY

CLASS F MICRO-PROJECTOR LAMPS

Diag. Lamp No.	Ref.	Volts	Watts	A	B	C	D	Nominal Lumens x1000	Base	Average Life Hours	Special Features	Operating Position
				Maximum Diameter	Maximum Overall Length	Light Centre Length	Crown of bulb to Filament					
63*	F/10	6	24	39	65	—	10 ± 2	0.41	S.E.S. E14s	100	—	BD ± 135
63*	F/10	12	24	39	65	—	10 ± 2	0.44	S.E.S. E14s	100	—	BD ± 135
62*	F/3	12	24	39	65	—	10 ± 2	0.44	S.B.S. BA15d	100	—	BD ± 135
64*	F/25	6	30	39	69	—	10 ± 2	0.6	E.S. E27s	25	—	HOR ± 30
66*	F/58	6	48	40	65	—	7 ± 2	0.675	S.E.S. E14s	200	D	BD ± 135
66*	F/59	6	48	40	70	—	7 ± 2	0.675	E.S. E27s	200	D	BD ± 135
67*	F/81	6	48	39	63	41 ± 0.5	—	0.675	P30s	200	D	BD ± 135
68*	F/4	12	48	52	81	40 ± 3	—	0.95	S.E.S. E14s	100	—	BD ± 135
69*	F/38	12	48	40	65	40 ± 3	—	0.85	S.B.C. BA15d	100	—	BD ± 135
70	F/77	12	50	40	70	48 ± 3	—	0.95	S.E.S. E14s	50	—	BD ± 135
71	F/14	12	100	62	91	55 ± 5	—	2.25	E.S. E27s	100	—	BD ± 135
72	F/63	12	100	62	98	37 ± 0.5	—	2.25	P28s	100	—	BD ± 135

CLASS G EXCITER LAMPS

Diag. Lamp No.	Ref.	Volts	Amps	A	B	C	Nominal Lumens	Base	Filament Formation	Average Life Hours	Special Features	Operating Position
				Maximum Diameter	Maximum Overall Length	Light Centre Length						
76	G/19	4	0.75	16.5	50	31.8 ± 0.8	30	S.C.C. BA15s	D	50	—	ANY
75	G/27	4	0.75	16.5	50	28.5 ± 0.5	30	P30s	H	50	—	ANY
74	G/29	4	0.75	16.5	50	28.5 ± 0.5	30	P30s	D	50	—	ANY
73	G/31	4	0.75	25.5	51	28.5 ± 0.5	30	P30d	D	50	—	HOR ± 30
75	G/5	6	1	16.5	50	28.5 ± 0.5	80	P30s	H	100	—	BD ± 45
74	G/40	6	1	16.5	57	28.5 ± 0.5	80	P30s	D	100	—	BD ± 30
74	G/45	6	5	19	54	23 ± 0.5	450	P30s	D	100	—	BD ± 30
75	G/48	7	0.2	16.5	50	28.5 ± 0.25	13.10	P30s	H	50	—	ANY

LAMP INFORMATION ON RED BACKGROUND INDICATES THAT THE LAMP OPERATES ON THE TUNGSTEN HALOGEN PRINCIPLE.

SPECIAL FEATURES

- A Obscured top
- B Forced cooling necessary. Maximum bulb wall temperature 500°C
- C Offset filament
- D Solid source filament
- E Internal integral aluminised mirror
- F Internal integral dichroic mirror
- G Silvered bulb
- H Due to incorporated mirror nominal lumens not shown
- I Minimum bulb wall temperature 350°C
- J Pearl bulb

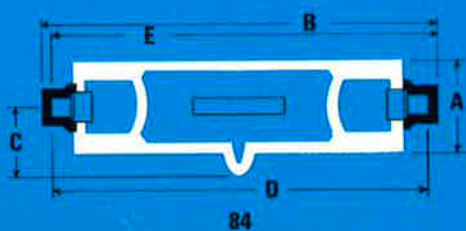
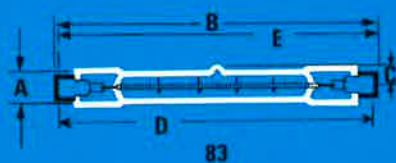
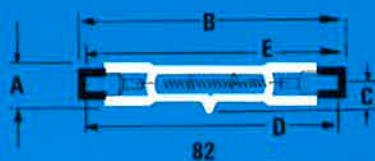
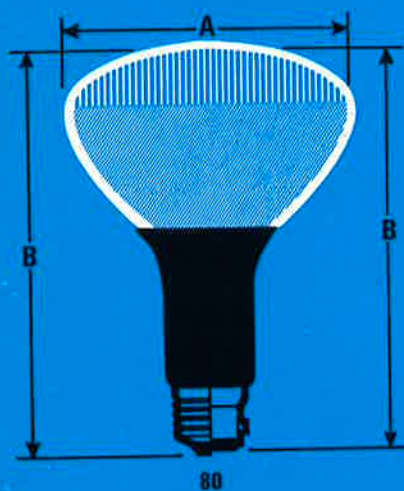
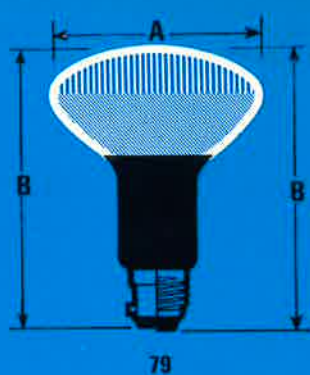
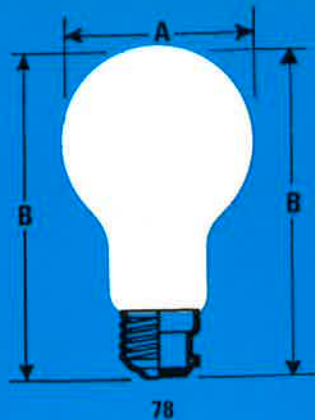
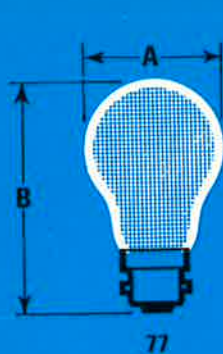
- K External integral aluminised mirror
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- N Tungsten Halogen equivalent available see page 3
- O Linear overhead projector lamp
- P 3 or 4 amp H.B.C. fuse necessary
- Q 5 or 6 amp H.B.C. fuse necessary
- R 6 or 7 amp H.B.C. fuse necessary
- S 10 amp H.B.C. fuse necessary
- T Opalised bulb
- U Satin etched bulb
- V Reflector photoflood

- W Reflector photospot
 - X Light output measured in centre beam candles
 - Y Class CP and T Halogen lamps require separate H.B.C. fuse in the circuit, see instruction leaflet in the carton for individual lamp requirements
 - Z Higher lumens apply to low voltage lamps
- Dual voltage lamps are indicated by oblique e.g. 240/250
Lamp ratings stepped at 10 volt are indicated by a comma e.g. 240, 250

All dimensions are shown in mm.

* DELETED FROM RANGE. AVAILABLE WHILST STOCKS LAST.

† MINIMUM PRODUCTION QUANTITY.



