

Photographic lamps

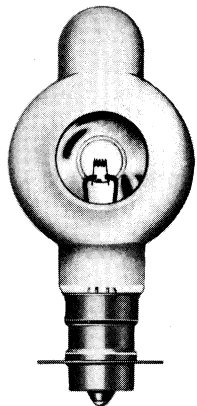
Introduction

Lamps described in the following pages will meet every photographic need. Constant research has resulted in a number of spectacular advances, especially in the tungsten-halogen field. This remarkable technique has resulted in incredibly compact lamps which give more light for twice the life of comparable conventional sources, and this without any diminution of light output or change of colour temperature throughout life.

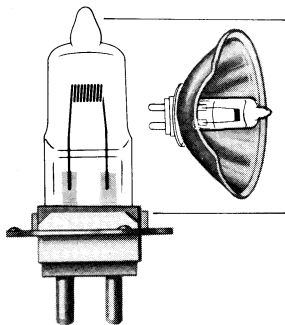
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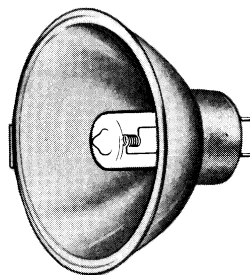
Projector lamps, Class A1—50, 75 and 100W



A1/17 8V 50W Projector Lamp
This 8V 50W lamp has been designed for use with both Super 8 and Standard 8 cine projectors. It is a direct replacement for the 8V 50W A1/185.



A1/45 Tungsten Halogen Lamp
The first halogen lamp to utilise a special pre-focus base. The A1/45 can be burned in either the horizontal or vertical position, used in conjunction with dichroic coated mirrors without condensers or with conventional condenser systems and is suitable for Super 8 cine and slide projectors.



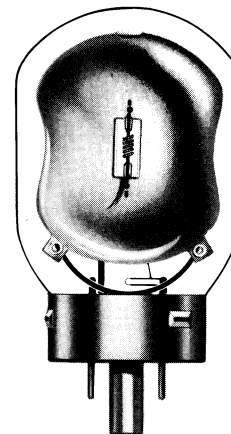
A1/231 12V 100W Tungsten Projector Lamp
The A1/231 has been designed particularly for Super 8 cine projectors. It is a complete optical system comprising a tungsten halogen lamp integral with a dichroic ellipsoidal mirror reflector. Equipment utilising this light source is able to dispense with the conventional condenser optical system, and this results in an appreciable gain in the level of screen illumination. The design permits extremely accurate alignment of the lamp within the projector.

CLASS A1 50, 75 & 100 WATT (50 and 75 watt not colour coded)

Lamp Ref.	Volts	Watt	Dimensions mm			Nominal Lumens	Base	Filament Formation	Average Life (Hours)	Special Features
			Maximum Bulb Diameter	Maximum Overall Length	Light Centre Length					
A1/17	8	50	33 x 44	96	47 ± 0.5	—	Small Pre-Focus P30s	J	25	A.B.H.I.
A1/202	8	50	31	96	47 ± 0.1	—	Small Pre-Focus P30s	J	25	A.B.F.I.
A1/220	12	50	11.5	44	30 ± 0.25	1400	2 Pin G6.35	J	50	E.J.
A1/225	240/250	50	26	67	35 ± 1	675	S.C.C. BA15s	F4	100	A.K.
A1/229	8	50	50	42	—	—	2 Pin G6.35	D	50	E.I.J.L.N.
A1/250	8	50	50	50	—	—	Special 2 Tab	D	50	E.I.J.L.N.
A1/230	12	75	50	42	—	—	2 Pin G6.35	D	50	E.I.J.M.N.
A1/4	12	100	26	135	55 ± 0.5	2700	Med Pre-Focus P28s	E	25	A
A1/4	115	100	26	135	55 ± 0.5	1850	Med Pre-Focus P28s	F3	25	A
A1/4	240, 250	100	26	135	55 ± 0.5	1650	Med Pre-Focus P28s	F4	25	A.C.
A1/21	115	100	26	78	35 ± 1	1850	S.C.C. BA15s	F3	25	A
A1/21	240, 250	100	26	78	35 ± 1	1650	S.C.C. BA15s	F4	25	A.C.
A1/45	12	100	11.5	45	18 ± 0.2	3000	2 Pin Pre-Focus PG22	J	50	E.J.
A1/186	12	100	26	78	35 ± 1	2800	S.C.C. BA15s	J	25	A
A1/193	12	100	26	78	29.5 ± 0.5	2800	BA21s 4 Pin	J	25	—
A1/209	12	100	11	45	24 ± 0.5	3000	2 pin Ceramic G6.35	J	50	E.J.
A1/215	12	100	11	44	30 ± 0.25	3000	2 Pin G6.35	J	50	E.J.
A1/231	12	100	50	42	—	—	2 Pin G6.35	D	50	E.I.J.M.N.

- A Obscured top
 - B Forced cooling necessary. Maximum bulb wall temperature 500°C
 - C Voltage range in 10 volt steps
 - D Offset filament
 - E Operates on Tungsten Halogen principle
 - F Internal integral aluminised mirror
 - G Internal integral dichroic mirror
 - H Silvered bulb
 - I Due to integral mirror nominal lumens not shown
 - J Minimum bulb wall temperature 350°C
 - K Dual Voltage
 - L External integral aluminised mirror
 - M External integral dichroic mirror
 - N Light centre length not specified
 - O Internal proximity reflector
 - P Due to internal reflector nominal lumens not shown
 - Q Linear overhead projector lamp
 - R 3 or 4 amp H.B.C. fuse necessary
 - S 5 or 6 amp H.B.C. fuse necessary
 - T 6 or 7 amp H.B.C. fuse necessary
- Operating position base down with the following exceptions:
- A1/220 — base down to horizontal A1/229 — horizontal
 - A1/45 — base down to horizontal A1/230 — horizontal
 - A1/209 — base down to horizontal A1/231 — horizontal
 - A1/215 — base down to horizontal A1/250 — horizontal
 - A1/17 } Focal Distance 33.5mm
 - A1/202 }
 - A1/250 — Focal Distance 32mm

Projector lamps, Class A1—150W



A1/24 125V 150W Tru-Flector Lamp
The A1/24 Tru-Flector Lamp is primarily designed for horizontal burning in Super 8 cine projectors. When used in this type of equipment an extremely high level of screen illumination is achieved. This lamp may be used as a direct replacement for the A1/222, the DFN and DFC.

