

THORN LIGHTING LTD

A MEMBER OF THE THORN GROUP

THORN

COMPREHENSIVE LIGHTING CATALOGUE



atlas mazda ekco
1969/70



THORN LIGHTING LIMITED



A Member of the Thorn Group

**Thorn Lighting Limited now manufactures and
sells Atlas, Mazda and Ekco brand lighting products.**

This catalogue lists and describes all fittings, equipment, accessories, lamps and fluorescent tubes normally manufactured by Thorn Lighting Limited.

In order to assist its customers and its own organisation, Thorn Lighting is rationalising its many ranges of fittings and the brands in which any specific range is available is clearly shown at the top of the catalogue page. Fittings are now listed under one catalogue number only which is usually the Atlas catalogue number, but the former Ekco and Mazda catalogue numbers are cross referenced back to the Atlas number in the Thorn Lighting Comprehensive Price List, copies of which may be obtained on request to any Thorn Lighting Regional Headquarters.

A complete range of lamps and tubes is offered in Mazda brand, but Atlas brand are also available for general service and projector lamps and the three brands for most ratings of fluorescent tubes. An indication of the brand availability is given in the introduction of each section which appears on the section inside the front cover.

The locations and addresses of Thorn Lighting order offices and regional headquarters are given overleaf.

PRICES

Note all references to prices shown on section divider pages are superseded by the following:-

The 'Retail Price' is that suggested as appropriate in U.K. for retail sale.

The 'Contract Price' is that suggested as appropriate for sales to users in particular installations and is not subject to normal discount.

'Net Trade Prices' are those applicable to direct sale in U.K. by Thorn Lighting Limited. They refer to all lamps and tubes except Photoflash bulbs which are listed as suggested Retail Prices.

Main Index & Introduction

Thorn Lighting Order Offices

SOUTHERN

Atlas Lamps and Lighting Division
Thorn Industrial Estate,
Homesdale Road,
Bromley, BR1 2QP,
Kent.
Tel: 01-460 9966
Telex: Thorn Bromley 25823

Atlas and Mazda Lamps and Lighting Division
Angel Road Works,
402 Angel Road,
Edmonton,
London, N.18.
Tel: 01-807 3050
Telex: Thorn Edmonton 23157

Ekco Lamps and Lighting Division
Fawe Street,
Morris Road,
Poplar,
London, E.14.
Tel: 01-987 2090

Mazda Lamps and Lighting Division
11 Avon Trading Estate,
Avonmore Road,
London, W.14.
Tel: 01-603 3377

Drury Lane,
St. Leonards-on-Sea,
Hastings,
Sussex.
Tel: Hastings 2734

5 Richfield Avenue,
Reading,
Berks.
Tel: Reading 53257

West Quay Trading Estate,
West Quay Road,
Southampton, SO9 1FF.
Tel: Southampton 27401

SOUTH WEST, SOUTH WALES

Atlas and Ekco Lamps and Lighting Division
Thorn House,
Penarth Road,
Cardiff, CF1 7YP,
Wales.
Tel: Cardiff 31491
Telex: Thorn Cardiff 49334

Mazda Lamps and Lighting Division
6 Gwennyth Street,
Cardiff, CF2 4XY,
Wales.
Tel: Cardiff 27495

1/5 Trinity Street,
Bristol 2,
Somerset.
Tel: Bristol 51494

MIDLANDS

Atlas, Mazda and Ekco Lamps and Lighting Division
Thorn House,
Aston Church Road,
Saltley,
Birmingham 8.
Tel: 021-327 1535
Telex: Thorn Birmingham 33235

Ashforth Street,
Nottingham, NG3 4BJ.
Tel: Nottingham 51115

NORTH WEST, NORTH WALES

Atlas, Mazda and Ekco Lamps and Lighting Division
2 Claytonbrook Road,
Clayton,
Manchester 11.
Tel: 061-223 1322
Telex: BLI Manchester 668642

NORTH EAST

Atlas, Mazda and Ekco Lamps and Lighting Division
Thorn House,
3 Ring Road,
Lower Wortley,
Leeds 12.
Tel: Leeds 636321
Telex: Thorn Leeds 55110

Earlsway,
Team Valley Estate,
Gateshead, NE11 0RX.
Co. Durham.
Tel: Low Fell 879211
Telex: BLI Gateshead 53429

SCOTLAND

Atlas, Mazda and Ekco Lamps and Lighting Division
Thorn House,
Lawmoor Street,
Glasgow C.5,
Scotland.
Tel: South 5151
Telex: Thorn Glasgow 77630

NORTHERN IRELAND

Atlas, Mazda and Ekco Lamps and Lighting Division
10 Severn Street,
Belfast, BT4 1FB,
Northern Ireland.
Tel: Belfast 58004/5 and 51477
Telex: Thorn Belfast 74695

Thorn Lighting Organisation

Thorn Lighting Limited has nine regions giving a nation-wide coverage. In each region there is a regional headquarters controlled by a regional manager assisted by trade and technical sales managers.

To obtain the best service, customers are recommended to take action as hereunder:-

For information, advice, lighting schemes, lighting engineers, literature and publications - contact the Thorn Lighting headquarters in your area.
To place an order or to make enquiries about availability or deliveries - contact the nearest order office, preferably, but not essentially, of the dominant brand in your order.

A list of Thorn Lighting Headquarters is given below and a list of Order Offices on the opposite page.

Head Office and Showrooms:

**Thorn House, Upper Saint Martin's Lane,
London, W.C.2.** Telex: Thorn London 21521

REGIONAL HEADQUARTERS:

LONDON REGION	11 Avon Trading Estate, Avonmore Road, London, W.14. Telephone: 01-603 3377
EASTERN REGION	Angel Road Works, 402 Angel Road, Edmonton, London, N.18. Telephone: 01-807 3050 Telex: Thorn Edmonton 23157
SOUTH EAST REGION	Thorn Industrial Estate, Homesdale Road, Bromley, BR1 2QP, Kent. Telephone: 01-460 9966 Telex: Thorn Bromley 25823
SOUTH WEST REGION	Thorn House, Penarth Road, Cardiff, CF1 7YP. Telephone: CARDIFF 31491 Telex: Thorn Cardiff 49334
MIDLANDS REGION	Thorn House, Aston Church Road, Saltley, Birmingham 8. Telephone: 021-327 1535 Telex: Thorn Birmingham 33235
NORTH WEST REGION	2 Claytonbrook Road, Clayton, Manchester 11. Telephone: 061-223 1322 Telex: BLI Manchester 668642
NORTH EAST REGION	Thorn House, 3 Ring Road, Lower Wortley, Leeds 12. Telephone: LEEDS 636321 Telex: Thorn Leeds 55110
SCOTLAND	Thorn House, Lawmoor Street, Glasgow, C.5. Telephone: SOUTH 5151 Telex: Thorn Glasgow 77630
NORTHERN IRELAND	10 Severn Street, Belfast BT4 1FB. Telephone: BELFAST 56004/5 and 51477 Telex: Thorn Belfast 74695

FLUORESCENT FITTINGS



Fluorescent fittings

Introduction

Almost every major advance in the field of fluorescent lighting has been a direct result of our research. Thorn Lighting's leading position has been maintained by the rigorous standards of production and technical design.

Thorn Lighting fluorescent lighting fittings cover a wide range. There is at least one Thorn Lighting design to meet precise requirements, in light produced, efficiency and in appearance of the fitting, for almost every type of installation.

Prices shown are those recommended as appropriate in U.K. for retail sale.

Nett user prices are those recommended as appropriate in U.K. for direct sale to users.

atlas mazda ekco

Fluorescent lighting fittings index

<i>Range name</i>	<i>description</i>	<i>page</i>
Atlantic 3	Introduction and features A3A Batten fittings A3C Opal diffuser fittings A3E Two-tone diffuser fittings A3G Prismatic prismatic controller fittings A3L Angle reflector fittings A3N Vitreous enamelled reflector fittings – open end A3U Plastic trough reflector fittings A3V Vitreous enamelled reflector fittings – closed end A3X Metal reflector fittings – closed end A3Y Metal reflector fittings – unslotted – open end A3Z Metal reflector fittings – slotted – open end A3 Batten and reflector fittings – 4 tubes	CA5/CA6 CA7 CA8 CA9 CA10 CA11 CA12 CA13 CA14 CA15 CA16 CA17 CA18
Durham 2	Introduction and features 281 series – Batten fittings 420/421 – Prismatic controller fittings 422 series – Opal diffuser fittings 423 series – Opal diffuser fittings 424/425 series – Opal diffuser fittings 282 series – Metal reflector fittings 284 series – Plastic reflector fittings 298 series – Angle reflector fittings	CA19/20 CA21 CA22 CA23 CA24 CA25 CA26 CA27 CA28
New Super Netapak	Introduction and features NSN.1/NSN.2 Batten fittings 420 Prismatic Fittings 424 Diffuser Fittings NOD Opal diffuser fittings NPC Prismatic prismatic controller fittings NOR Metal reflector fittings NPR Plastic reflector fittings NAR Angle reflector fittings	CA29 CA30 CA31 CA32 CA33 CA34 CA35 CA36 CA37
London line	Introduction and features KG Batten fittings KGA Metal frame fittings KGB Metal frame fittings KGW Metal frame fittings KGD Plastic diffuser fittings KGF/KGN Metal frame fittings KGP Prismatic controller fittings KSP Wafer Slim fittings F72526 Shallow Prismatic fitting	CA38 CA39 CA40 CA41 CA42 CA43 CA44 CA45 CA46 CA47
Format	Introduction and features 1. SM/2. SM Surface fittings 3. SM/4. SM Surface fittings 5. SM/Q. SM/O.SM Surface fittings 1. FM Frameless Module fittings 2. FM Frameless Module fittings 1. TM Trimmed Module fittings 2. TM Trimmed Module fittings	CA49 CA50/51 CA52/53 CA54/55 CA56/57 CA58/59 CA60/61 CA62/63