CLASS P1 PHOTOGRAPHIC LAMPS FOR MONOCHROME AND COLOUR FILM BALANCED FOR 3400K

Diag. No.	Lamp Ref.	Volts	Watt	A	B	C	D	E	Nominal Lumens x1000	Base	Average Life Hours	Special Features	Operating Position
				Maximum Diameter	Maximum Bulb Diameter	Max. pip. protuberance Overall from bulb Length axis	Nominal Contact Length	Maximum Clearance Length					
82	P1/8	30	250	12	80	10-2	74.9 ±1.6	78.3	8	R7s	12	—	ANY
77	P1/1	240/250	275	61	108.5	—	—	—	8.3	B.C.B22d	3	J	ANY
77	P1/1	240/250	275	61	110	—	—	—	8.3	E.S.E27s	3	J	ANY
79	P1/6	240/250	375	97	133.5	—	—	—	13	B.C.B22d	4	UVX	ANY
79	P1/6	240/250	375	97	135	—	—	—	13	E.S.E27s	4	UVX	ANY
78	P1/2	240/250	500	82	164.5	—	—	—	15	B.C.B22d	6	—	ANY
78	P1/2	240/250	500	82	166	—	—	—	15	E.S.E27s	6	—	ANY
82*	P1/9	120	650	15	80	11.4	74.9 ±1.6	78.3	21	R7s	12	—	ANY
85	P1/13	240/250	650	28	65	—	—	—	20	Cer G6-35	15	P	B D ±90
82†	P1/11	240/250	800	16	80	11.4	74.9 ±1.6	78.3	24.5	R7s	12	Q	ANY
83	P1/12	240/250	1000	12	127	10.2	121.7 ±1.6	125.1	33	R7s	15	Q	HOR ±4
85	P1/15	240/250	1000	28	65	—	—	—	32	Cer G6-35	12	Q	B D ±90
83	P1/18	240/250	1250	12	127	10.2	121.7 ±1.6	125.1	39	R7s	15	R	HOR ±4
85	P1/19	240/250	1250	28	75	—	—	—	40	Cer G6-35	15	R	B D ±90

CLASS P2 PHOTOGRAPHIC LAMPS FOR USE WITH COLOUR FILM BALANCED FOR 3200K AND FOR ALL MONOCHROME FILM STOCK

Diag. No.	Lamp Ref.	Volts	Watt	A	B	C	D	E	Nominal Lumens x1000	Base	Average Life Hours	Special Features	Operating Position
				Maximum Bulb Diameter	Maximum Bulb Diameter	Max. pip. protuberance Overall from bulb Length axis	Nominal Contact Length	Maximum Clearance Length					
78	P2/1	115	500	89	183.5	—	—	—	12.5	E.S.E27s	100	J	ANY
78	P2/1	240/250	500	89	183.5	—	—	—	11	E.S.E27s	100	J	ANY
80	P2/4	115	500	127.5	182	—	—	—	7.2	E.S.E27s	20	UVX	ANY
80	P2/4	240/250	500	127.5	182	—	—	—	7.2	E.S.E27s	12	UVX	ANY
83	P2/30	240/250	500	11	117.6	10.2	114.2 ±1.6	119.2	13.25	R7s	400	—	HOR ±4
83	P2/31	240/250	500	11	117.6	10.2	114.2 ±1.6	119.2	12.8	R7s	400	—	HOR ±4
81	P2/10	240/250	625	12	190	10.2	185.7 ±1.6	189.1	15.5	R7s	200	P	HOR ±4
83*	P2/15	240	625	12	119.5	10.2	114.2 ±1.6	117.6	16.25	R7s	75	P	HOR ±4
82	P2/6	120	650	15	80	11.4	74.9 ±1.6	78.3	17	R7s	100	—	ANY
85	P2/16	240/250	650	28	75	—	—	—	17.5	Cer G6-35	50	P	B D ±90
83*	P2/11	240	800	12	119.5	10.2	114.2 ±1.6	117.6	21	R7s	150	Q	HOR ±4
82	P2/13	240	800	15	80	11.4	74.9 ±1.6	78.3	20	R7s	75	Q	ANY
83	P2/14	240	800	15	93.5	12	88.4 ±1.6	91.8	20	R7s	50	Q	ANY
85†	P2/25	115	850	28	75	—	—	—	23	Cer G6-35	50	—	B D ±90
81	P2/7	240/250	1000	12	190	10.2	185.7 ±1.6	189.1	26	R7s	200	Q	HOR ±4
85†	P2/17	240/250	1000	28	75	—	—	—	28	Cer G6-35	50	Q	B D ±90
83	P2/28	120	1000	12	119.5	10.2	114.2 ±1.6	117.6	27	R7s	300	S	HOR ±4
83	P2/29	120	1000	12	119.5	10.2	114.2 ±1.6	117.6	27	R7s	300	S U	HOR ±4
81	P2/12	240/250	1250	12	190	10.2	185.7 ±1.6	189.1	33.5	R7s	200	R	HOR ±4
85†	P2/26	240/250	1250	28	75	—	—	—	35	Cer G6-35	50	R	B D ±90
84	P2/27	240/250	2000	30	143	25	138.45 ±1.6	141.3	50	RX7s	300	S	HOR ±4

CLASS P3 HIGH INTENSITY PHOTOGRAPHIC ENLARGER LAMPS

Diag. No.	Lamp Ref.	Volts	Watt	A	B	Base	Average Life Hours	Special Features	Operating Position
				Maximum Diameter	Maximum Overall Length				
78	P3/3	240/250	75	61	108.5	B.C.B22d	100	J	ANY
78	P3/3	240/250	75	61	110	E.C.E27s	100	J	ANY
78	P3/4	240/250	150	61	108.5	B.C.B22d	100	J	ANY
78	P3/4	240/250	150	61	110	E.S.E27s	100	J	ANY

LAMP INFORMATION ON RED BACKGROUND INDICATES THAT THE LAMP OPERATES ON THE TUNGSTEN HALOGEN PRINCIPLE.

SPECIAL FEATURES

- A Obscured top
- B Forced cooling necessary. Maximum bulb wall temperature 500°C
- C Offset filament
- D Solid source filament
- E Internal integral aluminised mirror
- F Internal integral dichroic mirror
- G Silvered bulb
- H Due to incorporated mirror nominal lumens not shown
- I Minimum bulb wall temperature 350°C
- J Pearl bulb

- K External integral aluminised mirror
- L External integral dichroic mirror
- M Internal proximity reflector
- N Tungsten Halogen equivalent available see page 3
- O Linear overhead projector lamp
- P 3 or 4 amp H.B.C. fuse necessary
- Q 5 or 6 amp H.B.C. fuse necessary
- R 6 or 7 amp H.B.C. fuse necessary
- S 10 amp H.B.C. fuse necessary
- T Opalised bulb
- U Satin etched bulb
- V Reflector photoflood

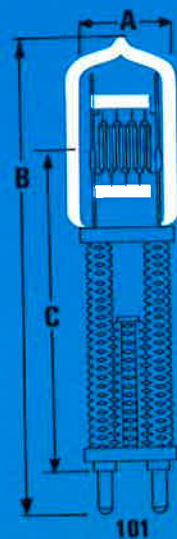
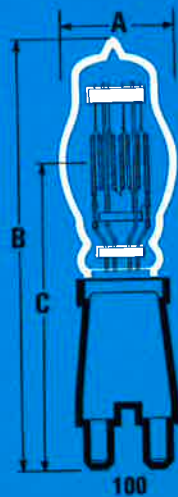
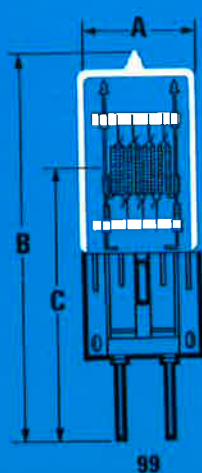
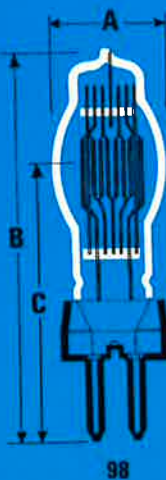
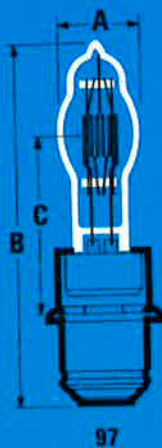
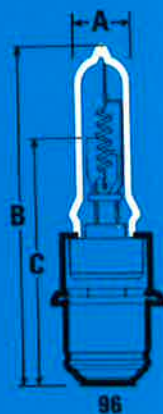
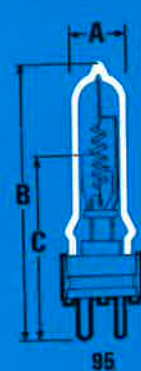
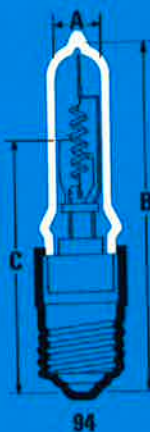
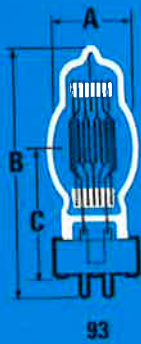
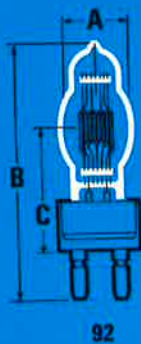
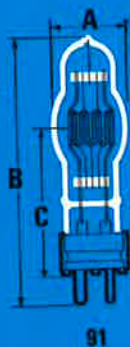
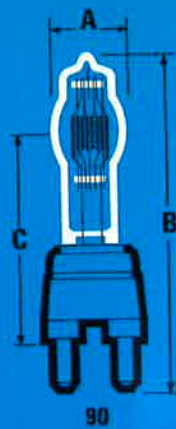
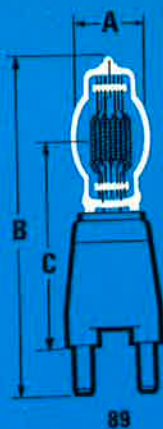
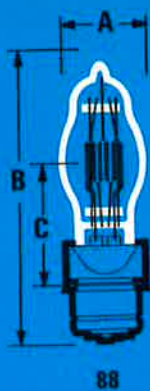
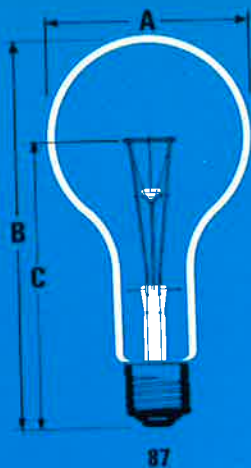
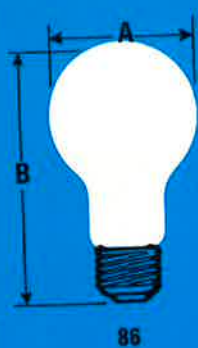
- W Reflector photospot
- X Light output measured in centre beam candles
- Y Class CP and T Halogen lamps require separate H.B.C. fuse in the circuit, see instruction leaflet in the carton for individual lamp requirements
- Z Higher lumens apply to low voltage lamps