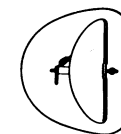
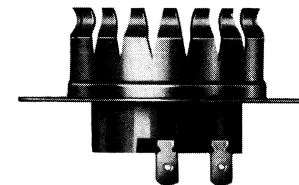


Diagram of A1/24 showing flattened front face of bulb.



L1042 Lampholder
Ordering reference for Lampholder: For voltages up to and including 21.5V specify L1042 LV—for voltages above 21.5V specify L1042 HT.



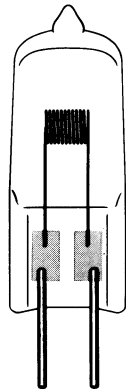
A1/216 Tungsten Halogen Lamp
The A1/216 which operates on the Tungsten Halogen principle, has been designed primarily as a light source for 35 mm slide projectors. Although of only 150W rating, machines utilizing this lamp may achieve a screen illumination equal to that given by many projectors using a conventional mains voltage 500W Lamp.

CLASS A1 150 WATT

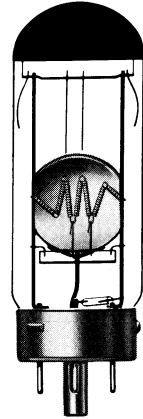
Lamp Ref.	Volts	Watt	Dimensions mm			Nominal Lumens	Base	Filament Formation	Average Life (Hours)	Special Features	
			Maximum Bulb Diameter	Maximum Overall Length	Light Centre Lengths						
A1/18	21.5	150	39	81	39.7 ± 0.1	—	Tru-Focus G17q	G	25	B.F.I.	
A1/24	125	150	39 + 42	81	39.7 ± 0.1	—	Tru-Focus G17q	G	25	B.D.F.I.	
A1/167	240, 250	150	26	90	35 ± 1	2700	S.C.C. BA15s	F4	25	A.C.	
A1/175	240, 250	150	26	135	55.5 ± 0.5	2700	Med Pre-Focus P28s	F4	25	A.C.	
A1/182	240, 250	150	30	76	33.5 ± 1	2700	Tru-Focus G17q	F4	25	A.C.	
A1/184	21.5	150	39	91	39.7 ± 0.1	—	Tru-Focus G17q	G	25	A.B.F.I.	
A1/194	21.5	150	48	86	39.7 ± 0.1	—	Tru-Focus G17q	G	25	B.F.I.	
A1/210	21.5	150	39	91	39.7 ± 0.1	—	Tru-Focus G17q	G	25	B.D.F.I.	
A1/211	21.5	150	39	91	39.7 ± 0.1	—	Tru-Focus G17q	G	25	A.B.G.I.	
A1/212	24	150	33	103	39.7 ± 0.1	—1.5	4100	Tru-Focus G17q	J	25	A.B.D.
A1/216	24	150	13.5	47	32 ± 0.1	—0.25	5000	2 Pin G6.35	J	50	E.J.
A1/232	15	150	50	42	—	—	2 Pin G6.35	D	50	E.I.J.M.N.	
A1/234	15	150	11.5	45	30 ± 0.25	5000	2 Pin G6.35	J	50	E.J.	
A1/243	240	150	15	76	33.5 ± 1	3000	Tru-Focus G17t	F4	50	A.E.R.J.	

- A Obscured top
 - B Forced cooling necessary. Maximum bulb wall temperature 500°C
 - C Voltage range in 10 volt steps
 - D Offset filament
 - E Operates on Tungsten Halogen principle
 - F Internal integral aluminised mirror
 - G Internal integral dichroic mirror
 - H Silvered bulb
 - I Due to integral mirror nominal lumens not shown
 - J Minimum bulb wall temperature 350°C
 - K Dual Voltage
 - L External integral aluminised mirror
 - M External integral dichroic mirror
 - N Light centre length not specified
 - O Internal proximity reflector
 - P Due to internal reflector nominal lumens not shown
 - Q Linear overhead projector lamp
 - R 3 or 4 amp H.B.C. fuse necessary
 - S 5 or 6 amp H.B.C. fuse necessary
 - T 6 or 7 amp H.B.C. fuse necessary
- Operating position base down with the following exceptions:
- A1/211 — base down to horizontal A1/18 — horizontal
 - A1/216 — base down to horizontal A1/24 — horizontal
 - A1/234 — base down to horizontal A1/194 — horizontal
 - A1/232 — horizontal
 - A1/18 } Focal Distance 43.5 mm
 - A1/184 }
 - A1/194 }
 - A1/211 } Focal Distance 57.2 mm
 - A1/24 } Focal Distance 57.2 mm
 - A1/210 — Focal Distance 56.0 mm

Projector lamps Class A1—200, 250 and 300W



A1/223 Tungsten Halogen Lamp
The A1/223 is intended for use in 35mm slide projectors. Like all Tungsten Halogen projector lamps it is more robust and compact than the normal tungsten filament equivalent. Screen illumination, when used with a suitable optical system, can be greater than that attained with a conventional 1000W projector lamp.



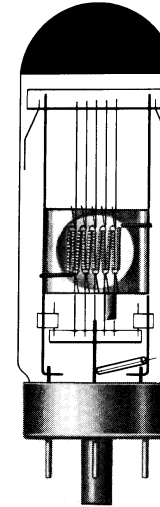
A1/201 Proximity Reflector Tru-Focus Projector Lamp
This is a modification of the basic Tru-Focus lamp and features a highly efficient reflector situated immediately behind the filament; its purpose being to gather light directly from the filament and redirect it through the optical system of the projector. The advantages are: Gain in screen brightness. The reflector stays bright because it is hermetically sealed against dust and oxidation. Each replacement lamp means a new reflector for the projector AT NO EXTRA COST, as the price is the same for the equivalent Tru-Focus lamp.