atlas mazda ekco

Fluorescent lighting fittings index

<i>Range name</i>	<i>description</i>	<i>page</i>
Invincible	Introduction and features	CA64
	LU Corrosion resistant fittings	CA65
	LV Corrosion resistant fittings	CA66
	LW Corrosion resistant fittings	CA67
	Flameproof fittings	CA68
	Flameproof fittings	CA69
	11/44501-11/44502 Dust-tight fittings	CA70
	11/47550 Food-factory fitting	CA71
	061/062 series - Angled floodlight fittings	CA72
	OF Hospital	CA73
	Asymmetrical Fitting	CA74
Popular Pack	Introduction, features and accessories	CA75/CA76
	PP Batten fittings	CA77
	PPA Angle reflector fittings	CA78
	PPC Prismatic controller fittings	CA79
	PPD Plastic diffuser fittings	CA80
	PPF Metal frame fitting	CA81
	PPO Plastic trough reflector fitting - open end	CA82
	PPR Metal trough reflector fittings	CA83
	PPT "Twindustrial" metal trough reflector fitting	CA84
	Sentinel	CA85
	One-Plus-One Attachment	CA86
	Double Twin Batten and reflector fittings	CA87
	KU5. P. Clipluve	CA88
Arrow-slim	LX Batten fittings	CA89
	LXA Raffia and LXB Lustre metal baffle fittings	CA90
	LXC Plastic angle diffuser fittings	CA91
	LXE Metal trough reflector and LXF two-tone diffuser	CA92
	WGB Weave-glint and Tropicana metal baffle fittings	CA93
Minipack	LJ Batten fittings	CA94
	Minipack attachments	CA95
	'Au Pair' Homelight	CA96
	'One up' Diffuser light	CA97
Domestic	LS, LST Viewpoint - combined light and shaver point fittings	CA98
Circular fittings ("Circline")	4.NLI Netaline batten fittings	CA99
	4.MLB Litepak batten fittings	CA100
	CEA, CFA, CFG Fittings	CA101
	LSG, SPG Fittings	CA102
	WHG, ITG, WBG Fittings	CA103
	ODC1, ODC1 Fittings	CA104
Suspension Sets	A, B, G, H, K, Sets	CA105
Trunking	Introduction	CA106
	AA Atlantic trunking	CA107/CA108
	AA Liteline trunking	CA109/CA110
	LT Lightweight trunking	CA111/CA112

INCANDESCENT AND DISCHARGE – INTERIOR



Incandescent and discharge — interior

Introduction

Thorn Lighting have introduced a whole new art of tungsten lighting decor. Crystal, coloured glass, spun aluminium, copper, acrylic, opal satin glass, polystyrene, chromium, polyester resin, these are just some of the materials brought to the task of beautiful lighting.

Thorn fittings are available as pendants, triple-pendants, wall brackets, adjustable pendants, scatter lamps, spotlights, desk lamps, ceiling fittings, surface mounted or completely recessed, for numerous domestic, commercial, display and other applications. Many of the fittings illustrated can use the exciting new "Korolux" lamp recently developed for commercial and display applications. When using these lamps control gear is necessary and consequently the "Korolux" pack has been developed to make the use of this splendid light source as easy as that of tungsten filament lamps. Creative imagination is obviously the keynote of Thorn design. Efficiency and reliability are the invisible bonus!

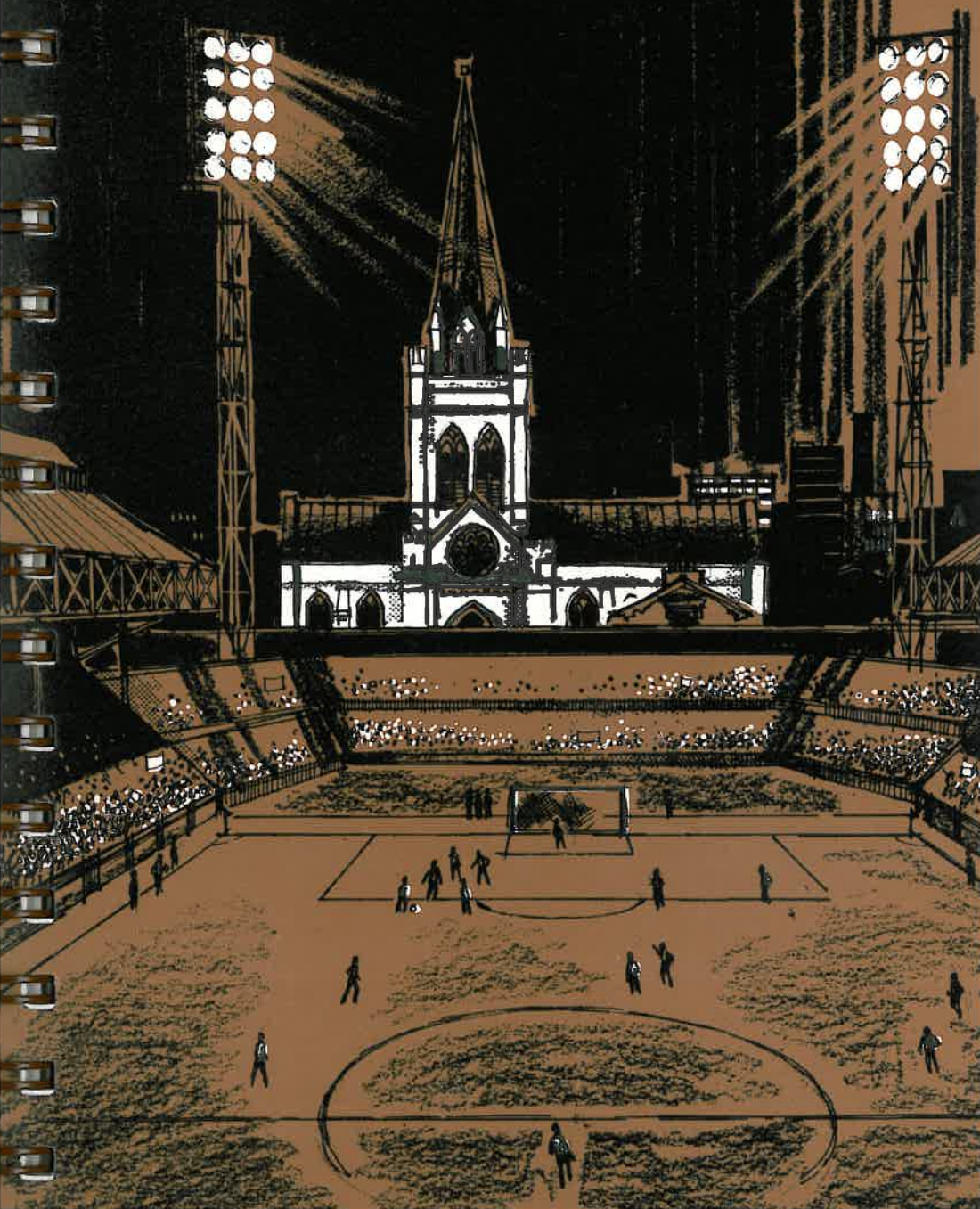
'Prices' shown are those recommended as appropriate in U.K. for retail sale.

'Nett user prices' are those recommended as appropriate in U.K. for direct sale to users.

Incandescent and Discharge Interior Index

<i>Range name</i>	<i>description</i>	<i>page no.</i>
Modern	Introduction Glassware and Suspension XY Metal Reflectors XJ, XK Ceiling Fittings XL, XW1 Wall Brackets Construction Detail Glass and Suspension Details, Prices	CB5, 6 CB7 CB8 CB8 CB9 CB10, 11
Modern Junior	WX Series Glassware and Suspension	CB12, 13
Novelle	NLH Series	CB14
Modern	WO Occasional Lamp WAM and WA Adjustable Pendant WH100, WR100 WS1100 Spotlight	CB14 CB15 CB16 CB16
Top Spot	VTC60, VTD60	CB17
Linklight	WL Series WE Series	CB18, 19 CB20
Cubelight	WM Series	CB21
Scatterlight	SC Series and Suspension	CB22
Chelsea	J. Range Glassware & Suspension	CB23, 24
Nova Cylinder		CB25
Nova	Cylinder Range NCA, NDA, NFA, NLT Fittings, MR, MT Fittings NC, ND, NF, NL Fittings Dimensions and Prices	CB25 CB26 CB27 CB28
Kolorlux Pack	PKC80, PKC125 PKA80, PKA125, PKM80, PKM125 PKT80, PKT125 PKO80, PKO125, PKB80, PKB125	CB29 CB30 CB31 CB32
Mini Dimmer		CB33
Display Range	Introduction VS2060 Surface Mounted Fittings VL, VX, VZ Attachments for VS2060 VS2100 Surface Mounted Fitting VL, VZ Attachments for VS2100 VCB, VCM, VU Cylinder Baffle VW Wall Washer for VU VC Cylinder Range VL, VX, VZ Attachments for VC Fitting VR100 Recessed Fitting VL, VP, VS, VX, VY, VZ Attachments for VR100 VR200 Recessed Fitting VL, VO, VX, VY, VZ Attachments for VR200 DNM Surface Mounted Fitting DP Recessed JC Recessed VJ Junior Recessed Vertical Fitting	CB34 CB35 CB35 CB36 CB36 CB37 CB37 CB38 CB38 CB39 CB39 CB40 CB40 CB41 CB41 CB41 CB41
Main Voltage Spotlights	VH, VHB, V1, VQ Series, K1100/1150 Filters VA, DL, DS, VF, VG, VM Series	CB42 CB43
Low Voltage Spotlights	DB, DS Series ES Tungsten Halogen K1150 Colour Filter DAS, DCS Fittings TRF Low Voltage Transformer	CB44 CB44 CB44 CB45 CB45
Interior Floodlight	EU Tungsten Halogen	CB46
Hospital	OE, OG Low Brightness	CB47
Opalite	MN Series	CB48
Industrial	Introduction HBR/G250, G400 HBR/G700, HBR/G1000 HBIX/G400 HBT/X400 HBT	CB49 CB50 CB51 CB52 CB53 CB54

INCANDESCENT AND DISCHARGE EXTERIOR



Incandescent and discharge — exterior

Introduction

The scope for outdoor lighting is growing. The combined Thorn Lighting range of weatherproof fittings and lanterns cover practically all space lighting and requirements.

The 'Escort' range of 'bulkhead and wellglass' fittings suit pedestrian walkways and precincts.