Dual voltage lamps are indicated by oblique e.g. 240/250
Lamp ratings stepped at 10 volt are indicated by a comma e.g. 240, 250

All dimensions are shown in mm.

In the interest of safety tungsten-halogen lamps above 130V rating should have a separate high breaking capacity fuse in the circuit. See special features column for individual lamp requirements.

* DELETED FROM RANGE. AVAILABLE WHILST STOCKS LAST.
† MINIMUM PRODUCTION QUANTITY.



CLASS CP LAMPS FOR USE WITH COLOUR FILM BALANCED FOR 3200 K AND ALL MONOCHROME FILM STOCK

Diag. No.	Lamp Ref.	Volts	Watt	A	B	C	Nominal Lumens x1000	Average Life Hours	Cap	Special Features	Operating Position
				Maximum Diameter	Maximum Overall Length	Light Centre Length					
86	CP/2	240	500	82	166	—	13.75	15	E.S.	JZ	ANY
93	CP/23	115/120, 240	650	35	110	55 ± 2	17/16.8	100	GX9-5	YZ	B D ± 45
92	CP/39	115/120, 240	650	35	140	63.5 ± 0.5	17/16.8	100	G22	YZ	B D ± 90
88	CP/51	115/120, 240	650	35	130	55.5 ± 0.5	17/16.8	100	P28s	YZ	B D ± 90
87	CP/3	240	1000	153	309	—	28	25	G.E.S.E40s	JZ	ANY
93	CP/24	115/120, 240	1000	35	110	55 ± 2	27/26	200	GX9-5	YZ	B D ± 90
92	CP/40	115/120, 240	1000	35	140	63.5 ± 0.5	27/26	200	G22	YZ	B D ± 90
88	CP/52	115/120, 240	1000	35	130	55.5 ± 0.5	27/26	200	P28s	YZ	B D ± 90
98	CP/30	115/120	1250/1250	60	220	143 ± 2	28/59	250	GX38q	YT	B D ± 45
		240	1250/1250	60	220	143 ± 2	27/56	300	GX38q		
98	CP/58	240	1250/2500	70	220	143 ± 2	27/59	300	GX38q	YT	B D ± 45
			3750				91				
89	CP/41	115/120, 240	2000	40	210	127 ± 2	56/54	400	G38	YSZ	B D ± 90
91	CP/43	115/120, 240	2000	40	145	70 ± 2	56/54	400	GY16	YZ	B D ± 90
97	CP/53	115/120, 240	2000	40	200	87 ± 0.5	56/54	400	P40s	YZ	B D ± 90
90	CP/56	115/120, 240	2000	40	210	127 ± 2	56/54	400	G38	YOZ	B D ± 90
94	CP/59	220/230, 240	2000	30	190	133	50	300	E40	Y	ANY
99	CP/32	240	2500/2500	70	220	143 ± 2	59/127	300	GX38q	YT	B D ± 45
90	CP/29	115/120	5000	65	265	165 ± 2	145	400	G38	Y	B D ± 45
100	CP/29	240	5000	75	265	165 ± 2	135	500	G38	Y	B D ± 45
101	CP/54	240	10000	70	380	254 ± 2	280	400	G38	Y	B D ± 45

CLASS CP LAMPS FOR USE WITH COLOUR FILM BALANCED FOR 3200 K AND ALL MONOCHROME FILM STOCK **HX AND ANSI REFERENCES**

88†	BTM	120	500	25	130	55.5	13	100	P28s	Y	B D ± 90
92†	EGN	120	500	25	140	63.5	13	100	G22	Y	B D ± 90
92†	HX/37	240	650	35	175	102	16.8	100	G22	YO	B U ± 45
88†	BTP	120	750	35	130	55.5	20.5	200	P28s	Y	B D ± 90
92†	EGR	120	750	35	140	63.5	20.5	200	G22	Y	B D ± 90
88†	BTR	120	1000	35	130	55.5	28	250	P28s	Y	B D ± 90
97†	BVV	120	1000	35	200	100	28	250	P40s	YO	B D ± 90
92†	EGT	120	1000	35	140	63.5	28	250	G22	Y	B D ± 90
97†	CWZ	120	1500	40	215	100	41	300	P40s	YO	B D ± 90
89†	CXZ	120	1500	40	210	127	41	300	G38	Y	B D ± 90
97†	DTA	120	1500	40	200	87	41	300	P40s	Y	B D ± 90
89†	CYX	120	2000	40	210	127	58	400	G38	Y	B D ± 90
95†	HX/27	240	2000	30	155	85	52	300	GY16	Y	ANY
96†	HX/36	240	2000	30	180	95	50	300	P40s	Y	B D ± 90
97†	HX/53	120	2000	40	200	87	58	400	P40s	Y	B D ± 90
90†	HX/48	120, 240	3000	47	210	127	82	400	G38	SY	B D ± 45
90†	DPY	120	5000	65	280	165	145	400	G38	Y	B D ± 90

All HX and ANSI reference lamps above are available on a minimum production basis only. Please apply to your branch office for details.

LAMP INFORMATION ON RED BACKGROUND INDICATES THAT THE LAMP OPERATES ON THE TUNGSTEN HALOGEN PRINCIPLE.

SPECIAL FEATURES

A	Obscured top	K	External integral aluminised mirror
B	Forced cooling necessary. Maximum bulb wall temperature 500°C	L	External integral dichroic mirror
C	Offset filament	M	Internal proximity reflector
D	Solid source filament	N	Tungsten Halogen equivalent available see page 3
E	Internal integral aluminised mirror	O	Special development for ellipsoidal spotlights
F	Internal integral dichroic mirror	P	3 or 4 amp H.B.C. fuse necessary
G	Silvered bulb	Q	5 or 6 amp H.B.C. fuse necessary
H	Due to incorporated mirror nominal lumens not shown	R	6 or 7 amp H.B.C. fuse necessary
I	Minimum bulb wall temperature 350°C	S	110/115V available to special order
J	Pearl bulb	T	Twin filament lamp. Lumen figures relate to single/twin filament options