CLASS A1 200, 250 & 300 WATT (200 watt not colour coded)

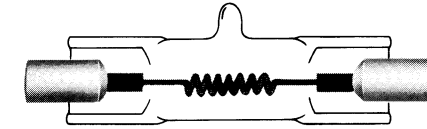
Lamp Ref.	Volts	Watt	Dimensions mm			Nominal Lumens	Base	Filament Formation	Average Life (Hours)	Special Features
			Maximum Bulb Diameter	Maximum Overall Length	Light Centre Length					
A1/252	24	200	50	45	—	—	G5-6	M	25	E.I.J.L.M.N.
A1/5	115	250	33	135	55.5±0.5	5500	Med Pre-Focus P28s	F3	50	A
A1/5	240, 250	250	33	135	55.5±0.5	5200	Med Pre-Focus P28s	F5	50	A.C.
A1/223	24	250	13.5	55	33±0.25	8500	2 Pin G6.35	J	50	E.J.
A1/235	24	250	13.5	56	23±0.2	8500	2 Pin Pre-Focus PG22	D	50	E.J.
A1/246	24	250	50	50	—	—	2 Pin G6.35	J	25	E.I.J.L.M.N.
A1/6	115	300	33	135	55.5±0.5	7400	Med Pre-Focus P28s	F3	25	A.B.
A1/6	240, 250	300	33	135	55.5±0.5	6900	Med Pre-Focus P28s	F5	25	A.B.C.
A1/37	115	300	28	105	35±1	7400	S.C.C. BA15s	F3	25	A.B.
A1/37	240, 250	300	28	105	35±1	6900	S.C.C. BA15s	F5	25	A.B.C.
A1/178	240, 250	300	33	103	39.7±1	6900	Tru-Focus G17q	F5	25	A.B.C.
A1/183	240, 250	300	31	81	35±1	6900	S.C.C. BA15s	F5	25	A.B.C.
A1/201	240, 250	300	33	103	39.7±1	—	Tru-Focus G17q	F5	25	A.B.C.O.P.
A1/240	240	300	23 15	81	39.7±1	7200	Tru-Focus G17t	F4	50	A.E.J.R.
A1/249	240	300	15	62	40±0.5	7200	G6-35	F4	50	A.E.J.R.

- A Obscured top
 - B Forced cooling necessary. Maximum bulb wall temperature 500°C
 - C Voltage range in 10 volt steps
 - D Offset filament
 - E Operates on Tungsten Halogen principle
 - F Internal integral aluminised mirror
 - G Internal integral dichroic mirror
 - H Silvered bulb
 - I Due to integral mirror nominal lumens not shown
 - J Minimum bulb wall temperature 350°C
 - K Dual Voltage
 - L External integral aluminised mirror
 - M External integral dichroic mirror
 - N Light centre length not specified
 - O Internal proximity reflector
 - P Due to internal reflector nominal lumens not shown
 - Q Linear overhead projector lamp
 - R 3 or 4 amp H.B.C. fuse necessary
 - S 5 or 6 amp H.B.C. fuse necessary
 - T 6 or 7 amp H.B.C. fuse necessary
- Operating position base down with the following exceptions:
 A1/223 — Base down to horizontal
 A1/235 — Base down to horizontal
 A1/251 — Base down to horizontal
 A1/252 — Horizontal
 A1/252 — Focal Distance 32mm

Projector lamps, Class A1—420 and 500W



A1/205 500W Proximity Reflector Tru-Focus Lamp
This is a further development in the proximity reflector Tru-Focus range in 500W rating.



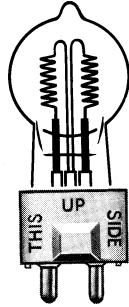
A1/227 120V 420W Tungsten-Halogen Overhead Projector Lamp
This lamp employs the tungsten-halogen principle. It has an extended life compared with normal tungsten filament lamps and possesses the additional advantages of higher light output and almost 100 per cent lumen maintenance.

Class A1 420 and 500 Watts

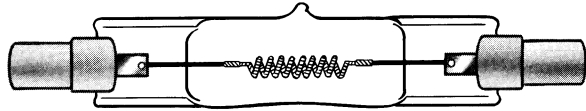
Lamp Reference	Volts	Watts	Dimensions mm			Nominal lumens	Base	Filament formation	Average life hours	Special features
			Maximum Bulb diameter	Maximum overall length	Light centre length					
A1/227	120	420	13.5	65.5	—	11000	Double ended R7s	D	75	E J Q
A1/7	115	500	33	135	55.5±0.5	12500	Med Pre-Focus P28s	F8	25	A B
A1/7	240, 250	500	33	135	55.5±0.5	11400	Med Pre-Focus P28s	F11	25	A B C
A1/8	115	500	66	135	55.5±0.5	11500	Med Pre-Focus P28s	A6	50	—
A1/8	240, 250	500	66	135	55.5±0.5	11000	Med Pre-Focus P28s	A8	50	C
A1/47	240, 250	500	33	130	59±0.5	11400	BH P38s	F11	25	A B C
A1/180	240, 250	500	33	103	39.7±1	11400	Tru-Focus G17q	F11	25	A B C
A1/205	240, 250	500	33	103	39.7±1	—	Tru-Focus G17q	F11	25	A B C O P
A1/241	240	500	23	94	39.7±0.1	—	Tru-Focus G17t	C10	50	A E J O P R

- A Obscured top
- B Forced cooling necessary. Maximum bulb wall temperature 500°C
- C Voltage range in 10 volt steps
- E Operates on tungsten-halogen principle
- J Minimum bulb wall temperature 350°C
- Q Internal proximity reflector
- P Due to internal reflector nominal lumens not shown
- O Linear overhead projector lamp
- R 3 or 4 amp HBC fuse necessary
- S 5 or 6 amp HBC fuse necessary

Projector lamps, Class A1— 600, 650 and 750W

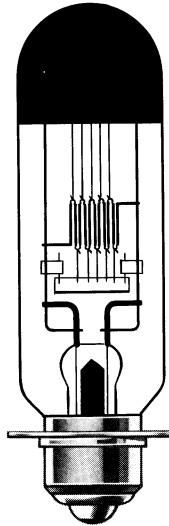


A1/233 240V 650W Tungsten Halogen Overhead Projector Lamp
The A1/233 is the latest development in the field of overhead projector lamps. Operating on the Tungsten Halogen principle it offers all the advantages of a compact source for overhead projectors. The A1/233 is a direct replacement for the D.Y.R.