The floodlights use the latest discharge lamps developed in our research laboratories and tungsten halogen lamps as well as the more traditional sources.

Street lanterns, nearly all using modern efficient discharge lamps, are used for industrial roads, forecourts, etc. as well as for street lighting.

'Prices' shown are those recommended as appropriate in U.K. for retail sale.

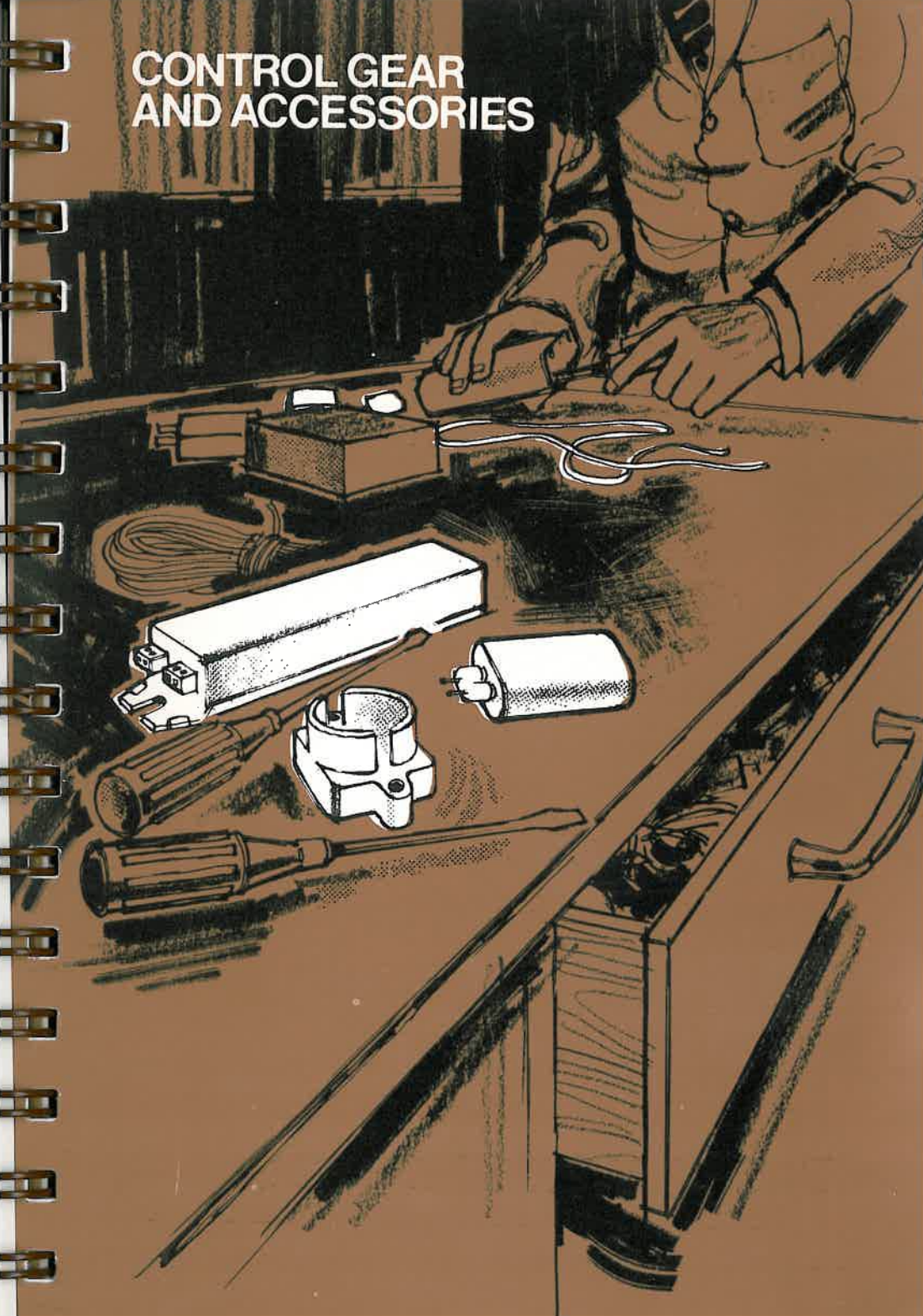
'Nett user prices' are those recommended as appropriate in U.K. for direct sale to users.

atlas mazda ekco

Incandescent and Discharge exterior Index

Range	Description	Page
Escort	LGI Tungsten Bulkhead	CC4
	MBF Prismatic Bulkhead	CC5
	Division 2 wellglass	CC5
	OB Fluorescent Bulkhead	CC6
	EKF, EMF Tungsten/mercury wellglass	CC7
Floodlighting	WPC, WPW Patio	CC8
	ER, M36 Miniflood	CC9
	SUN Tungsten halogen Sunflood	CC10, 11
	TID/TIS Tungsten halogen flood	CC12
	M25 Floodlight projector	CC13
	M25F Floodlight projector	CC14
	M28 Light duty floodlight projector	CC15
	400 Area floodlight	CC16
	M30 Linear sodium flood	CC17
	OD Linear halide flood	CC18
Street lighting	Index and Price List	CC19-22
	<i>Group A</i>	
	Alpha One - SOX sodium	CC23
	Alpha Two - 5ft fluorescent	CC24
	Alpha Three - mercury fluorescent	CC25, 26
	Alpha Three - mercury fluorescent with gear	CC27
	Alpha Five - linear sodium	CC28
	Alpha Six - linear sodium	CC29
	Alpha Seven - mercury fluorescent	CC30
	Alpha Seven - with gear	CC31
	Alpha Nine - SOX sodium	CC32
	Alpha Nine - with gear	CC33
	Alpha Ten - SOX sodium	CC34
	<i>Group B</i>	
	Beta One - top entry GLS/mercury	CC35
	Beta Four - top entry GLS/mercury	CC36
	Beta Five -	CC37
	Beta Six - side entry 2ft fluorescent	CC38
	Beta Seven - side entry mercury	CC39
	Beta Eight - side entry sodium	CC40
	Beta Nine - side entry mercury	CC41
	<i>Group A</i>	
	Gamma One - post top 5ft fluorescent	CC42
	<i>Group B</i>	
	Gamma Two - post top 2ft fluorescent	CC43
	<i>Group A</i>	
	Gamma Three - post top mercury fluorescent	CC44
	Gamma Four - post top three-lamp mercury	CC45
	<i>Group B</i>	
	Gamma Five - post top GLS/mercury	CC46
	Gamma Six - post top GLS/sodium/mercury	CC47
	Gamma Seven - post top GLS/mercury/fluorescent	CC48
	Gamma Eight - post top GLS/sodium/mercury/fluorescent	CC49
	Gamma Nine - post top GLS/sodium/mercury/fluorescent	CC50
	<i>Miscellaneous</i>	
	High Tower - high mast lantern	CC51
	Footway fluorescent fittings	CC52
	Leader columns	CC53, 54

CONTROL GEAR AND ACCESSORIES



Control gear and accessories

Introduction

Thorn Lighting Control Gear and Accessories have achieved a reputation for consistently high quality at economical prices by a policy of close co-operation between our research and engineering departments, and the factory where the equipment is made.

All manufacture is carried out at Spennymoor, Co. Durham, in what is probably the largest control gear factory in Europe. A high proportion of its output is exported.

The standard of quality control and inspection at the factory is extremely high, and ensures that most Thorn Lighting control gear units comply with the requirements of B.S. specifications.

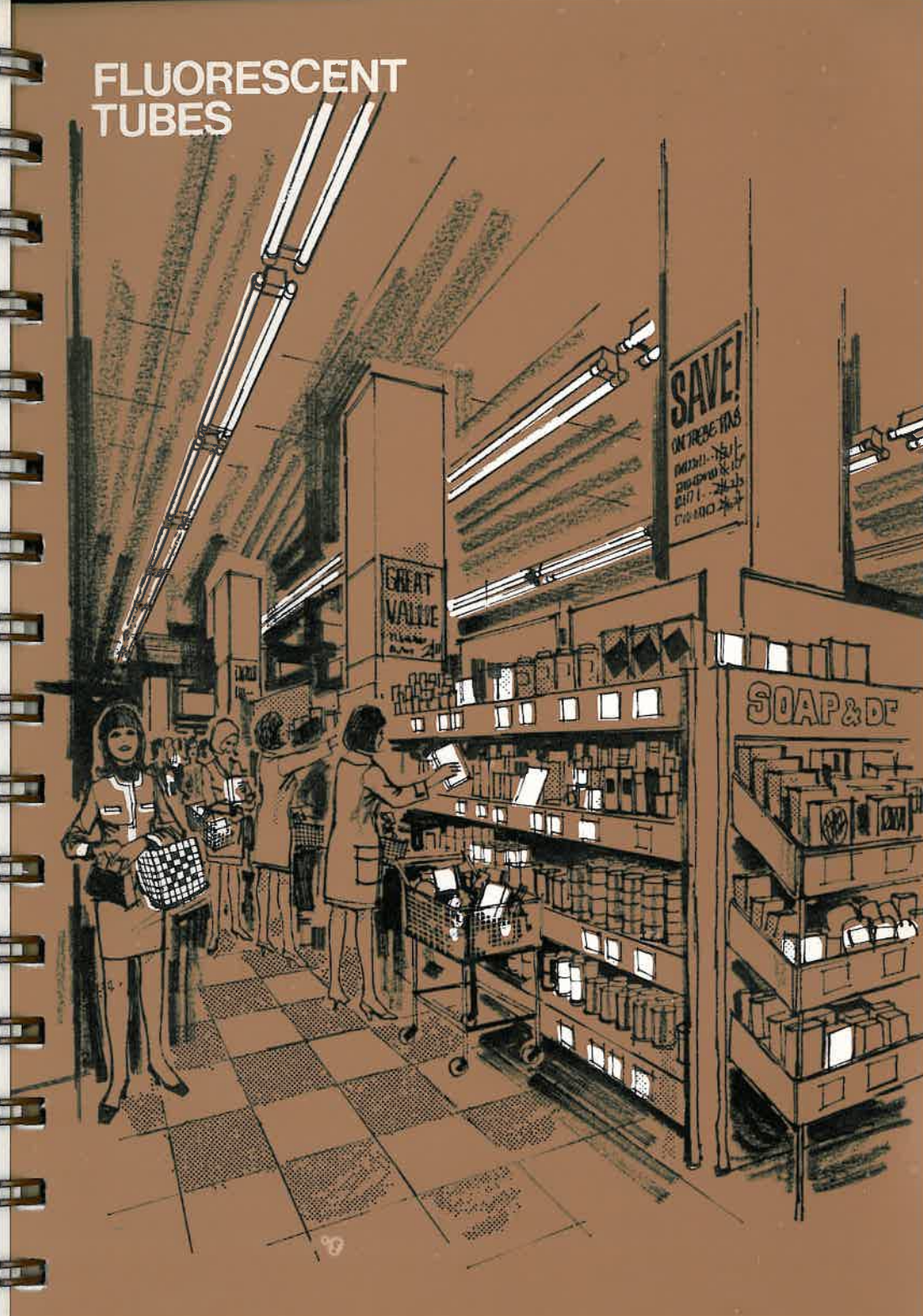
'Prices' shown are those recommended as appropriate in U.K. for retail sale.