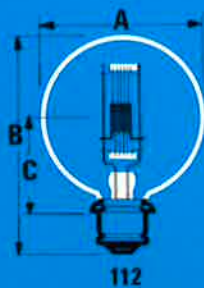
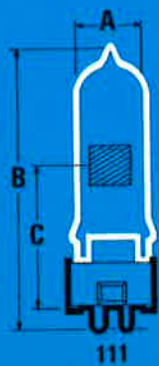
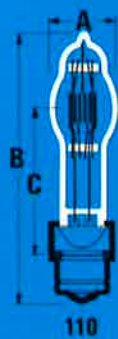
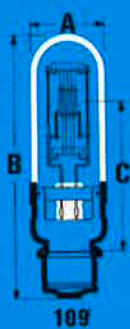
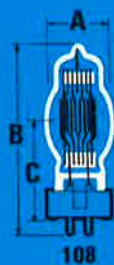
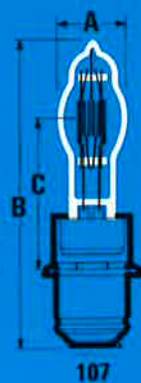
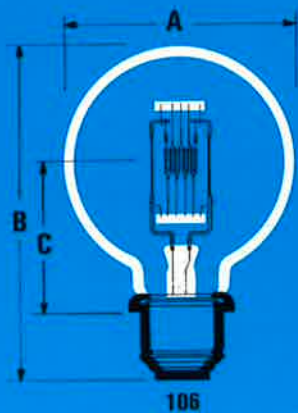
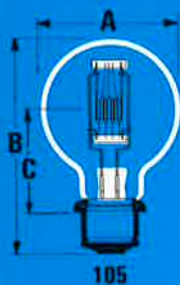
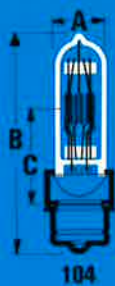
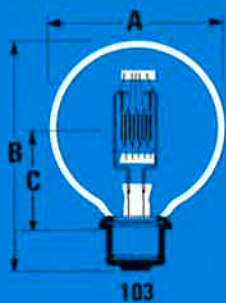
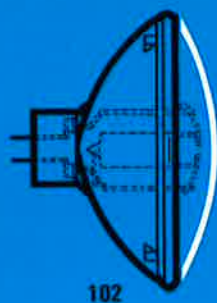
U	Satin etched bulb
V	Reflector photo flood
W	Reflector photospot
X	Light output measured in centre beam candles
Y	Class CP and T Halogen lamps require separate H.B.C. fuse in the circuit, see instruction leaflet in the carton for individual lamp requirements
Z	Higher lumens apply to low voltage lamps

Dual voltage lamps are indicated by oblique e.g. 240/250
Lamp ratings stepped at 10 volt are indicated by a comma e.g. 240, 250

All dimensions are shown in mm.

* DELETED FROM RANGE, AVAILABLE WHILST STOCKS LAST.

† MINIMUM PRODUCTION QUANTITY.



CLASS T THEATRE SPOTLIGHT LAMPS

Diag. Lamp No. Ref.	Volts	Watts	A		B		C		Nominal Lumens x1000	Base	Average Life Hours	Special Features	Operating Position
			Maximum Diameter	Maximum Overall Length	Maximum Overall Length	Light Centre Length							
105* T/3	240	250	78	124	55.5 ± 0.5	4.25	P28s	200	—	—	—	—	B D ± 90
103 T/1	240	500	100	140	55.5 ± 0.5	9.5	P28s	200	N	—	—	—	B D ± 90
104 T/17	115/120	240	500	25	130	55.5 ± 0.5	9.5	P28s	750	Y	—	—	B D ± 90
111 T/18	240	500	25	90	46.5	11	GY9.5	300	Y	—	—	—	B D ± 90
108 T/12	115/120	240	850	35	110	55 ± 2	13.5	GX9.5	750	Y	—	—	B D ± 90
113 T/13	115/120	240	650	35	130	55.5 ± 0.5	13.5	P28s	750	Y	—	—	B D ± 90
106* T/2	240	1000	132	200	87 ± 0.5	20	P40s	200	N	—	—	—	B D ± 90
109* T/4	240	1000	39	155	89 ± 0.5	20	P28s	200	N	—	—	—	B U ± 15
112* T/6	240	1000	102	140	55.5 ± 0.5	20	P28s	200	N	—	—	—	B D ± 75
108 T/11	115/120	240	1000	35	110	55 ± 2	23	GX9.5	750	Y	—	—	B D ± 90
113 T/14	115/120	240	1000	35	130	55.5 ± 0.5	23	P28s	750	Y	—	—	B D ± 90
110 T/15	115/120	240	1000	35	160	89 ± 0.5	23	P28s	750	Y	—	—	ANY
107 T/16	115/120	240	1000	35	180	87 ± 0.5	23	P40s	750	Y	—	—	B D ± 90

CLASS T HX REFERENCE LAMPS

104† HX/17	120	BTL	500	27	130	55.5	10.5	750	P28s	Y	—	—	B D ± 90
104† HX/80	120	EXF	500	25	160	89	10.5	750	P28s	Y	—	—	B U ± 15
108† HX/82	115/120, 240		500	25	110	55	10.5/9.5	750	GX9.5	Y Z	—	—	B D ± 90
113† HX/21	120	BTN	750	35	130	55.5	17	750	P28s	Y	—	—	B D ± 90
110† HX/35	120	EXB	750	35	160	89	17	750	P28s	Y	—	—	B U ± 15
113† HX/14	120		1000	35	130	55.5	24.5	750	P28s	Y	—	—	B D ± 90
110† HX/15	120	EXA	1000	35	160	89	24.5	750	P28s	Y	—	—	ANY
107† HX/16	120		1000	35	180	87	24.5	750	P40s	Y	—	—	B D ± 90
108† HX/81	115/120, 240		1000	35	130	75	23	750	GX9.5	Y	—	—	B D ± 90

All above HX series lamps are available on a minimum production basis only. Please apply to your branch office for details.

LAMP INFORMATION ON RED BACKGROUND INDICATES THAT THE LAMP OPERATES ON THE TUNGSTEN HALOGEN PRINCIPLE.

SPECIAL FEATURES

- A Obscured top
B Forced cooling necessary. Maximum bulb wall temperature 500°C
C Offset filament
D Solid source filament
E Internal integral aluminised mirror
F Internal integral dichroic mirror
G Silvered bulb
H Due to incorporated mirror nominal lumens not shown
I Minimum bulb wall temperature 350°C
J Pearl bulb

- K External integral aluminised mirror
L External integral dichroic mirror
M Internal proximity reflector
N Tungsten Halogen equivalent available see table
O Linear overhead projector lamp
P 3 or 4 amp H.B.C. fuse necessary
Q 5 or 6 amp H.B.C. fuse necessary
R 6 or 7 amp H.B.C. fuse necessary
S 10 amp H.B.C. fuse necessary
T Opalised bulb
U Satin etched bulb
V Reflector photoflood

- W Reflector photospot
X Light output measured in centre beam candles
Y Class CP and T Halogen lamps require separate H.B.C. fuse in the circuit, see instruction leaflet in the carton for individual lamp requirements
Z Higher lumens apply to low voltage lamps

Dual voltage lamps are indicated by oblique e.g. 240/250

Special developments for ellipsoidal spotlight (T.15, EXF, EXB, EXA, HX81.)

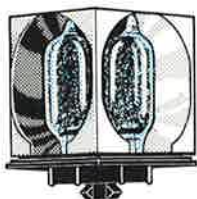
All dimensions are shown in mm.

* DELETED FROM RANGE. AVAILABLE WHILST STOCKS LAST.
† MINIMUM PRODUCTION QUANTITY.

CLASS CP E.M.E.P. BASE (PAR 64)

Diag. TLL No. Ref.	Volts	Watts	Description	PK Beam Candlepower x1000	Average Life Hours	Field Angle 1/10 peak	Beam Angle 1/2 peak	ANSI CODE	Operating Position
102 CP/60	240	1000	Clear Narrow Spot	320	300	17°Vx 20°H	9°Vx 12°H	EXC	ANY
102 CP/61	240	1000	Stipple Spot	270	300	20°Vx 22°H	10°Vx 14°H	EXD	ANY
102 CP/62	240	1000	Flood	125	300	20°Vx 38°H	11°Vx 24°H	EXE	ANY

Flashcube



Four miniature blue bulbs, smaller in size than an AG3B, are enclosed in a plastic cube complete with a precision reflector for each individual bulb.

Flashcubes are simple to fit on the camera and simple to remove, either manually or by automatic ejection. They are only just warm to the touch after four bulbs have been fired. The precision-made base ensures correct location on the camera, enabling positive contact and automatic rotation of the Flashcube.

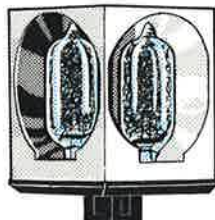
Flashcubes may be used with suitably designed cameras and adaptors, with X synchronization at shutter speeds up to 1/60 second and at all shutter speeds with M synchronization.