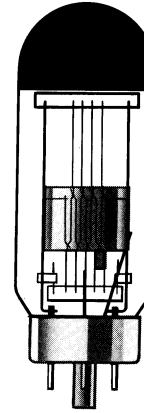
A1/228 240V 600W Tungsten Halogen Overhead Projector Lamp

A main version of the low voltage lamp which has been a popular light source for overhead projectors. Operating on the Tungsten Halogen principle it offers all the well-known advantages of this type of lamp. Also available in low voltage 120V rating.

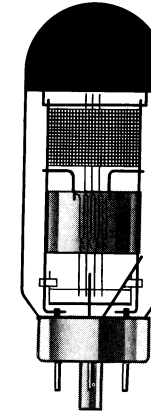


A1/53

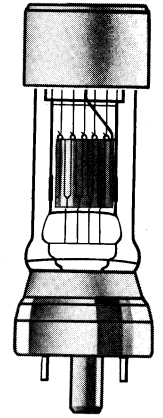
Projector lamps, Class A1—800, 1000 and 1200W



A1/207 1000W Proximity Reflector Tru-Focus Lamp



A1/208 1200W Proximity Reflector Tru-Focus Lamp



A1/242 1000W Tungsten-Halogen Proximity Reflector Tru-Focus Lamp

CLASS A1 600, 650 & 750 WATT (600 and 650 watt not colour coded)

Lamp Ref.	Volts	Watt	Dimensions mm			Nominal Lumens	Base	Filament Formation	Average Life (Hours)	Special Features
			Maximum Bulb Diameter	Maximum Overall Length	Light Centre Length					
A1/228	120	600	13.5	93.5	—	17000	Double Ended R7s	F.G	75	E.J.Q.
A1/228	240/250	600	13.5	93.5	—	16250	Double Ended R7s	F.G	75	E.J.K.Q.R.
A1/233	240/250	650	22.5	65	36.5 ± 0.5	16500	GY9-5	E2	75	E.J.K.R.
A1/247	240/250	650	22.5	75	36.5 ± 0.5	17750	GY9-5	A8	75	E.J.R.
A1/9	115	750	39	140	55.5 ± 0.5	19500	Med Pre-Focus P28s	C8	25	A.B.
A1/9	240, 250	750	39	140	55.5 ± 0.5	18000	Med Pre-Focus P28s	C10	25	A.B.C.
A1/52	115	750	37	153	81 ± 0.5	19500	3 Fin Ring P39s	C8	25	B.D.
A1/53	115	750	39	135	59 ± 0.5	19500	Large B.H. P46s	C8	25	A.B.
A1/53	240, 250	750	39	135	59 ± 0.5	18000	Large B.H. P46s	C10	25	A.B.C.
A1/206	115	750	39	118	39.7 ± 1	—	Tru-Focus G17q	C8	25	A.B.O.P.
A1/206	240, 250	750	39	118	39.7 ± 1	—	Tru-Focus G17q	C10	25	A.B.C.O.P.

A Obscured top
B Forced cooling necessary. Maximum bulb wall temperature 500°C
C Voltage range in 10 volt steps
D Offset filament
E Operates on Tungsten Halogen principle
F Internal integral aluminised mirror
G Internal integral dichroic mirror
H Silvered bulb
I Due to integral mirror nominal lumens not shown

J Minimum bulb wall temperature 350°C
K Dual Voltage
L External integral aluminised mirror
M External integral dichroic mirror
N Light centre length not specified
O Mirror rim to film gate 32 mm
P Internal proximity reflector
Q Linear overhead projector lamp

R 3 or 4 amp H.B.C. fuse necessary
S 5 or 6 amp H.B.C. fuse necessary
T 6 or 7 amp H.B.C. fuse necessary

Operating position base down with the following exceptions:
A1/228 - Horizontal
A1/52 - Base up
A1/233 - Base down to horizontal
A1/247 Base down to horizontal

Class A1 800, 1000 and 1200 Watts

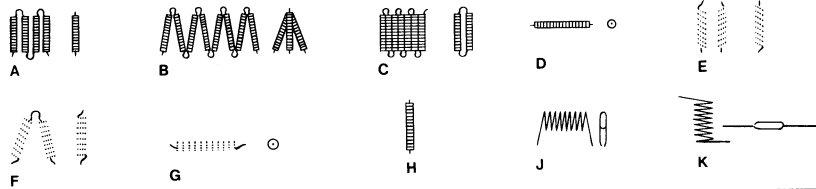
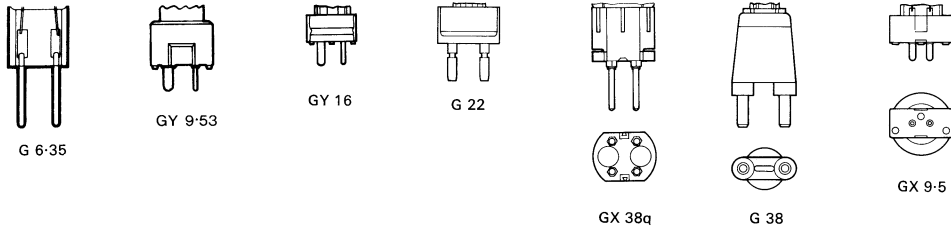
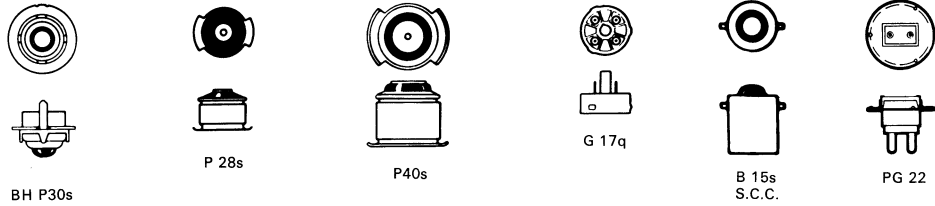
Lamp Reference	Volts	Watts	Dimensions mm			Nominal lumens	Base	Filament formation	Average life hours	Special features
			Maximum Bulb Diameter	Maximum overall length	Light centre length					
A1/245	240/250	800	23	84	44.5 ± 0.5	21500	GY9-5	C8	75	E J R
A1/57	115	1000	66	240	120 ± 5	25000	GES E40s	A6	100	—
A1/57	240, 250	1000	66	240	120 ± 5	23000	GES E40s	A8	100	—
A1/58	240, 250	1000	66	140	55.5 ± 0.5	25000	Med Pre-Focus P28s	C10	25	A C
A1/59	115	1000	39	140	55.5 ± 0.5	27000	Med Pre-Focus P28s	C8	25	A B
A1/59	240, 250	1000	39	140	55.5 ± 0.5	25000	Med Pre-Focus P28s	C10	25	A B C
A1/91	115	1000	39	135	59 ± 0.5	27000	Large BH P46s	C8	25	A B
A1/91	240, 250	1000	39	135	59 ± 0.5	25000	Large BH P46s	C10	25	A B C
A1/188	240	1000	66	245	87 ± 0.5	23000	Large Pre-Focus P40s	A8	100	C
A1/207	115	1000	39	118	39.7 ± 1	—	Tru-Focus G17q	C8	25	A B O P
A1/207	240, 250	1000	39	118	39.7 ± 1	—	Tru-Focus G17q	C10	25	A B C O P
A1/242	240, 250	1000	23	94	39.7 ± 0.1	—	Tru-Focus G17t	C10	50	A E P O R
A1/208	115	1200	39	118	39.7 ± 1	—	Tru-Focus G17q	C10	10	A B O P