'Nett user prices' are those recommended as appropriate in U.K. for direct sale to users.

Control gear and accessories 1969/70

	CD2	Range	Description	Page
Introduction to section	CD3	Fluorescent	8ft 125w	CD6/7
Contents and Index	CD4	Control Gear	8ft and 6ft 85w	CD8/9
Index of Catalogue Nos.	CD5	Circuit	5ft 80w	CD10/11
Index	CD6	Components	5ft 65w	CD12/13
8ft 125w components	CD7		5ft 50w and 4ft 40w	CD14/15
Types and circuit diagrams	CD8		3ft 30w	CD16/17
8ft and 6ft 85w components	CD9		2ft 40w and 16in 40w	CD18/19
Types and circuit diagrams	CD10		2ft 20w	CD20/21
5ft 80w components	CD11		18in 15w	CD22/23
Types and circuit diagrams	CD12		21in 13w and 12in 8w	CD24/25
5ft 65w components	CD13		9in 6w and 6in 4w	CD26/27
Types and circuit diagrams	CD14	Capacitors	AME C Series for Fluorescent Circuits	CD37
5ft 50w and 4ft 40w components	CD15	Starter Switches	155 Series	CD38
Types and circuit diagrams	CD16	Control Gear	AME M Series for Exterior and Interior use	CD39/40
3ft 30w components	CD17	Boxes	Replacements for fittings	CD41
Types and circuit diagrams	CD18	Accessories	Lampholders	CD42/45
2ft 40w and 16in 40w components	CD19		Starter Switch Sockets	CD46
Types and circuit diagrams	CD20		Fluorescent tube support clips	CD47
2ft 20w components	CD21		Terminal blocks and Fuse holders	CD48
Types and circuit diagrams	CD22	Electrical Data	For Fluorescent Circuits	CD49/50
18in 15w components	CD23	Mercury Discharge	AME 5 Series	CD28/29
Types and circuit diagrams	CD24	Lamp Circuit		
21in 13w and 12in 8w components	CD25	Components		
Types and circuit diagrams	CD26	Capacitors	AME C Series for Mercury Discharge Circuits	CD29
9in 6w and 6in 4w components	CD27	Sodium Discharge	AME 5 Series	CD30/31
Types and circuit diagrams	CD28	Lamp Circuit		
Tables and circuit diagrams	CD29	Components		
Mercury discharge circuit components	CD30	Capacitors	AME C Series for Sodium Discharge Circuits	CD31
Tables and circuit diagrams	CD31	Special Mercury	Components and Circuits for MBW/U—MB/D ME/D—C.S.I. lamps	CD32/33
Sodium discharge circuit components	CD32	Control Gear		
Special mercury lamp control gear	CD33	Compact Source	Components and Circuits for XE/D—XB Linear Source Lamps	CD34/35
Special mercury lamp control gear continued	CD34	Xenon Lamp		
Xenon Lamp control gear	CD35	Control Gear		
Xenon Lamp control gear continued	CD36	Theatre Lighting	Activities	CD51
Step-up transformers and installation notes	CD37		Thorn Q-File	CD52
Capacitor table	CD38	Emergency	Unit for use with Miniature and Popular Pack Transistorised Fittings	CD53
Starter switches	CD39	Lighting System		
Control gear boxes	CD40	Step-Up	AME 4 Series	CD36
Control gear boxes continued	CD41	Transformers and		
Replacement accessories	CD42	Installation Notes		
Lampholders	CD43			
Lampholders	CD44			
Lampholders	CD45			
Lampholders	CD46			
Starter switch sockets	CD47			
Fluorescent tube support clips	CD48			
Terminal blocks and fuse holders	CD49			
Electrical data for circuits	CD50			
Electrical data for pop packs etc.	CD51			
Theatre lighting division	CD52			
Theatre lighting activities	CD53			
Emergency lighting				

FLUORESCENT TUBES



Fluorescent tubes

Introduction

Thorn Lighting Ltd has the finest fluorescent tube works in Western Europe making the extensive range of tubes described in this section of the catalogue, including the de luxe colours which are receiving increasing acknowledgment for interior lighting installations where good colour rendering and colour appearance are important.

The popular ratings of fluorescent tubes are available in Atlas, Mazda and Ekco brands, but the slower selling types are not stocked in all brands. However, any tube shown in this catalogue can be supplied from any Thorn Lighting Office.

'Prices' shown are those recommended as appropriate in U.K. for retail sale.

'Nett user prices' are those recommended as appropriate in U.K. for direct sale to users.

Fluorescent 1969/70

Index	CE3
Price list and availability	CE4
Colour appearance	CE5
Colour appearance continued	CE6
Dimensions	CE7

Electrical data	CE8
Light output	CE9
Light output continued	CE10
Spectral distribution	CE11
Spectral distribution continued	CE12

Fluorescent tubes

Net Trade Prices

Straight Tubes — 8 ft, 6 ft, 5 ft, 4 ft, 3 ft, 2 ft, 21", 18", 12", 9", 6".

	Watts	125w	85w	85w	80w	65/80w	50w	40w	30w	40w	20w	15w	13w	8w	6w	4w
	Length	8 ft	6 ft	5 ft	5 ft	5 ft	5 ft	4 ft	3 ft	2 ft	2 ft	18"	21"	12"	9"	6"
	Diameter	1 1/2"	1 1/2"	1 1/2"	1 1/2" BC	1 1/2"	1"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
		each	each	each	each	each	each	each	each	each	each	each	each	each	each	each
		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
White	12/2	12/2	10/2	9/1	8/-	8/9	7/7	8/1	8/1	7/9	7/3	9/6	6/3	6/3	6/3	6/3
Warm White	12/2	12/2	10/2	9/1	8/-	8/9	7/7	8/1	8/1	7/9	7/3	9/6	6/3	6/3	6/3	6/3
Daylight	12/2	12/2	10/2	9/1	8/-	8/9	7/7	8/1	8/1	7/9	7/3	9/6	6/3	6/3	6/3	6/3
Purchase Tax Extra	—	—	—	3/3	2/10	3/2	2/9	2/11	2/11	2/9	2/7	3/5	2/3	2/3	2/3	2/3
Natural	13/10	13/10	11/8	10/10	9/8	10/5	8/7	9/1	9/1	8/10	8/1	—	6/7	6/7	6/7	6/7
Northern/Col. Match	13/10	13/10	11/8	10/10	9/8	—	8/7	9/1	9/1	8/10	8/1	—	—	—	—	—
De Luxe Warm White	13/10	13/10	—	10/10	9/8	—	8/7	9/1	9/1	8/10	8/1	—	—	—	—	—
"Kolor-rite"	13/10	13/10	11/8	10/10	9/8	10/5	8/7	9/1	9/1	8/10	8/1	—	—	—	—	—
Typical Daylight	—	—	—	—	—	—	—	—	—	—	—	8/1	—	—	—	—
Purchase Tax Extra	—	—	—	3/11	3/6	3/9	3/1	3/3	3/3	3/2	2/11	—	2/4	2/4	2/4	2/4
De Luxe Natural	16/1	16/1	13/5	12/6	11/-	11/11	9/11	10/7	10/7	10/1	9/5	—	—	—	—	—
Purchase Tax Extra	—	—	—	4/6	3/11	4/3	3/7	3/9	3/9	3/7	3/4	—	—	—	—	—
Artificial Daylight	24/9	24/9	19/10	—	15/8	—	14/10	—	—	13/2	12/5	—	—	—	—	—
Purchase Tax Extra	—	—	—	—	5/7	—	5/4	—	—	4/9	4/5	—	—	—	—	—
Amalgam	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
White	—	—	12/6	—	—	—	—	—	—	—	—	—	—	—	—	—
Warm White	—	—	12/6 1/2	—	—	—	—	—	—	—	—	—	—	—	—	—
Natural	—	—	14/4	—	—	—	—	—	—	—	—	—	—	—	—	—
Reflector Tubes	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
White	14/8	14/8	12/4	10/10	9/8	—	9/3	—	—	9/4	—	—	—	—	—	—
Warm White	14/8	14/8	12/4	10/10	9/8	—	9/3	—	9/9	—	—	—	—	—	—	—
Daylight	—	—	12/4	10/10	9/8	—	9/3	—	—	—	—	—	—	—	—	—
Purchase Tax Extra	—	—	—	3/11	3/6	—	3/4	—	—	3/6	3/4	—	—	—	—	—
Reflector Tube	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Natural	—	—	—	—	11/4	—	—	—	—	—	—	—	—	—	—	—
Purchase Tax Extra	—	—	—	—	4/1	—	—	—	—	—	—	—	—	—	—	—
Colours	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pink, Green, Blue, Red, Gold, Peach	—	—	24/-	—	16/-	—	15/9	15/9 1/2	15/9 1/2	14/9	5/3	—	—	—	—	—
Purchase Tax Extra	—	—	—	—	—	—	5/8	5/8	5/8	—	—	—	—	—	—	—
Radar Red	—	—	—	—	55/-	—	52/-	—	—	—	—	—	—	—	—	—
Purchase Tax Extra	—	—	—	—	19/8	—	18/7	—	—	—	—	—	—	—	—	—
Ultra Violet (Non Filter)	—	—	—	—	16/-	—	15/6	—	—	14/9	14/9 1/2	—	10/9	—	—	—
Purchase Tax Extra	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Blacklight Blue U.V.	—	—	—	—	—	—	122/-	—	—	—	—	51/-	—	33/0	31/-	29/-
Purchase Tax Extra	—	—	—	—	—	—	22/3 1/2	—	—	20/9	16/6 1/2	22/3	14/6	—	—	—
Gro-lux	—	—	—	—	26/6	—	25/-	8/11	8/-	—	7/5	5/11	8/3	5/2	—	—
Purchase Tax Extra	—	—	—	—	9/6	—	—	—	—	—	—	—	—	—	—	—

1/2 Pink only 1/4 Available 1" diameter only

*25w 8 ft BC tubes now obsolete. Limited stock available. Prices White, Warm White, Daylight — 14/9 + 5/3 P.T.; Natural — 16/5 + 5/10 P.T.