Full Exposure Data is printed on every carton

Specification

Class	MF
Colour of bulb	Blue
Total light output (beam candle power sec)	2000
Peak light output (beam candle power)	130000
Time to peak (milliseconds)	13
Duration above half peak (milliseconds)	15
Voltage range	3-45
Width (mm)	28.5
Overall length (mm)	35.5
Cubes per pack	3
Cubes per outer pack	60

Magicube X



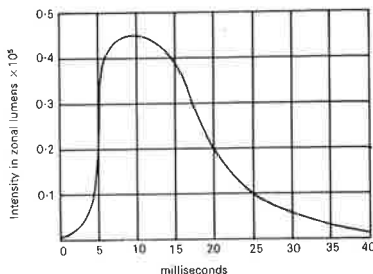
Magicube X is a major advance towards 100% photoflash reliability. It is mechanically activated, thus eliminating the need for batteries and consequent failures due to poor electrical contact or corrosion.

Magicube X can be used only with cameras designed with the special Magicube firing system.

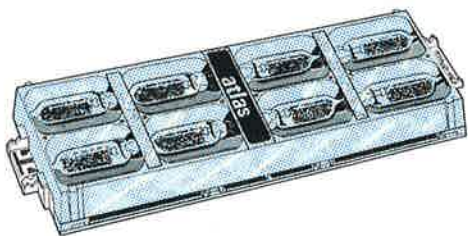
Full Exposure Data is printed on every carton

Specification

Colour of bulb	Blue
Total light output (zonal lumens/sec)	460
Peak intensity (zonal lumens)	44000
Time to peak (milliseconds)	7
Duration above half peak (milliseconds)	13
Maximum width (mm)	30.5
Maximum overall height (mm)	41
Cubes per pack	3
Cubes per outer	60



FlipFlash

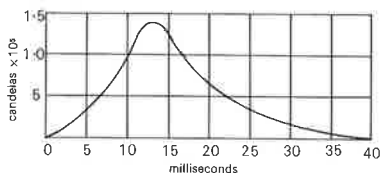


FlipFlash is an expendable flash array consisting of eight flashbulbs mounted on a specially designed circuit board and totally enclosed in a plastic unit. It is used specifically on the new range of piezo electric cameras marketed by some ten manufacturers including Kodak and Agfa. As each bulb is fired by the piezo electric-ceramic system in the camera, a heat activated switch automatically connects the next bulb. When the top four bulbs have been fired, the unit is flipped over in readiness for the next four flashes.

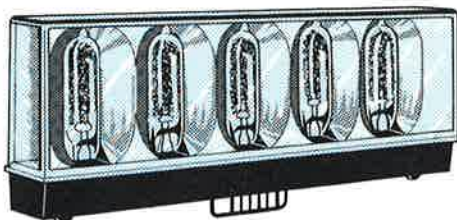
FlipFlash acts as its own extender, thus minimising the red eye effect.

Specification

Class	MF
Colour of lamp	Clear
Nominal total light output (candle power seconds)	1800
Nominal peak light output (beam candle power)	140000
Nominal time to peak (milli seconds)	13
Nominal duration above half-peak (milli seconds)	10
Min. volts	1800
Width (mm)	44.6
Height (mm)	140
Units per pack	1
Units per inner carton	12
Units per outer carton	144



Flashbar 10

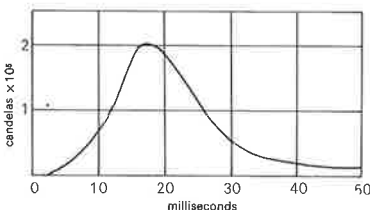


Flashbar 10 is a unit containing ten miniature clear bulbs mounted inside a lightly tinted blue cover in two rows of five, incorporating a computer designed reflector for each lamp. The use of hafnium foil and borosilicate glass sets new standards for light output per unit volume and safety.

Flashbar 10 is designed for use with the instant picture cameras marketed by Polaroid (SX series) and Keystone (FX series). The bulbs are electrically fired sequentially by the battery included in the film pack. When the first side is used the bar must be unplugged and reversed. The second side is then ready for use.

Specification

Class	M
Colour of lamp	Clear
Nominal total light output (Zonal lumen seconds)	820
Nominal peak light output (Zonal lumens)	50000
Nominal time to peak (milli seconds)	16
Nominal duration above half-peak (milli seconds)	25
Voltage range	3-22½
Width (mm) nominal	15
Length (mm) nominal	108
Height (mm) nominal	45
Units per pack	1
Units per inner carton	12
Units per outer carton	144



Photoflash bulbs

Outstanding features of these photoflashbulbs are:

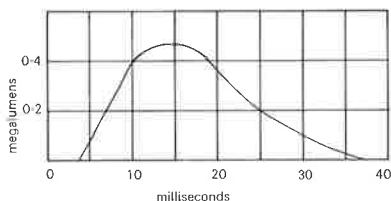
Zirconium filling: The use of zirconium foil enables more light to be packed into less space, thus giving greater economy, greater efficiency and flexibility.

Precision manufacture: Dependability is of prime importance in flash photography. These bulbs are of consistent high quality, thanks to precision manufacture and rigorous test standards.

Tru-Flash Type 1B

Specification

Class	MF
Colour of bulb	Blue
Total light output (lumens secs)	7500
Peak light output (megalumens)	0.45
Time to peak (milliseconds)	13
Duration above half peak (milliseconds)	15
Voltage range	3-45
Maximum bulb diameter (mm)	11.9
Maximum overall length (mm)	40.5
Bulbs per pack	10
Bulbs per outer container	200
Colour code	Blue



Mini-Flash Super AG3B

Specification

Class	MF
Colour of bulb	Blue
Total light output (lumen secs)	7500
Peak light output (megalumens)	0.45
Time to peak (milliseconds)	13
Duration above half peak (milliseconds)	15
Voltage range	3-45
Maximum bulb diameter (mm)	11.9
Maximum overall length (mm)	33.3
Bulbs per pack	10
Bulbs per outer container	200
Colour code	Blue

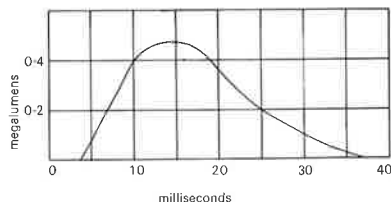
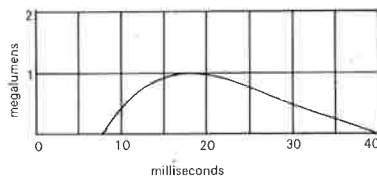


Photo-Flash M3

Specification

Class	M
Colour of bulb	Clear
Total light output (lumens secs)	16000
Peak light output (megalumens)	1
Time to peak (milliseconds)	17
Duration above half peak (milliseconds)	15
Voltage range	3-45
Maximum bulb diameter (mm)	22
Maximum overall length (mm)	45
Bulbs per pack	6
Bulbs per outer container	180
Colour code	Red



Full Exposure Data is printed on every carton

Compact source mercury iodide projector lamp—400W

Description

The 400W compact source iodide lamp gives white light of good colour rendering properties at an efficiency of 80L/W. The source size is approximately 9 x 5 mm and the brightness is about 8000 candelas per square cm.

The high efficiency is obtained by the use of an arc discharge. The iodide technique has been used to introduce additional elements into the arc and to keep the bulb wall clean throughout life.

Applications

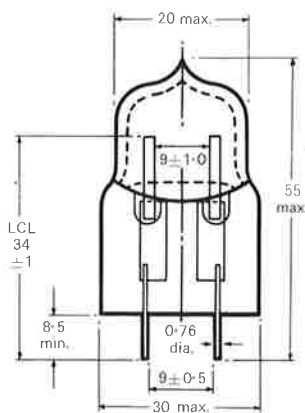
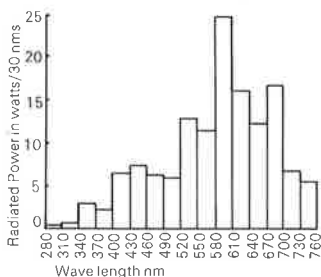
The major advantage of this lamp is its high efficiency, combined with its robustness, simplicity, small size and relatively low power consumption. In general, considerations of source size, lamp size, lamp rating and efficiency indicate that it can be used in applications which at present use 100V–240V hard glass filament projector lamps of 250W–1000W rating to give a substantial advantage in terms of either increased light output or a reduction in input power and heat.