A Obscured top
B Forced cooling necessary. Maximum bulb wall temperature 500°C
C Voltage range in 10 volt steps
E Operates on tungsten-halogen principle

J Minimum bulb wall temperature 350°C
O Internal proximity reflector
P Due to internal reflector nominal lumens not shown
R 5 or 6 amp HBC necessary

Operating position base down

Projector lamps

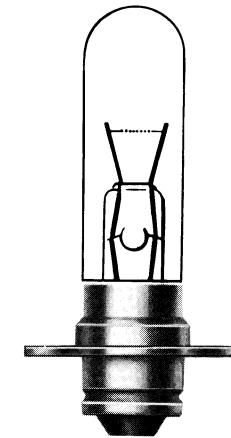


CLASS F MICRO-PROJECTOR LAMPS

Lamp Ref.	Volts	Watt	Dimensions mm			Nominal Lumens	Base	Crown of bulb to Filament	Average Life (Hours)	Special Features
			Maximum Diameter	Maximum Overall Length	Light Centre Length					
F/30	4	8	37	67	—	100	S.E.S. E14s	10±2	100	B
F/8	12	12	37	62	40±3	190	S.B.C. BA15d	—	100	B
F/10	6	24	39	65	—	410	S.E.S. E14s	10±2	100	B
F/10	12	24	39	65	—	440	S.E.S. E14s	10±2	100	B
F/3	12	24	39	65	—	440	S.B.S. BA15d	10±2	100	B
F/23	6	30	39	69	—	450	E.S. E27s	10±2	200	B
F/25	6	30	39	69	—	600	E.S. E27s	10±2	25	B
F/80	6	30	39	58	—	420	B.C. B22d	7±2	200	D.G.
F/58	6	48	40	65	—	675	S.E.S. E14s	7±2	200	B.G.
F/59	6	48	40	70	—	675	E.S. E27s	7±2	200	B.G.
F/81	6	48	39	63	41±0.5	675	Small Pre-Focus P30s	—	200	B.G.
F/4	12	48	52	81	40±3	950	S.E.S. E14s	—	100	D
F/38	12	48	40	65	40±3	850	S.B.C. BA15d	—	100	D
F/76	12	50	40	72	33±0.5	950	Bosch BA20s	—	50	D
F/77	12	50	40	70	48±3	950	S.E.S. E14s	—	50	D
F/14	12	100	62	91	55±5	2250	E.S. E27s	—	100	D
F/63	12	100	62	98	37±0.5	2250	Med Pre-Focus P28s	—	100	D

- A Operating position – horizontal ±30°
- B Operating position – vertical base down ±135°
- C Solid source filament

Projector lamps, Class G



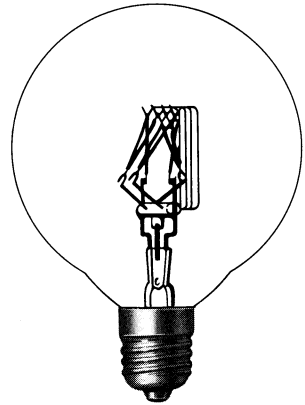
Class G Exciter Lamps
A range of high efficiency lamps for the sound heads of cinema projectors.

Class G Exciter lamps

Lamp Reference	Volts	Watts	Dimensions mm		Nominal lumens	Base	Filament formation	Average life hours	Operating positions	
			Maximum diameter	Light centre length						
G/19	4	0.75	16.5	50	31.8±0.8	30	SCC BA15s	G	50	A
G/27	4	0.75	16.5	50	28.5±0.5	30	Small Pre-Focus P30s	L	50	A
G/29	4	0.75	16.5	50	28.5±0.5	30	Small Pre-Focus P30s	G	50	A
G/31	4	0.75	25.5	51	28.5±0.5	30	Small Pre-Focus P30d	G	50	F
G/4	6	1	16.5	42	21.5±0.5	80	SCC BA15s	L	100	A
G/5	6	1	16.5	50	28.5±0.5	80	Small Pre-Focus P30s	L	100	C
G/40	6	1	16.5	57	28.5±0.5	80	Small Pre-Focus P30s	G	100	B
G/30	6	5	18.5	54	28±1	525	SCC BA15s	G	100	B
G/45	6	5	19	54	23±0.5	450	Small Pre-Focus P30s	G	100	B
G/48	7	0.2	16.5	50	28.6±0.25	13-10	Small Pre-Focus P30s	L	50	A
G/49	7	0.2	16.5	50	28.6±0.25	15-0	Small Pre-Focus P30d	G	50	A

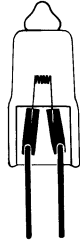
- A Universal
- B Vertical base down | 30°
- C Vertical base down | 45°
- D Vertical base down | 135°
- E Horizontal
- F Horizontal | 120°

Projector lamps, Class E, Class M



E/3 Class E Epidiascope Lamps

These have been specially designed for use in epidiascopes. The objective average life in well ventilated lantern housings is 100 hours.