Circular Tubes Warm White only

		Each	s	d	P.T.
16" dia.	40w	1	3	0	8/3
12" dia.	32w	1	1	0	7/6
8 1/2" dia.	22w	1	1	0	7/6

Tube Grades

There are different grades of tube to suit various types of control gear and the correct type must be used to obtain satisfactory starting performance.

GP (General Purpose Quickstart) grade tubes (MCFE/U)

The GP Quickstart tube is manufactured to give satisfactory starting with all switch or switchless start control gear and is now supplied as the standard tube for use in all fittings. For switchless start circuits the metal chassis must extend the full length of the tube and be bonded to earth. The metalwork must not be more than half-inch from the tube. Quickstart, Resonant-start and other switchless start circuits must only be used on 200–250V 50 Hz supplies where the neutral conductor is at earth potential.

MS (Metal Strip) grade tubes (MCFA/U)

This tube is only necessary for special conditions, e.g. where electrode metalwork is not adjacent to the tube, it has a metallic conducting strip cemented to the outside of the tube, connected to both caps, which must be earthed.

A limited range of the more popular tubes in 2 ft – 5 ft lengths can be supplied with metal strip (MCFA/U). 1/- extra per tube plus 4d Purchase Tax.

Fluorescent Tube Packing Quantities

8 ft and Circles: 12

Blacklight Blue: 24

All others: 25

METAL STRIP — A limited range of the more popular tubes in 2' – 5' lengths can be supplied with metal strip (MCFA/U). 2/- extra per tube plus 9d Purchase Tax.

Fluorescent Tube Packing

	8' and Circles	Blacklight Blue	All Others
Size			
Standard Case			
Quantity	12	24	25

Rated Life and Group Replacement

The rated life of all B.L.I. 4 ft, 5 ft, 6 ft and 8 ft 1 1/2 in. diameter lamps is 7500 hours. The rated life of all other ratings is 5000 hours. In many situations it is advantageous to replace lamps in bulk (Group Replacement) rather than as individual lamps fail.

Among the benefits of Group Replacement are:

- A saving in initial cost
- a higher average level of lighting
- more uniform lighting
- less interruption to work
- a saving in running cost

Further information on Group Replacement is available from our Regional Offices.

Bi-Pin/BC Adaptor

AME B1515 Adaptor converting bi-pin lamp cap to BC. The overall length of a 5 ft bi-pin tube with these adaptors does not exceed the length of a BC tube. 1s 9d each.



Guarantee

Any fluorescent tube failing within 12 months from the date of purchase by the user (or prior to 3000 hours burning whichever is the shorter) except through misuse, will be replaced free of charge.

Fluorescent tubes

Colour appearance and colour rendering

There is a natural tendency to consider the light output of a fluorescent tube as the main criterion but it must be remembered that this is only part of the consideration.

In general, the colours with the highest light output have the poorest colour rendering properties and similarly, the colours with the lowest light output have the best colour rendering properties.

Good colour rendering is a most important factor in creating an acceptable and attractive environment. There are many situations where the use of a de luxe colour such as °Kolor-rite or De-Luxe Natural can produce a stimulating atmosphere which far outweighs

the small additional cost.

The importance of colour appearance and colour rendering properties is recognised in the I.E.S. Code "Recommendations For Lighting Building Interiors" published in March 1968 and below is given an extract from the Code.

Overleaf is a table showing in detail the recommended applications for the standard range of fluorescent tubes. It should be noted that different ratings of the same colour tube will have slight variations in appearance because of the different loading. Difference ratings should not therefore be mixed in an installation where colour consistency is important.

Colour appearance and colour rendering properties of fluorescent lamps

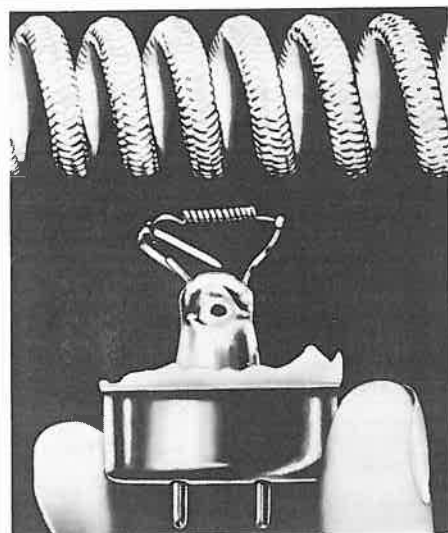
(Extract from I.E.S. Code)

Colour rendering requirements	Colour appearance	Suitable lamp types	Relative lamp efficacy
Interiors in which advantage must be taken of high lamp efficacy and where some colour distortion is acceptable, e.g. most industrial premises	Cool	DAYLIGHT	100% to 95%
	Intermediate	WHITE	
	Warm	WARM WHITE	
Interiors in which good colour rendering is desirable but where a small degree of colour distortion is admissible, e.g. shops, homes, hotels, restaurants, art rooms	Cool	NORTHLIGHT COLOUR MATCHING	75% to 65%
	Intermediate	NATURAL	
	Warm	De Luxe Warm White	

Circumstances in which particular requirements must be met:

Where lamps are used to produce special effects, e.g. the lighting of foodstuffs	Intermediate	De Luxe Natural °Kolor-rite	65% to 50%
Where clinical examinations are carried out in hospitals and surgeries	Intermediate	°Kolor-rite (see Note 3)	
Where accurate colour matching depends on simulation of daylight	Cool	Artificial Daylight	45% to 40%

- 1 The lamp names in capitals are the standard designations as in BS1853.
- 2 When fluorescent lamps are used to supplement daylight, the choice of lamp colour in the first two categories of colour rendering requirements must be made with special care: the final choice will probably depend upon the amount of daylight in the working area and the length of time in which daylight is dominant.
- 3 At the time of going to press the use of °Kolor-rite lamps in hospitals is subject to Ministry of Health approval.



Braided cathode

Super Phosphors

The braided cathode filament – British Patent 131059 – is now being used exclusively in 5 ft 65/80w and 80w (BC) tubes as well as 6 ft 85w, 8 ft 85w and 8 ft 125w tubes.

The exclusive braided cathodes used in B.L.I. fluorescent tubes give more efficient operation, fewer early failures and longer life than conventional coiled coil cathode.

This cathode consists of a hollow mesh cylinder which is formed by braiding eight very thin strands of tungsten wire together. This means that the emitter is held within the hollow cylinder thus forming a solid core.

The release of electrons is better controlled than with a coiled coil filament and this results in the braided cathode having approximately 70% greater electron emission.

Fluorescent tubes

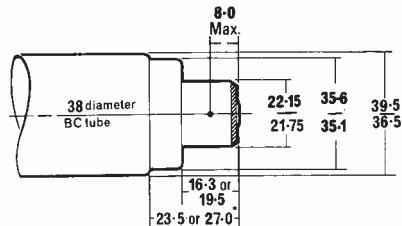
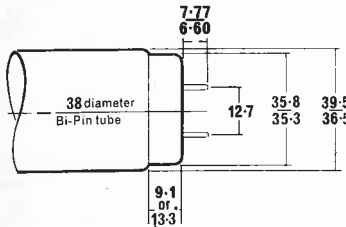
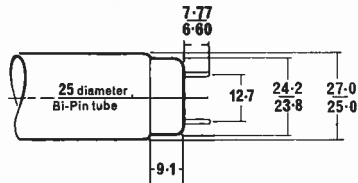
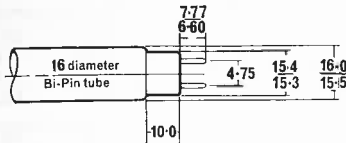
Colour appearance and colour rendering