It is useful in high-powered slide projectors and theatre spotlights (especially follow-spots), in overhead projectors, projection microscopes, enlargers and cine projectors. It is suitable for colour photography using daylight colour-film stock.

A lampholder, no. L 1101, is available for this lamp.

Control gear
G 53196, T

Typical spectral power histogram



All dimensions in mm

Lamp reference nos.

400W 99-0201

Characteristics

Supply volts a.c.	220, 240
Arc watts nom.	400
Arc volts nom.	100
Arc current (amps) nom.	5
Run up time (secs)	50
Re-starting time (mins)	3–5
Initial lum. eff. (min)	80 lumens/watt
Lumen maintenance	85%
Colour rendering	Good
Chromaticity co-ordinates	x = 0.395 y = 0.395 CV 3.5%
Life (nominal objective-hours)	500
Operating position	ANY

Compact source metal halide lamps—1000W and 1000W hot re-strike

Description

1000W CSI A compact source iodide lamp giving white light of good colour rendering at an efficacy of 90 L/W for 200 hours life.

1000W CSI hot re-strike A version of the standard 1000W CSI in which the lamp terminations have been modified to give better insulation so enabling the lamp to be restarted instantly when hot.

Applications

The high efficiency, robustness and small size of these lamps make them particularly suitable for projector purposes (such as follow spots), and cinema and television lighting use. For photographic purposes they are suitable for use with daylight colour film stock.

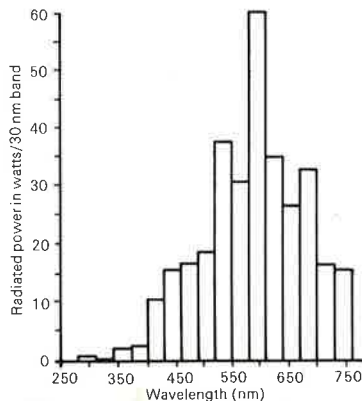
Lamp reference nos.

1000W	99-0221
1000W hot re-strike	99-0421

Characteristics

Supply volts	220, 240
Arc watts	1000
Arc volts	70-85
Arc current (amps)	15
Run-up time (secs)	30
Re-start time (mins)	2-5
Re-start time hot re-strike (mins)	Instantaneous
Initial efficiency (lumens/watt)	90
Lumen maintenance	90%
Colour rendering	Good
Chromaticity co-ordinates	x=0.395 y=0.395 CV 3.5%
Cap	Medium bi-post G22
Cap. (hot re-strike)	Bi-post G38
Life (nominal objective - hours)	200
Operating position	ANY

Typical spectral power histogram



Installation hot-restrike

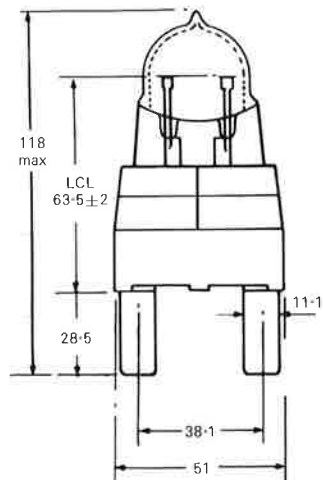
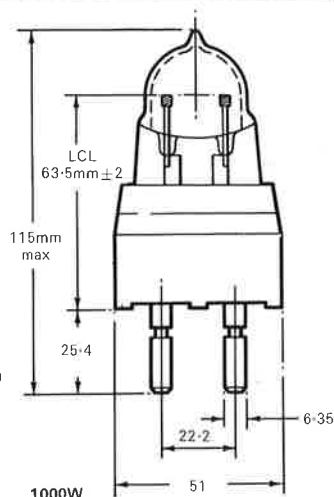
Standard G38 lampholders should not be used with this lamp and circuit as they will not necessarily carry the high pulse voltages required for hot restart. A lampholder with well insulated sockets is necessary. Suitable lampholder: BENDER & WIRTH type 938/223.

Short, well insulated leads between starter and lamp are essential to prevent actual arcing and to minimise pulse losses by 'brushing'. The following minimum clearance and creepage distances between the hot lead and any adjacent metal, whether earthed or not, are recommended:
Clearance distance
(1) Between smooth surfaces 15mm.
(2) Between sharp projections 30mm
Creepage distances i.e. bridged by an insulating surface 30mm.

Control gear

1000W CSI G 63255, T

1000W CSI hot re-strike Details on application.



1000W Hot re-strike

All dimensions in mm

1kW 8 in Sealed Beam Compact Source Iodide Lamp— Ref: 99-1222

Description

The 1kW Sealed Beam Compact Source Iodide lamp consists of a high pressure discharge lamp 1kW CSI arc tube (see data sheet 99—0221) enclosed in a 8" sealed beam reflector envelope.

The 1kW CSI Arc Tube comprises a discharge in a quartz envelope operating between tungsten electrodes in an atmosphere of mercury vapour with additional metallic iodides. These additives ensure a high efficiency white light source of good colour rendering, and the accurate positioning of this arc tube within the sealed beam reflector outer gives a beam candle power of some $1\frac{1}{2}$ million candelas with a total spread of 18° (to $1/10$ peak).

Applications

Filming and T.V. outside broadcasts, suitable for use with daylight colour film stock. Also as general alternative for carbon arcs.

Characteristics

Supply volts	220, 240V A.C.
Arc watts	1,000
Arc volts	70/85
Arc current amps	15 approximately
Run-up time	50 secs (to 90%)
Re-starting time	10 mins
(in OM 1000 floodlight)	
Diameter	205mm
Overall length	175mm
Cap	Bi-post G38
Initial beam candlepower (peak)	1.5 million cds
Beam Spread	1/2 1/3 1/5 1/10 6° 8° 12° 18°
Lamp lumens	Initial 76,000 Design 67,000
Colour rendering	Good
Chromaticity co-ordinates	x=0.395 y=0.395 CV 3.5%
Life (Nominal Objective)	1000 hours
Operating position	Any

(Note: Preferred mounting position marked "TOP")

Control Gear

G 53307.T	220/240V 50Hz choke (1 per lamp)	19.0 kg
G 53319	Ignitor unit on open gear tray	1.17 kg
GC 2346	25 μ F 250V Capacitors (use 7 per lamp)	0.68 kg

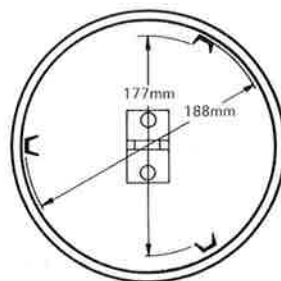
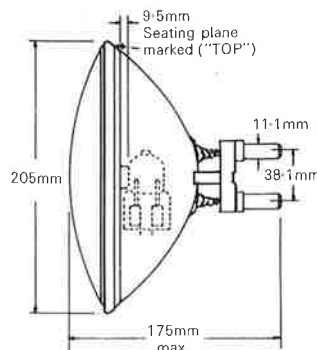
(See also Data sheet G.5)

Notes

- The connection from the ignitor to lamp should not be longer than 6ft and suitable high tension cable should be used. (Ripaults high tension type PV 267 7mm PVC 16/0.012, or similar).
- The ignitor components are mounted on an open tray. The ignitor provides a high voltage pulse and should be totally enclosed and earthed.
- To start the lamp the switch (see circuit diagram) should be depressed for a few seconds until the lamp is burning steadily and then released. The switch should not be operated whilst the lamp is working. (Switch is not supplied).
- It will be necessary to allow the lamp to cool before restarting.

Warning

The unit generates high voltage pulses for lamp starting. Suitable safety precautions should be taken during installation and operation of the unit. The control unit and associated lamp house must be earthed. The H.V. cable should be protected from accidental damage. The supply must be disconnected before servicing. For outdoor use the lamp must be protected from rain.



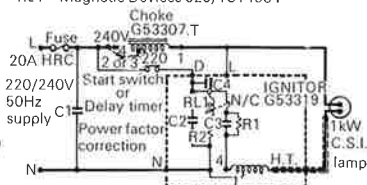
1kW CSI Circuit diagram using choke G53307.T and Ignitor G53319

C1—175 μ F 250V A.C.
C2/C3—0.22 μ F 1000V
C4—0.005 μ F 250V A.C.