M29 Cine Film Editor Lamp

Tungsten halogen lamps give greater light output than conventional incandescent lamps of similar ratings. They operate at a high colour temperature so the light is whiter. The small dimensions allow the production of equipment of compact design. The quartz bulb gives a high degree of resistance to thermal and mechanical shock.

CLASS E EPIDIASCOPE LAMPS

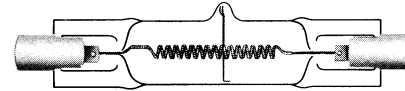
Lamp Ref.	Volts	Watt	Dimensions mm			Nominal Lumens	Base	Filament Formation	Average Life (Hours)	Special Features
			Maximum Bulb Diameter	Maximum Overall Length	Light Centre Length					
E/1	240, 250	500	102	145	60 ± 0.5	10300	Med Pre-Focus P28s	B8	100	A.E.
E/3	240, 250	500	102	145	85 ± 0.5	10300	E.S. 27s	B8	100	A.E.

CLASS M CINE FILM EDITOR LAMPS

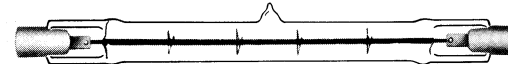
Lamp Ref.	Volts	Watt	Dimensions mm			Nominal Lumens	Base	Filament Formation	Average Life (Hours)	Special Features
			Maximum Bulb Diameter	Maximum Overall Length	Light Centre Length					
M29	6	10	8.5	30	19.5 ± 0.25	200	Special 2 Pin	D	100	A.B.
M30	6	20	8.5	30	19.5 ± 0.25	450	Special 2 Pin	D	100	A.B.

- A Operates on Tungsten Halogen Principle
- B Operating position vertical base down to horizontal
- E Voltage range in 10 volt steps

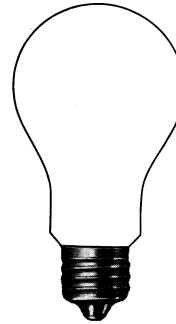
Photographic lamps Class P1



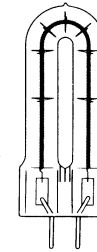
P1/11 240V 800W Tungsten-Halogen Photographic Lamp



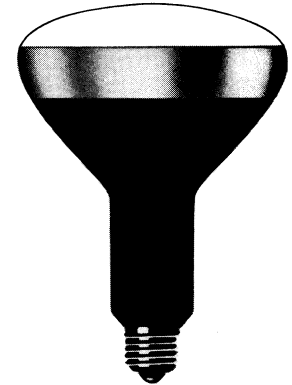
P1/12 240V 1000W Tungsten-Halogen Photographic Lamp



P1/1
The P1/1 is specially suitable for indoor photography, and will enable approximately 60m/200ft of cine film or about 300 still photographs to be taken, representing about three hours' total life. Safety fuses are incorporated in the cap. Suitable for use with monochrome film and colour stock balanced for 3400°K.



P1/15 240V 1000W Single Ended Sun Gun Lamp
A new concept in tungsten-halogen lighting, compact and robust, particularly suitable for use with lighting units designed for the Super 8 format. Operates directly from the mains with an average life of 12 hours.



P1/6 Reflector Photoflood
This unit incorporates its own reflector, thus giving a much greater beam candle power.

Class P1 Photographic lamps for monochrome and colour film balanced for 3400°K

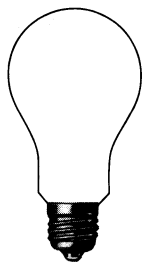
Lamp reference	Volts	Watts	Dimensions mm				Nominal lumens	Base	Average life hours	Special features
			Max. pip protuberance from bulb axis	Nominal contact length	Max. clearance length	Max. overall length				
P1/8	30	250	12	10.2	74.9 ± 1.6	78.3	80	8000	Double ended R7s	12 A
P1/1	240/250	275	61	—	—	—	108.5	8300	BC B22d	3 B C
P1/1	240/250	275	61	—	—	—	110	8300	ES E27s	3 B C
P1/6	240/250	375	97	—	—	—	133.5	13000	BC B22d	4 B E F H
P1/6	240/250	375	97	—	—	—	135	13000	ES E27s	4 B E F H
P1/2	240/250	500	82	—	—	—	164.5	15000	BC B22d	6 B C
P1/2	240/250	500	82	—	—	—	166	15000	ES 27s	6 B C
P1/9	120	650	15	11.4	74.9 ± 1.6	78.3	80	21000	Double ended R7s	12 A
P1/13	240/250	650	28	—	—	—	65	20000	2 Pin Ceramic G6.35	15 A B I
P1/11	240/250	800	15	11.4	74.9 ± 1.6	78.3	80	24500	Double ended R7s	12 A B K
P1/12	240/250	1000	12	10.2	121.7 ± 1.6	125.1	127	33000	Double ended R7s	15 A B K
P1/15	240/250	1000	28	—	—	—	65	32000	2 Pin Ceramic G6.35	12 A B K
P1/17	240/250	1250	28	—	—	—	85	40000	GX 9.53	15 A B L
P1/19	240/250	1250	28	—	—	—	75	40000	2 Pin Ceramic G6.35	15 A B L

- A Operates on tungsten halogen principle
- B Dual voltage
- C Voltage range in 10 volt steps
- E Satin etched bulb
- F Reflector photoflood
- H Light output measured in centre beam candles
- I 3 or 4 amp HBC fuse necessary
- K 5 or 6 amp HBC fuse necessary
- L 6 or 7 amp HBC fuse necessary

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.

Operating position: Universal, with the exception of: P1/13, P1/15 and P1/17 which are Base down to horizontal ±4°.

Photographic lamps, Class P2, Class P3



P3/3 High Intensity Enlarger Lamp (Opalised)
These lamps have opalised bulbs and give a brilliant white light evenly diffused.