Tube colour	Percentage of White Tube lumens	Colour rendering quality	Colour appearance	Application and remarks
Industrial lighting				
White and Warm White	98	Fair	Intermediate	General illumination at maximum efficiency. Buildings requiring artificial illumination to blend with natural daylight. Minimum of 300 lux must be provided to avoid an excessively cold appearance.
Daylight	94	Fair	Cool	
Artificial Daylight	41	Very Good	Cool	Areas where accurate colour matching is carried out. A minimum of 600 lux must be provided. Conforms to BS950:Part One
Commercial lighting				
White and Warm White	98	Fair	Intermediate	General and drawing offices requiring maximum lighting efficiency. General office lighting particularly where required to blend with natural daylight. Minimum of 300 lux necessary.
Natural	70	Good	Intermediate	
°Kolor-rite	65	Very Good	Intermediate	Offices, showrooms, studios, colleges, hospitals. Office buildings requiring a warm effect, flattering to the complexion.
De Luxe Warm White	66	Good	Warm	
Display lighting				
Northlight/ Colour Matching	59	Good	Cool	Tailors (Colour matching areas), furriers and for wintry effects. Minimum of 600 lux necessary to avoid an excessively cold appearance.
Natural	70	Good	Intermediate	Jewellery, glassware, china, hardware, tailors (main shop areas), summer frocks and departmental stores. Minimum of 300 lux necessary.
De Luxe Natural	49	Very Good	Intermediate	Florists, fishmongers, butchers, grocers, supermarkets and brightly coloured merchandise.
°Kolor-rite	65	Very Good	Intermediate	The first choice where true reproduction of colour is required, gives the effect of a sunny day.
De Luxe Warm White	66	Good	Warm	Furniture, restaurants, lounges and for domestic settings; tungsten filament lamp effect.
White	100	Fair	Intermediate	General display lighting requiring maximum light output, but without the need for good colour quality.
Colours	—	Poor	Poor	Green, gold, blue, red, pink, peach for special effects.
Domestic lighting				
White or Warm White	98	Fair	Warm	Rooms requiring maximum light output. Rooms requiring a warmer colour light blending with tungsten filament lamps.
De Lux Warm White	66	Good	Warm	
Pink	25	Poor	Warm	Decorative lighting giving a very warm effect.
Peach	65			
Special applications				
Green	95	Poor	Poor	Saturated colours for display, floodlighting, stage lighting.
Peach	60			
Gold	55			
Pink	25			
Blue	20			
Red	6			
Gro-lux	30	—	—	This special tube colour has been developed for plant growth purposes, i.e. its spectral energy is ideally suited to seed germination and rapid plant growth. It is also ideal for aquarium lighting where it stimulates aquatic plant growth. Gro-lux tubes have a lavender colour appearance with a strong red and blue rendering effect. Although yellows are poor, foliage has a rich green appearance. Colouring of tropical fish, plants and flowers looks especially vivid under Gro-lux tubes.
Ultra-violet (Non-filter)	—	—	—	The Ultra-violet tube emits a large proportion of its energy as invisible ultra-violet radiation between 300 and 400 nanometres. The tube also emits a small amount of visible light at the blue end of the spectrum but where this light is undesirable it can be filtered out by using Woods glass filters which transmit the invisible ultra-violet only.
Blacklight Blue	—	—	—	Ultra-violet tubes as above (but with black glass bulb) which transmit ultra-violet only filtering out the visible light.
Radar Red	—	—	—	A bright magenta red colour with a higher light output than Red — originally used for radar rooms but also gives a strong red effect to meat and bacon displays.

Fluorescent tubes

Dimensions

Dimensions in millimetres unless otherwise stated



Longer Caps used on 8' tubes

Straight tubes

Rated wattage	Nominal dimensions		cap	Length, base face to base face (max.)		Length, base face to end of opposite cap pins		Length, overall	
	in.	mm.†		mm.		max.	min.	max.	min.
125	96 x 1 1/2	2400 x 38	Bi-Pin	2374-9		2382-0	2378-4	2389-1	—
125	96 x 1 1/2	2400 x 38	BC	—		—	—	2444-7	2432-0
85	96 x 1 1/2	2400 x 38	Bi-Pin	2374-9		2382-0	2378-4	2389-1	—
85	72 x 1 1/2	1800 x 38	Bi-Pin	1763-8		1770-9	1768-4	1778-0	—
65/80	60 x 1 1/2	1500 x 38	Bi-Pin	1500-0		1507-1	1504-8	1514-3	—
80	60 x 1 1/2	1500 x 38	BC	—		—	—	1530-4	1517-6
50	60 x 1	1500 x 25	Bi-Pin	1500-0		1507-1	1504-8	1514-3	—
40	48 x 1 1/2	1200 x 38	Bi-Pin	1199-4		1206-5	1204-1	1213-6	—
40	24 x 1 1/2	600 x 38	Bi-Pin	589-8		596-9	594-5	604-0	—
30	36 x 1 1/2	900 x 38	Bi-Pin	894-6		901-7	899-3	908-8	—
30	36 x 1	900 x 25	Bi-Pin	894-6		901-7	899-3	908-8	—
20	24 x 1 1/2	600 x 38	Bi-Pin	589-8		596-9	594-5	604-0	—
15	18 x 1 1/2	450 x 38	Bi-Pin	437-4		444-5	442-1	451-6	—
15	18 x 1	450 x 25	Bi-Pin	437-4		444-5	442-1	451-6	—
13	21 x 5/8	525 x 16	Bi-Pin min.	516-8		523-9	521-5	531-0	—
8	12 x 5/8	300 x 16	Bi-Pin min.	288-2		295-3	292-9	302-4	—
6	9 x 5/8	225 x 16	Bi-Pin min.	212-0		219-1	216-7	226-2	—
4	6 x 5/8	150 x 16	Bi-Pin min.	135-8		142-9	140-5	150-0	—

† Note the new metric designations of tubes

Circular tubes

Lamp watts	Nominal diameter	Inside Lamp diameter/glass		Inside Lamp diameter/base		Outside Lamp diameter*		Bulb diameter	
	in.	max.	min.	max.	min.	max.	min.	max.	min.
22	8 1/4	160-4	151-1	155-6	150-8	215-9	203-2	30-9	26-2
32	12	245-3	237-3	246-1	239-7	311-2	298-5	34-1	29-4
40	16	346-9	338-9	347-7	341-3	412-8	400-0	34-1	29-4

* Base and glass dimensions the same

Fluorescent tubes

Electrical data

Electrical data for standard 240v 50HZ tube circuits. Average performance tested at 25°C to BS2818

The figures on this page are for control gear used in Atlantic, Durham, New super Netapack, Troffer, Modular, and similar fittings. For control gear in Popular Pack, Minipack, Arrow-slim, and similar fittings see the British Lighting Industries Fitting's catalogue.

Tube size	8 ft	8 ft	6 ft	5 ft	5 ft	4 ft	3 ft	3 ft
Diameter	1½ in.	1½ in.	1½ in.	1½ in.	1½ in.	1 in.	1½ in.	1 in.
Nominal tube watts	125w	85w	85w	80w	65w	50w	40w	30w
Lamp cap	Bi-pin	BP Super 8	BP Super 6	BP or BP	BP Super 5	BP	BP	BP
Actual lamp (watts)	123	85	84	76	64	50	39½	30
Average tube (volts)	150	184	120	100	110	165	102	85
Average tube (amps.)	0.94	0.55	0.80	0.87	0.67	0.38	0.44	0.39
Rated life (hours)	7500	7500	7500	7500	7500	5000	7500	5000

Single Tube Switchstart

Total circuit (watts)	144	—	95	94†	77	62	50	39	39
Lagging power factor	0.64‡	—	0.87	0.85	0.85	0.69‡	0.85	0.85	0.85
Total volt amps.	226	—	108	110	90	90	60	46	46
Mains current at 240v	0.94	—	0.45	0.46	0.37	0.38	0.25	0.19	0.19
Min. starting temperature	0°C	—	+5°C	0°C	0°C	+5°C	0°C	0°C	0°C
% Harmonics per phase	15%	—	16%	17%	17%	15%	17%	17%	17%

Single Tube Switchless Start

Total circuit (watts)	154	100	96	99	79	—	53	42	42
Lagging power factor	0.98	0.99	0.86	0.85	0.91	—	0.85	0.85	0.85
Total volt amps.	158	100	110	116	87	—	62	50	50
Mains current at 240v	0.66	0.42	0.46	0.48	0.36	—	0.26	0.21	0.21
Min. starting temperature	+5°C	+5°C	—5°C	+5°C	—5°C	—	+5°C	+5°C	+5°C
% Harmonics per phase	8%	7%	25%	17%	25%	—	17%	17%	17%

Twinstart

Total circuit (watts)	—	207	—	—	—	—	—	—	—
Lagging power factor	—	0.95	—	—	—	—	—	—	—
Total volt amps.	—	218	—	—	—	—	—	—	—
Mains current at 240v	—	0.91	—	—	—	—	—	—	—
Min. starting temperature	—	+5°C	—	—	—	—	—	—	—
% Harmonics per phase	—	17%	—	—	—	—	—	—	—

Tube size	2 ft	2 ft	18 in.	18 in.	21 in.	12 in.	9 in.	6 in.
Diameter	1½ in.	1½ in.	1½ in.	1 in.	¾ in.	¾ in.	¾ in.	¾ in.
Nominal tube watts	40w	20w	15w	15w	13w	8w	6w	4w
Lamp cap	BP	BP	BP	BP	Small BP	Small BP	Small BP	Small BP
Actual lamp (watts)	37	19½	15	15	13	8	8	4
Average tube (volts)	47	58	48	57	92	55	43	30
Average tube (amps.)	0.88	0.37	0.36	0.34	0.17	0.17	0.16	0.15
Rate life (hours)	5000	5000	5000	5000	5000	5000	5000	5000

Single Tube Switchstart

Total circuit (watts)	58	30	25	25	19	14	12	10
Lagging power factor	0.85	0.34*	0.30*	0.31*	0.46*	0.34*	0.31*	0.28*
Total volt amps.	69	90	85	81	41	41	39	36
Mains current at 240v	0.29	0.37	0.36	0.34	0.17	0.17	0.16	0.15
Min. starting temperature	0°C	0°C	0°C	0°C	0°C	0°C	0°C	0°C

Series Pair Switchstart

Total circuit (watts)	94	50	40	40	—	22	18	14
Lagging power factor	0.85	0.85	0.85	0.85	—	0.52*	0.46*	0.39*
Total volt amps.	110	59	47	47	—	41	39	36
Mains current at 240v	0.46	0.25	0.20	0.20	—	0.17	0.16	0.15
Min. starting temperature	0°C	0°C	0°C	0°C	—	0°C	0°C	0°C

Series Pair QS Switchless Start

Total circuit (watts)	100	54	44	44	—	—	—	—
Lagging power factor	0.85	0.85	0.85	0.85	—	—	—	—
Total volt amps.	118	63	52	52	—	—	—	—
Mains current at 240v	0.49	0.26	0.22	0.22	—	—	—	—
Min. starting temperature	+5°C	+5°C	+5°C	+5°C	—	—	—	—

* Uncorrected value. Allow 0.85 if power factor capacitor is fitted.

† Special 80w cold start circuit operates at 0.91 amps. with 0.49 leading power factor.

‡ 8 ft 125w and 6 ft 50w starter switch circuits operate with a series type capacitor at a leading power factor of 0.63.

The above circuit watts for control gear tested in accordance with BS2818 may be reduced by up to 5% when operating in some fittings as the circuit watts reduce as the lamp operating temperature rises.

Fluorescent tubes

Light output

Lumen outputs

The lumen outputs quoted in this catalogue are measured at 25°C in accordance with British Standard 1853.

Initial lumens

Initial lumens are measured after 100 hours operation.