R1—4.7k Ω 10W

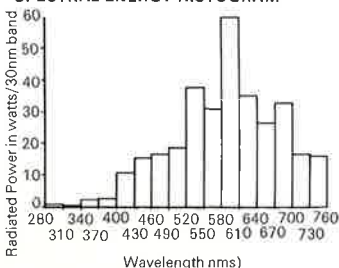
R2—4.7 Ω 10W

RL1—Magnetic Devices 325/TS14084



Transformer G47077

SPECTRAL ENERGY HISTOGRAM



1kW 8 in Sealed Beam Compact Source Iodide Lamp (Hot Restrike) Ref: 99-1422

Description

The 1kW Sealed Beam Compact Source Iodide Lamp Ref: 99-1422 is a modified form of standard 1kW CSI Sealed Beam Lamp Ref: 99-1222 (See Data Sheet 99-122) in which the construction has been modified to enable the lamp to be restarted immediately when hot.

Applications

Film & T.V. Outside Broadcasts, suitable for use with daylight colour film stock. Also as a general replacement for carbon arcs.

Control Gear

Three Chokes G53230T in parallel, PF correction capacitors and 25kV minimum output* starter unit. Recommended Type, Walter Bausch-type 420, or IREM Type A-1530. See circuit diagram. Chokes and capacitors available as gear tray assembly OMG B3C8.

Characteristics

Supply Volts	220, 240v A.C.
Arc Watts	1,000
Arc Volts	70/85
Arc Current (amps)	15 approximately
Run-up Time (secs)	50
Re-starting Time	Instantaneous
Diameter	205mm
Overall length (max)	175mm
Caps	Bi-post G38
Initial beam candlepower (peak)	1.5 million CDS
Beam Spread (peak)	1/2 1/3 1/5 1/10 ±3° ±4° ±6° ±9°
Colour Rendering	Good
Chromaticity Co-ordinates	x=0.395 y=0.395 CV 3.5%
Life (Nominal Objective)	1000 hours
Operating Position	Any

Installation

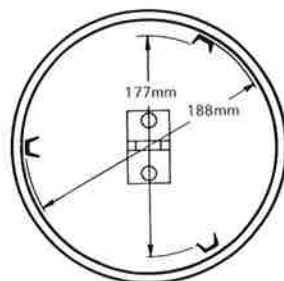
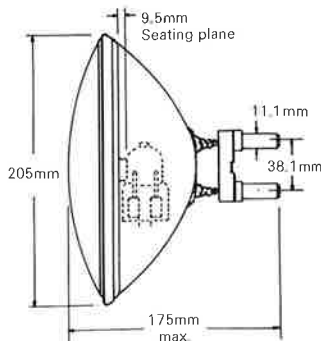
Standard G38 lampholders should not be used with this lamp and circuit as they will not necessarily carry the high pulse voltages required for hot restart. A lamp holder with well insulated sockets is necessary. Suitable lampholders Ref. 938/223 may be obtained from Bender and Wirth Ltd.

Short well insulated leads between starter and lamp are essential to prevent actual arcing and to minimise pulse losses by 'brushing'. The following minimum clearance and creepage distances between the hot lead and any adjacent metal, whether earthed or not, are recommended.

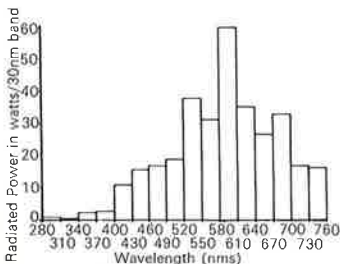
Clearance distance

- (1) Between smooth surfaces 15mm.
 - (2) Between sharp projections 30mm.
- Creepage distances i.e. bridged by an insulating surface 30mm.

*As measured by a sphere gap to BS358. Spikes approximately double this value may be recorded on an oscilloscope.

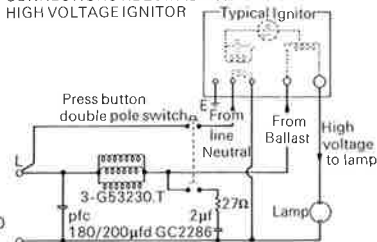


SPECTRAL ENERGY HISTOGRAM



CIRCUIT DIAGRAM

1kW CSI HOT RE-STRIKE CIRCUIT SHOWING CONNECTIONS REQUIRED FOR A TYPICAL HIGH VOLTAGE IGNITOR



Supplier of lampholders,
Bender & Wirth Ltd,
5893 Kierspe,
Westfalen,
W. Germany.

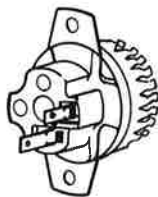
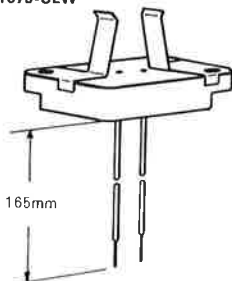
Photographic lampholders

GL 1079 series for G6.35 caps.

GL 1079-W

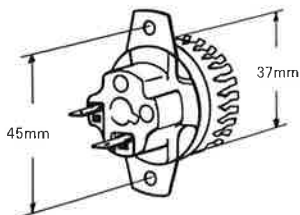


GL 1079-SLW



GL 1042-HV

For lamp voltages over 21-5V.
for G.17q G.17t caps.



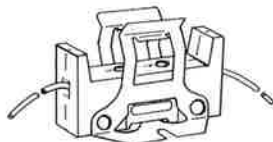
GL 1042-LV

up to and including 21-5V.
for G.17q G.17t caps.



GL 1101

For 400W CSI lamps.



GL 1177

for GY9.5 caps



GL 1123-A

for G.4 caps.

PROJECTOR LAMP SUBSTITUTION GUIDE

ANSI Ref:	Volts	A1 Ref:	A1 Volts
BEH	120	A1/182	*
BEL	220	A1/183	220
BRJ	15	A1/234	15
BRL	12	A1/220	12
BXT	12	A1/186	12
CAL	120	A1/201	*
CBA	120	A1/241	*
CDS	120	A1/21	115
CEW/CFC	120	A1/167	*
CGW/CGT	120	A1/26	115
CLS/CLG	120	A1/37	115
CNP	230	A1/37	230
CMV/CMT	120	A1/37	115
CSF	240	A1/178	240
CTD	230	A1/182	230
CTT	120	A1/207	115
CWA	120	A1/206	115
CWD	120	A1/178	*
CXH	230	A1/201	230
CXK	120	A1/6	115
CXL	8	A1/202	8
CXR	8	A1/17	8
CYC	120	A1/183	*
CYN	24	A1/212	24
CZA/CZB	120	A1/205	*
CZG	230	A1/205	230
CZX/DAB	120	A1/7	115
DAK	120	A1/180	*
DBS	230	A1/180	230
DBT	230	A1/7	230
DCA	21.5	A1/184	21.5
DCR	21.5	A1/210	21.5
ddb	120	A1/9	115
DEF	21.5	A1/211	21.5
DEJ	120	A1/53	115
DFD	120	A1/59	115
DFN/DFC	125	A1/24	125
DFT	120	A1/59	115
DFY	120	A1/91	115
DKK	230	A1/9	230
DLG	21	A1/194	21.5
DNF	210	A1/266	21
DPT	120	A1/57	115
DYR	230	A1/233	230
DYS	120	A1/264	120
DZE/FDS	24	A1/262	24
EFM	8	A1/229	8
EFN	12	A1/230	12
EFF	12	A1/231	12
EFR	15	A1/232	15
EHE	12	A1/45	12
EHJ	24	A1/223	24
EJL	24	A1/252	24
EGH	120	A1/241	*
ELC	24	A1/259	24
EMM	24	A1/258	24
EPS	240	A1/268	
ETA	12	A1/45	12
FAL	120	A1/227	120
FCB	120	A1/228	120
FCR	12	A1/215	12
FCS	24	A1/216	24
FDT	12	A1/261	
FDX	12	A1/209	12
FEA	230	A1/228	230
FEB	220	A1/228	220

ANSI Ref	Volts	Amps	G and M Ref
BGB	4	0.75	G 31
BRD	4	0.75	G 19
BRK	4	0.75	G 27
BRS	4	0.75	G 29
BSB	6	1.0	G 5
BSK	6	1.0	G 40
BSS	6	1.0	G 5
BSW	7	0.2	G 48
ESA	6	10W	M 29
ESB	6	20W	M 30

*Manufactured as stock items in 220/230v, 240/250v ratings only.