P2/4 Reflector Photoflood
The P2/4 is specially designed to meet the exacting requirements of film and TV studios. The silvered bulb permits the use of the lamp in fittings without separate external reflectors.

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

Lamp Ref.	Volts	Watt	Dimensions mm				Maximum Overall Length	Nominal Lumens	Base	Average Life (Hours)	Special Features
			Maximum Bulb Diameter	Max. pip protuberance from bulb axis.	Nominal Contact Length	Maximum Clearance Length					
P2/1	115	500	89	—	—	183.5	12500	E.S. E27s	100	D	
P2/1	240, 250	500	89	—	—	183.5	11000	E.S. E27s	100	C.D.	
P2/4	115	500	127.5	—	—	182	7200	E.S. E27s	20	E.F.H.	
P2/4	240, 250	500	127.5	—	—	182	7200	E.S. E27s	12	C.E.F.H.	
P2/5	115	500	127.5	—	—	182	12000	E.S. E27s	20	E.G.H.	
P2/5	240, 250	500	127.5	—	—	182	12000	E.S. E27s	12	C.E.G.H.	
P2/10	240/250	625	12	10.2	185.7±1.6	189.1	190	15500	Double ended R7s	200	A.B.I.
P2/6	120	650	15	11.4	74.9±1.6	78.3	80	17000	Double ended R7s	100	A
P2/7	240/250	1000	12	10.2	185.7±1.6	189.1	190	26000	Double ended R7s	200	A.B.K.
P2/12	240/250	1250	12	10.2	185.7±1.6	189.1	190	33500	Double ended R7s	200	A.B.L.
P2/13	240	800	15.0	11.4	74.9±1.6	78.3	80	20000	Double ended R7s	50	A.B.K.
P2/14	240	800	13.5	12	88.4	91.8	93.5	20000	Double ended R7s	50	A.K.
P2/15	240	625	12	10.2	114.2±1.6	117.6	119.5	16250	Double ended R7s	75	A.I.
P2/16	240/250	650	28	—	—	—	65	17500	G6.35	50	A.B.I.
P2/17	240/250	1000	28	—	—	—	75	28000	G6.35	50	A.B.K.
P2/18	240	800	12	10.2	115	117	119	20600	Double ended R7s	150	A.K.

- A Operates on Tungsten Halogen principle
- B Dual Voltage
- C Voltage range in 10 volt steps
- D Pearll bulb
- E Satin etched bulb
- F Reflector Photoflood
- G Reflector Photo Spot
- H Light output measured in Centre Beam Candles
- I 3 or 4 amp H.B.C. fuse necessary
- K 5 or 6 amp H.B.C. fuse necessary
- L 6 or 7 amp H.B.C. fuse necessary

Class P2 Operating Position:— Universal
With the following exceptions:
P2/7 Horizontal ±4°
P2/10 Horizontal ±4°
P2/12 Horizontal ±4°
P2/15 Horizontal ±4°

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.

CLASS P3 PHOTOGRAPHIC ENLARGER LAMPS HIGH INTENSITY

Lamp Ref.	Volts	Watt	Dimensions mm			Average Life (Hours)	Special Features
			Maximum Overall Length	Maximum Diameter	Base		
P3/3	240, 250	75	108.5	61	B.C. B22d	100	A.B.
P3/3	240, 250	75	110	61	E.S. E27s	100	A.B.
P3/4	240, 250	150	108.5	61	B.C. B22d	100	A.B.
P3/4	240, 250	150	110	61	E.S. E27s	100	A.B.

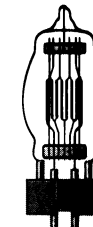
- A Internally opalised bulb
- B Voltage range in 10 volt steps

Class P3. Operating Position:—Universal

Photographic lamps, Class CP, Class T



CP/41 2kW Studio Tungsten-Halogen Lamp
With monoplane filament.
For use in conventional Fresnel spot-flood fittings.



T10 Tungsten-Halogen Theatre Spotlight Lamp
For use in cinemas, theatres and other applications, where a suitable housing and reflector can make good use of the compact, intense light source.

Class CP Conventional and tungsten-halogen lamps for use with colour film balanced for light of 3200°K and all monochrome film stock

Lamp reference	Volts	Watts	Dimensions (mm)			Nominal lumens	Average life hours	Cap	Special features
			Maximum diameter	Maximum overall length	Light centre length				
CP/1	115, 240	275 275	61 61	110 110	—	7500	8 5	BC or ES	I
CP/2	115, 240	500 500	82 82	166 166	—	14000/13750	20 15	BC or ES	B I
CP/3	115, 240	1000 1000	153 153	309 309	—	30000/28000	30 25	GES E40	B I
CP/8	240	1500	66	140	55.5±0.5	11000	50	Med Pre-Focus P28s	E
CP/9	240	500	78	166	63.6±2	11000	50	Med Bipost G22	E
CP/11	115, 240	750	66	140	55.5±0.5	19000/18000	50 35	Med Pre-Focus P28s	B E
CP/12	115	2000	155	246	127±2	55000	100	Bi-post G38	E
CP/14	240	10000	272	440	254±2	280000	200	Bi-post G38	E
CP/19	240	1000	78	166	63.5±2	23000	100	Med Bi-post G22	E
CP/29	115/120, 220, 240	5000	75	265	165±2	145000/135000	300	Bi-post G38	A B D G
CP/30	115, 120, 220, 240	1250/1250	60	220	143±2	28000/59000 25000/53000	250	4 pin GX38q	B C D E
CP/32	220, 240	2500/2500	70	220	143±2	55000/117000	250	4 pin GX38q	C D E
CP/39	115/120, 220, 240	650	35	140	63.5±0.5	17000/16800	100	Med Bi-post G22	A B D G
CP/40	115/120, 220, 240	1000	35	140	63.5±0.5	27000/26000	150	Med Bi-post G22	A B D G
CP/41	115/120, 220, 240	2000	40	210	127±2	54000/52000	200	Bi-post G38	A B D G
CP/43	115/120, 220, 240	2000	40	145	70±2	54000/52000	250	2 pin GY16	A B D G
CP/47	115/120, 220, 240	650	35	110	55±2	17000/16800	100	2 pin GX9-5	A B D G
CP/48	115/120, 220, 240	1000	35	110	55±2	27000/26000	150	2 pin GX9-5	A B D G