Super white

6ft 85w white tubes use super white phosphors giving higher lumen output.

Lighting design lumens

The 'Lighting Design Lumens' quoted are the lamp outputs at 2000 hours and are recommended as a guide to lighting engineers planning scheme layouts.

Lumen output beyond 2000 hours decreases by 2% to 3% per 1000 hours use according to the colour and loading.

Initial lumens

	8 ft 125w	8 ft Super 8 85w	6 ft Super 6 85w	5 ft Super 5 80w*	5 ft Super 5 65w*	5 ft 50w	4 ft 40w	3 ft 1 1/2 in. 30w	3 ft 1 in. 30w	2 ft 40w	2 ft 20w	18 in. 1 1/2 in. 15w	18 in. 1 in. 15w
White	9000	7100	6800	5400	4900	3500	2800	1950	2200	2000	1200	800	850
Warm White	8800	6900	6050	5300	4800	3500	2800	1900	2150	1950	1200	800	850
Daylight	8500	6600	5900	5100	4600	3300	2700	1850	2100	1900	1150	750	800
Natural	6800	5400	4550	4100	3600	2700	2200	1500	1600	1400	850	580	600
De Luxe Warm White	6700	5300	—	4000	3500	—	2150	1450	1550	1350	850	560	—
*Kolor-rite	6200	4800	4300	3700	3300	2500	2000	—	1500	1350	850	—	—
Northlight/Colour Matching	5800	4500	4000	3400	3000	—	1900	1300	1450	1300	800	540	560
De Luxe Natural	5300	4150	3650	3100	2800	2200	1750	1100	1250	1100	650	450	470
Artificial Daylight	4500	3400	3200	2700	2450	—	1450	—	—	—	600	—	430

Lighting design lumens

	8 ft 125w	8 ft Super 8 85w	6 ft Super 6 85w	5 ft Super 5 80w*	5 ft Super 5 65w*	5 ft 50w	4 ft 40w	3 ft 1 1/2 in. 30w	3 ft 1 in. 30w	2 ft 40w	2 ft 20w	18 in. 1 1/2 in. 15w	18 in. 1 in. 15w
White	8400	6600	6300	4900	4500	3100	2600	1750	1950	1750	1100	720	730
Warm White	8200	6400	5550	4800	4400	3100	2600	1700	1900	1700	1100	720	730
Daylight	7900	6000	5500	4600	4200	2900	2500	1650	1850	1650	1050	690	710
Natural	6200	4800	4000	3500	3100	2300	2000	1300	1400	1150	750	530	530
De Luxe Warm White	6100	4700	—	3400	3000	—	1950	1250	1350	1100	750	500	—
*Kolor-rite	5600	4400	3850	3300	2900	2200	1800	—	1300	1100	750	—	—
Northlight/Colour Matching	5300	4100	3600	3100	2700	—	1700	1100	1250	1100	700	470	480
De Luxe Natural	4600	3600	3150	2600	2400	1800	1500	950	1050	900	570	380	380
Artificial Daylight	3400	2600	2300	2000	1850	—	1100	—	—	—	450	—	310

* The Super 5 tube is a dual purpose 65/80w tube suitable for use in all 65w or 80w bi-pin fittings.

5 ft 80w BC tubes are still available in standard colours.

Miniature fluorescent tubes

Miniature fluorescent tubes give high lumen output with low power consumption. (Equivalent to a filament lamp five times the wattage.)

Their long life, low temperature and slim shape make them particularly suitable for signs, bollards, displays, bulkheads and appliances.

Initial Lumens

	21 in. 13w	12 in. 8w	9 in. 6w	6 in. 4w
White	750	425	290	160
Warm White	750	425	290	160
Daylight	700	400	275	150
Natural	—	325	230	120

Lighting Design Lumens

	21 in. 13w	12 in. 8w	9 in. 6w	6 in. 4w
White	650	360	240	135
Warm White	650	360	240	135
Daylight	600	340	230	125
Natural	—	280	190	100

Coloured tubes

Six standard colours — Red, Blue, Green, Gold, Peach and Pink are available. These are primarily designed for decorative and effect lighting purposes.

Lighting design lumens

	6 ft 85w	5 ft at 80w	5 ft at 65w	4 ft 40w	3 ft 30w	2 ft 40	2 ft 20
Pink	1,600	1,400	1,250	750	550	500	290
Red	—	250	230	140	—	—	50
Gold	—	2,700	2,400	1,450	—	—	550
Green	—	5,200	4,600	2,800	—	—	1,100
Blue	—	1,300	1,150	700	—	—	270
Peach	—	3,200	2,900	1,750	—	—	700

Fluorescent tubes

Light output

Reflector tubes

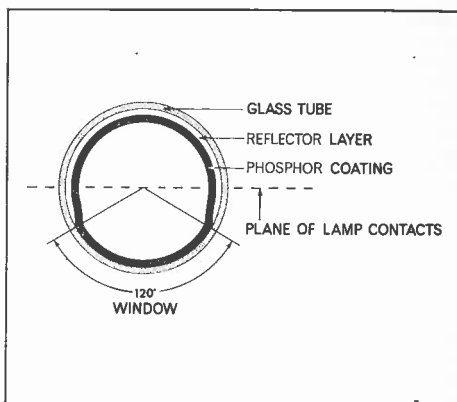
The reflector fluorescent tubes have an additional highly reflecting coating added between the fluorescent powder and the inside of the glass tube. In this way the majority of light is radiated through an aperture of 120° from the lamp in the preferred direction. This lamp is particularly useful in the following applications:

Lighting in dusty atmospheres Dust collection on an ordinary tube and fitting rapidly reduces light output. With a reflector tube, light re-direction is independent of dust, and light output is better maintained.

Display lighting This lamp is useful where space is restricted such as showcases where it is difficult to put an external reflector.

High intensity lighting Reflector lamps enable tubes to be mounted in banks where an external reflector may not be convenient or effective.

Replacement lamps can be used in old fittings which have deteriorated so as to give an increase in useful light output.



INITIAL LUMENS

	8 ft	8 ft	6 ft	5 ft	5 ft	4 ft	2 ft	2 ft
	125w	85w	85w	at 80w	at 65w	40w	40w	20w
White	8100	6400	5600	4900	4400	2500	—	1100
Warm White	7900	6200	5450	4800	4300	2500	1800	—
Daylight	—	—	5350	4600	4200	2400	—	—
Natural	—	—	4100	3700	3200	—	—	—

LIGHTING DESIGN LUMENS

8 ft	8 ft	6 ft	5 ft	5 ft	4 ft	2 ft	2 ft
125w	85w	85w	at 80w	at 65w	40w	40w	20w
7400	5800	5000	4300	3900	2300	—	1000
7200	5600	4850	4200	3800	2300	1500	—
—	—	4750	4000	3700	2200	—	—
—	—	3500	3100	2600	—	—	—

Gro-Lux—lighting design lumens

5 ft at 80w	5 ft at 85w	4 ft 40w	*3 ft 30w	2 ft 20w	*1½ ft 15w	21 in. 13w	12 in. 8w
1450	1300	810	530	340	200	180	100

*1 in. diameter

Tropical Daylight—lighting design lumens

1½ ft 15w – 525

Circular tubes (Warm White only)

Tube size (diameter)	16 in.	12 in.	8½ in.
Wattage	40w	32w	22w
Lighting design lumens	2150	1500	850

Amalgam tubes

Many modern enclosed commercial fittings cause standard fluorescent tubes to operate above their optimum temperature thus giving significant reductions in light output.

Amalgam control of the mercury vapour pressure in a tube allows efficient operation at higher temperatures. The quoted lumen output of a standard tube is measured at an ambient temperature of 25°C corresponding to surface temperature of 40-45°C, and as the temperature rises, lumen output falls. The same rating of amalgam lamp gives a similar lumen output at an ambient temperature of 50°C

corresponding to a surface temperature of 65°C. Gains in light output of up to 25% over standard tubes can be achieved in multi-lamp enclosed commercial fittings. Amalgam tubes are directly interchangeable with standard tubes.

Note: Amalgam tubes only give advantages at air temperatures above 40°C. Standard tubes give better performance below this temperature.

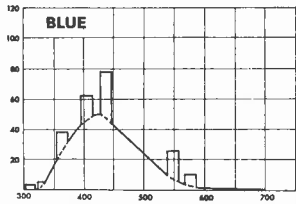
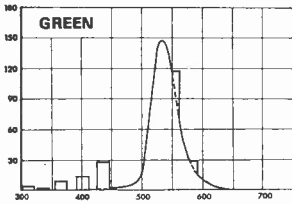
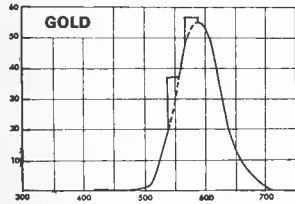
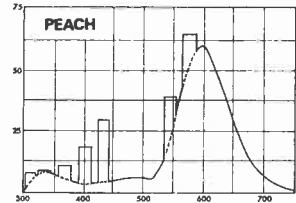
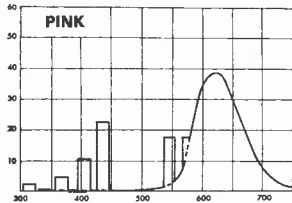
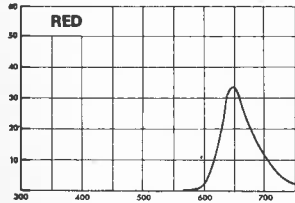
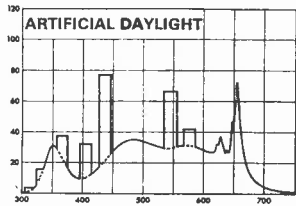
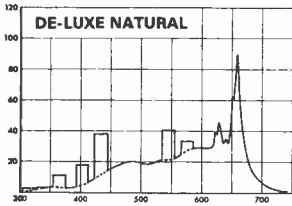
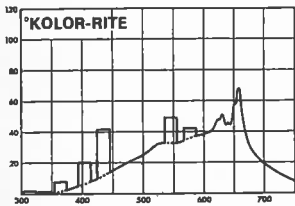
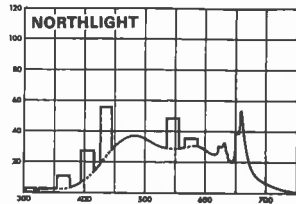
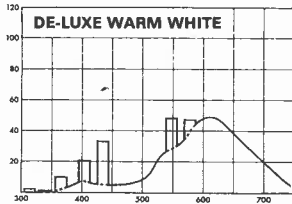
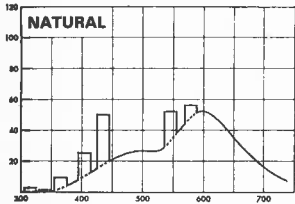
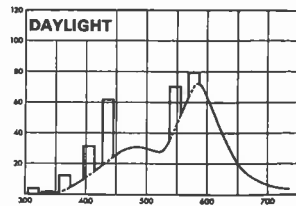
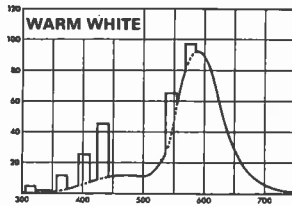
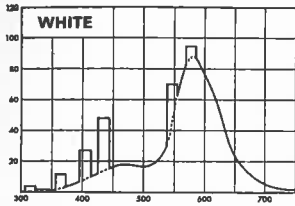
Ratings available 6 ft 85w, White, Warm White, Natural.