PHOTOGRAPHIC AND STUDIO LAMP SUBSTITUTION GUIDE

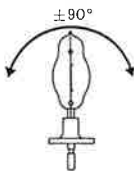
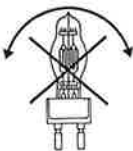
ANSI Ref:	ANSI Volts	TLL Ref:
BFE	120	HX21 (1)
BFK	120	HX21 (1)
STL	120	HX17 (1)
BTM	120	BTM
BTN	120	HX21 (1)
BTP	120	BTP
BTR	120	BTR
BVM	220/230	P1/13 *
BVT	120	(2)
BVV	120	BVV
BVW	120	BVW
BWA	120	(2)
BWF	120	(2)
CWZ	120	CWZ
CXZ	120	CXZ
CYX	120	CYX
DDY	120	BTP
DEB	120	HX80 (1)
DGH	120	HX21 (1)
DMX	120	BTM
DNS	120	HX80 (1)
DNT	120	HX35 (1)
DNV	120	HX15 (1)
DPJ	120	BTP
DPW	120	(2)
DPY	120	DPY
DTA	120	DTA
DTJ	120	DTA
DWK	230	CP52 (220, 240v)
DWY	120	P1/9
DXV	230	P1/11 *
DXX	230, 240	P2/13 *
ECG	120	CYX
ECN	120	DPY
EDC	120	EGN
EDG	120	EGR
EGE	120	HX80 (1)
EGG	120	HX35 (1)
EGN	120	EGN
EGR	120	EGR
EGT	120	EGT
EKM	240	P2/7 *
EXC	240	CP60
EXD	240	CP61
EXE	240	CP62
FAD	120	P2/6
FCM	120	P2/28
FEX	240/250	P2/27 *
FEY	120	P2/27
FHM	120	P2/29
FDI	120	P2/30
FDN	120	P2/31
500/T12/8	120	HX80 (1)
750/T12/9	120	HX35 (1)
IM/T20P/SP	120	HX14 (1)
IM/T12/2	120	HX15 (1)

(1) Non stock item - details on application

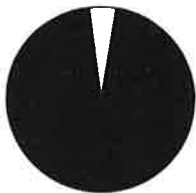
(2) Available to special order only

* Thorn manufacture in 220/230v and 240/250v ratings.

Operating Positions



BD



BD ± 30°



BD ± 45°



BD ± 75°



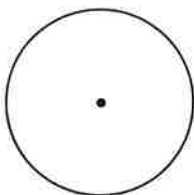
BD ± 90°



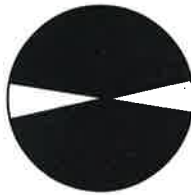
BD ± 135°



ANY



HOR ± 4°



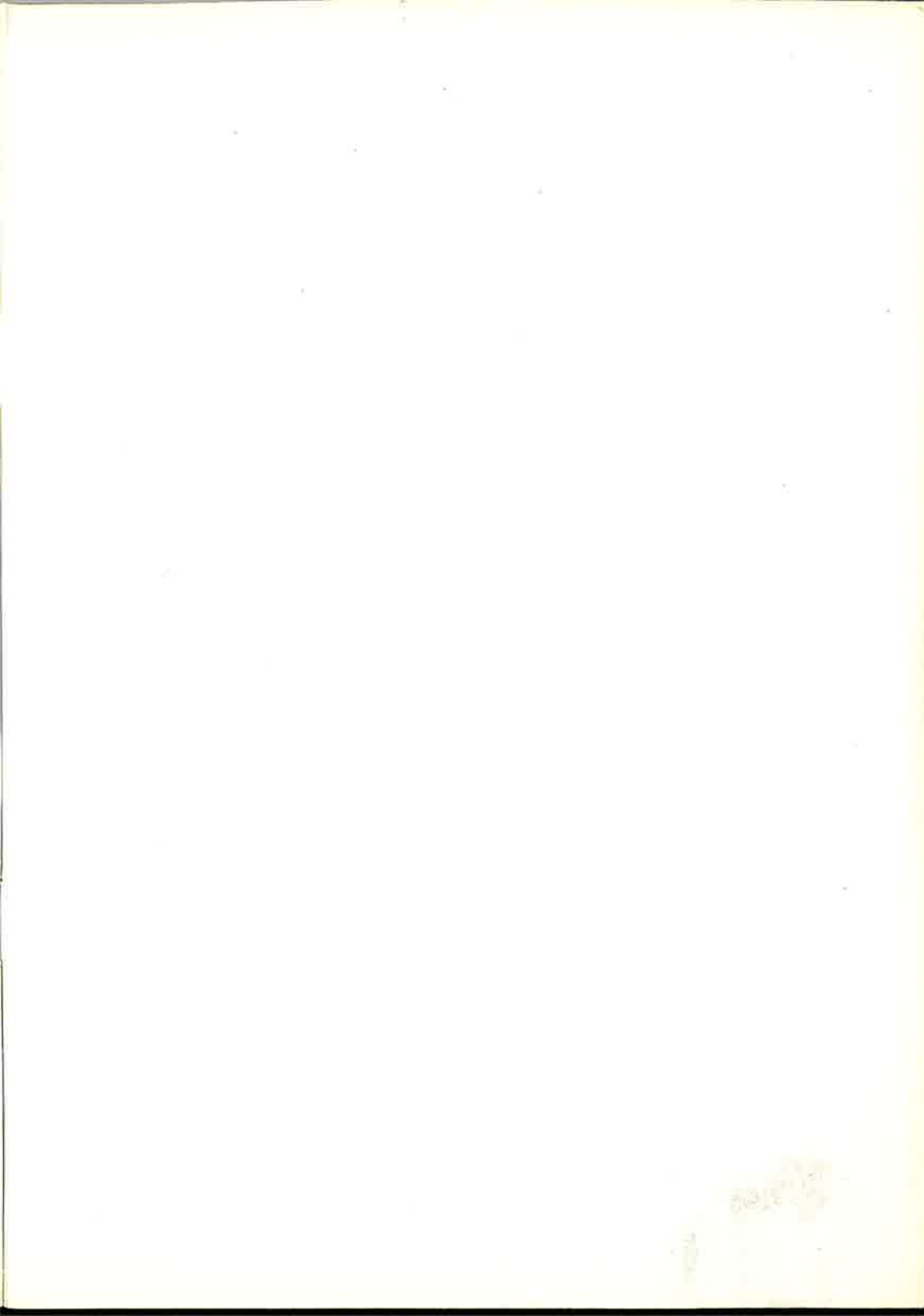
HOR ± 30°



BU ± 15°



Notes



Thorn Lighting Limited

UK Branches

Belfast

Prince Regent Road, Castlereagh
Belfast BT5 6QR
Telephone 0232-54122
Telex 74695 TLLBft G

Birmingham

Thorn House, Aston Church Road
Saltley Trading Estate, Birmingham B81 BE
Telephone 021-327 1535
Telex 337435 TLLBhm G

Cardiff

Thorn House, Penarth Road
Cardiff, Wales CF1 7YP
Telephone 0222-44200
Telex 49334 TLLCdf G

Glasgow

Thorn House, Lawmoor Street
Glasgow G5 0TT
Telephone 041-429 6222
Telex 77630 TLLGlw G

Leeds

Thorn House, 3 Ring Road
Lower Wortley, Leeds LS12 6EJ
Telephone 0532-636321
Telex 55110 TLLLds G

London

Victoria Trading Estate, Victoria Way
Charlton, London SE7 7PA
Telephone 01-858 3201 (order office) or
01-858 3281 (all other enquiries)
Telex 896171 TLLChn G

Manchester

Thorn House, 2 Claytonbrook Road
Clayton, Manchester M11 1BP
Telephone 061-223 1322
Telex 668642 TLLMcr G

Reading

10 Richfield Avenue, Reading RG1 8PA
Telephone 0734-53257
Telex 849269 TLLRdg G

Government Contracts & Order Office

Progress House, Great Cambridge Road
Enfield EN1 1UL
Telephone 01-363 5353
Telex 263201 TEIEnf G

Head Office and Showroom

Thorn House, Upper Saint Martin's Lane
London WC2H 9ED
Telephone 01-836 2444
Telex 24184/5 TEILdn G