Class T Theatre spotlight lamps

Lamp reference	Volts	Watts	Dimensions mm			Base	Average life hours	Special features
			Maximum diameter	Maximum overall length	Light centre length			
T/3	240, 250	250	78	124	55.5±0.5	Med Pre-Focus P28s	200	G
T/1	240, 250	500	100	140	55.5±0.5	Med Pre-Focus P28s	200	G
T/2	240, 250	1000	132	200	87±0.5	Large Pre-Focus P40s	200	G
T/4	240, 250	1000	39	155	89±0.5	Med Pre-Focus P28s	200	H
T/6	240, 250	1000	102	140	55.5±0.5	Med Pre-Focus P28s	200	F
T/9	110/120, 220, 240	1000	35	110	55±2	2 pin GX9-5	400	D G
T/10	110/120, 220, 240	650	35	110	55±2	2 pin GX9-5	400	D G
T/13	115/120, 220, 240	650	35	130	55.5±0.5	Med Pre-Focus P28s	750	A D G
T/14	115/120, 220, 240	1000	35	130	55.5±0.5	Med Pre-Focus P28s	750	A D G
T/15	115/120, 220, 240	1000	35	160	89±0.5	Med Pre-Focus P28s	400	A D H
T/16	115/120, 220, 240	1000	35	200	87±0.5	Large Pre-Focus P40s	400	A D G

- A Dual voltage for low volt lamps
- B Higher lumen/life figures apply to low voltage lamps
- C Twin filament lamp. Higher lumen figures apply to twin filament operation
- D Operates on tungsten-halogen principle

Operating Positions

- E VBD±45°
- F VBD±75°
- G VBD±90°
- H VBU±15°
- I Universal

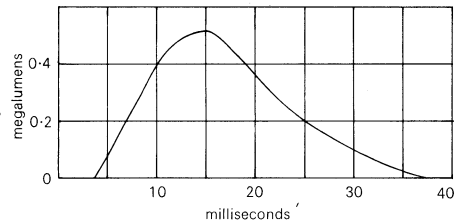
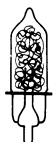
Photo-flashbulbs

Outstanding features of these photo-flashbulbs are:

- Blue dot:** The blue dot is a sensitive chemical on the inside of each flashbulb to indicate that it is in perfect condition. Any defect turns the dot pink.
- 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.
- Super AG3B flashbulbs** will work to perfection with a reflector only 50mm/2in in diameter. Many cartons can easily be carried in the pocket.

Tru-Flash Type 1B 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)	40.5
Bulbs per pack	5
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	5
Bulbs per outer container	200
Colour code	Blue

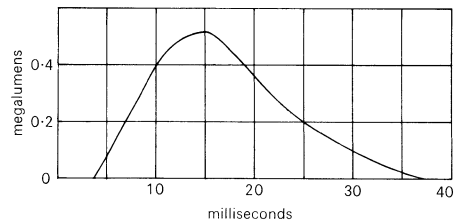
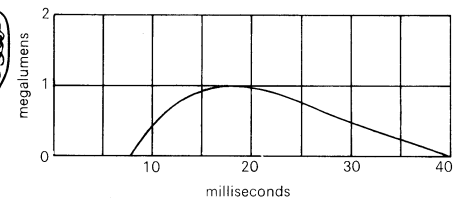


Photo-Flash M3 Specification

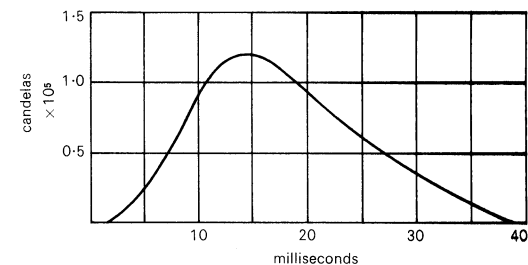
Class	M
Colour of bulb	Clear
Total light output (lumen secs)	16000
Peak light output (megalumens)	1
Time to peak (milliseconds)	17
Duration above half peak (milliseconds)	15
Voltage range	3-45
Maximum bulb diameter (mm)	22
Maximum overall length (mm)	45
Bulbs per pack	6
Bulbs per outer container	180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



Full exposure data is printed on every flash carton.

Flashcubes

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 plastic cube itself acts as a protective shield for each bulb. The blue safety dot is visible through the side of the Flashcube and provides a check against the accidental use of a bulb which may be faulty. 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.



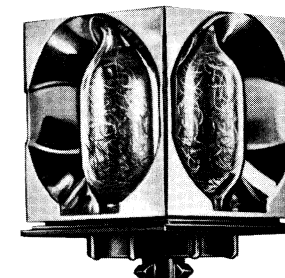
Exposure Data

Film Speed	10		25		40		100		160		320	
	ASA to	to	ASA to	to	ASA to	to	ASA to	to	ASA to	to	ASA to	to
	12	32	64	125	200	500						
	12	15	17	21	23	26						
	DIN to	to	DIN to	to	DIN to	to						
	13	16	19	22	24	28						

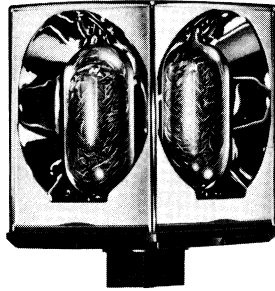
Shutter Sync	Shutter Speed	Guide nos.					
X	1/25-1/30	32	55	75	100	130	200
X or M	1/50-1/60	22	36	50	70	90	130
M	1/100-1/125	18	30	42	60	75	110
M	1/200-1/300	15	24	34	48	60	90

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.

Exposure Data Guide nos./X Synchronisation

Film	ASA	25-32	40-50	64-80	100-125	160-200
Speed	DIN	15-16	17-18	19-20	21-22	23-24
1/30 sec		45	56	72	90	125
1/60 sec		40	50	64	80	100

Flash to subject distance for single speed cameras

Monochrome film stock 1.2m/4ft-4.5m/15ft
 Colour film stock 1.2m/4ft-2.7m/9ft

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	30