Fluorescent tubes

Spectral distribution

Horizontal scales are for wavelengths in nanometres (10^{-9} metres).

Vertical scales are power in milliwatts per nanometre band width for a 5 ft tube at 65 watts.



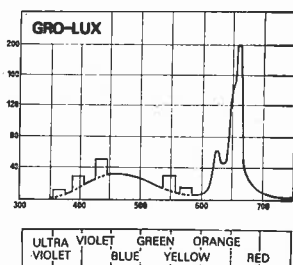
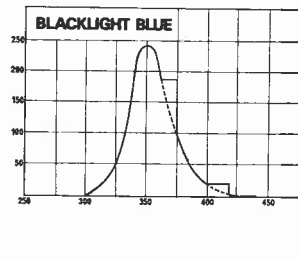
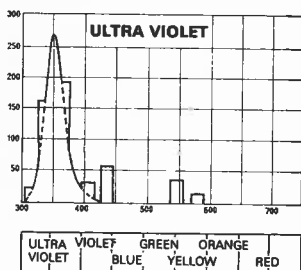
ULTRA VIOLET VIOLET BLUE GREEN YELLOW ORANGE RED

ULTRA VIOLET VIOLET BLUE GREEN YELLOW ORANGE RED

ULTRA VIOLET VIOLET BLUE GREEN YELLOW ORANGE RED

Spectral distribution

Horizontal scales are wavelengths in nanometres (10^{-9} metres). Vertical scales are power in milliwatts per nanometre band width for a 5 ft tube at 65w, except for Blacklight Blue which is for a 40w tube.



Nominal percentage light output for 5 ft. tubes at 65w.

8 BANDS										
CIE BANDS	nm.	Artificial Daylight	Northlight/ Colour Matching	Daylight	Natural	De Luxe Natural	White	Warm White	De Luxe Warm White	*Kolor-rite
1 Far Violet	380-420		0-017	0-014	0-014	0-011	0-010	0-007	0-007	0-017
2 Violet	420-440	1-06	0-42	0-31	0-33	0-37	0-26	0-25	0-30	0-13
3 Blue	440-460		0-65	0-38	0-37	0-39	0-22	0-17	0-10	0-48
4 Blue-Green	460-510	9-6	9-7	5-3	5-6	6-1	3-1	2-5	2-4	7-9
5 Green	510-560	44-9	44-5	37-2	38-0	38-7	32-3	29-5	35-8	38-0
6 Yellow	560-610	33-8	34-1	48-9	44-1	37-5	54-9	57-3	45-8	39-5
7 Light Red	610-660	9-9	10-0	7-8	11-2	15-8	9-1	10-2	14-9	13-0
8 Dark Red	660-760	0-63	0-63	0-17	0-69	1-2	0-19	0-21	0-81	1-06

Ultra-violet (watts per 65w tube, between 300 and 400 nanometres)

	1-30	0-47	0-53	0-41	0-42	0-44	0-40	0-40	0-32
Colour appearance 'X' and 'Y' colour co-ordinates									
X	0-313	0-317	0-373	0-378	0-390	0-414	0-435	0-437	0-3804
Y	0-329	0-324	0-380	0-365	0-356	0-397	0-401	0-400	0-3767

Additional Colour Data

The above colour rendering and colour appearance data is on the same basis as the values specified in BS1853, but there is a trend towards other methods of colour specification, e.g. 6 band values for colour rendering and the CIE uniform chromaticity

scale for colour appearance in which the co-ordinates are expressed in u and v values. With this in mind we provide the following additional data:

6 BANDS										
	nm.	Artificial Daylight	Northlight/ Colour Matching	Daylight	Natural	De Luxe Natural	White	Warm White	De Luxe Warm White	*Kolor-rite
1 Violet-Blue	400-455	0-79	0-83	0-57	0-58	0-62	0-41	0-34	0-36	0-435
2 Blue-Green	455-510	11-2	11-0	5-3	6-3	6-3	3-3	2-7	2-6	8-03
3 Green	510-540	23-1	19-9	12-6	15-0	14-8	9-3	8-3	13-5	19-8
4 Green-Yellow	540-590	43-7	48-0	59-9	52-7	50-0	61-3	60-7	53-2	44-7
5 Orange	590-620	14-4	13-1	17-5	18-1	16-5	20-7	22-4	20-6	17-7
6 Red	620-760	6-8	7-2	4-1	7-3	11-8	4-9	5-6	9-8	9-4

Colour appearance - Nominal u and v colour co-ordinates.*

u	0-1978	0-203	0-219	0-228	0-240	0-239	0-251	0-252	0-2251
v	0-3122	0-311	0-335	0-331	0-329	0-343	0-347	0-347	0-3344

* CIE uniform chromaticity scale

Colour Temperatures for Fluorescent Tubes

The term 'colour temperature' should strictly only be applied to spectral distributions close to the black body distributions. Thus in fluorescent tube colours the 'colour temperature' is merely an indication of the location of the chromaticity co-ordinates on a colour chart.

The 'colour temperatures' should not be used as a guide for photographic purposes.

Artificial Daylight.....	6500°K
Northlight/Colour Matching.....	6500°K
Tropical Daylight.....	6500°K
Daylight.....	4300°K
*Kolor-rite.....	4000°K
Natural.....	4000°K
De Luxe Natural.....	3600°K
White.....	3400°K
Warm White.....	3000°K
De Luxe Warm White.....	3000°K

DISCHARGE LAMPS



Discharge lamps

Introduction

Mazda has been one of the leading major brands since the inception of discharge lamps in the early 1930's and Mazda is now the Thorn Lighting Ltd brand of sodium and high pressure mercury discharge lamps. The outstanding development in mercury lamps is the recent introduction of 'Kolorlux' versions in all the fluorescent coated lamps, giving an improved colour appearance at a higher luminous efficiency.

In the sodium lamp field Mazda has a unique high efficiency linear sodium lamp in 200w, 140w and 60w ratings.

Details of these and many other interesting discharge lamps are given in this section.

'Prices' shown are those recommended as appropriate in U.K. for retail sale.

'Nett user prices' are those recommended as appropriate in U.K. for direct sale to users.

	Page
Index	CF3
MBI, MBIF Kolorarc, Mercury Iodide Lamps	CF4
MBF Kolorlux Lamps	CF5
MBFR Mercury Reflector Lamps	CF6
MBTF & MBTL	CF7
MB Mercury Lamps	CF8
Information (Mercury Lamps)	CF9
Information continued	CF10
Linear Sodium Lamp Development	CF11
SLI/H Linear Sodium Lamps	CF12
SOX Low Pressure Sodium Lamps	CF13
SOI/H Integral Sodium Lamps	CF14
Information (Sodium Lamps)	CF15
SON (High Pressure Sodium)	CF16

Discharge lamps

Mercury iodide lamps Types MBI and MBIF °Kolorarc

Description

High pressure discharge in mercury with metallic additives operating in a quartz arc tube. °Kolorarc (MBIF) lamps have hard glass elliptical bulbs coated on the interior surface with fluorescent phosphor increasing the light output, improving the colour, and diffusing the arc.

MBI lamps have clear hard glass elliptical bulbs.

The special additives in the arc help to provide a more continuous spectral power distribution throughout the visible spectrum.

At the same time the mercury resonance lines are reduced in comparison with ordinary mercury lamps, giving a light source with excellent colour rendering properties comparable to a "Natural" fluorescent tube.

Application

The excellent colour rendering of °Kolorarc makes it suitable for interior commercial applications such as shops, stores, offices, exhibitions etc. Also for industrial applications where colour plays an important part in the process.

It is ideal for high bay lighting, area floodlighting and streetlighting where an added attraction is its 25% increase in light output over MBF lamps.

MBI lamps with clear outer bulbs, are suitable where precise optical control is required such as floodlighting.

°Kolorarc and MBI lamps have proved suitable light sources for use with colour television cameras.

Burning Position

With cap in upper hemisphere.

This lamp *must not* be operated with cap below horizontal.

Control Gear

Resonant circuit comprising inductances and capacitor required. It will *not* operate on standard mercury control gear. See page CF10.

Percentage Luminance in spectral bands (400w lamps)

Band	Waveband (nm)	Colour	% Luminance	
			Std. MBI	MBIF °Kolorarc
1	380-420	Far Violet	0.03	0.02
2	420-440	Violet	0.24	0.18
3	440-460	Blue	0.30	0.27
4	460-510	Blue Green	5.55	8.96
5	510-560	Green	41.1	34.8
6	560-610	Yellow	46.0	47.0
7	610-660	Light Red	6.66	8.24
8	660-760	Dark Red	0.15	0.56

Type	Net Trade Price £ s. d.			Std. Pack	Cap	Lighting Design Lumens*
400w Kolorarc (MBIF)	7	9	0	1	G.E.S.	27,000
400w MBI	7	2	0	1	G.E.S.	24,000

*Note: The lighting design lumens quoted apply to vertical cap up operation. There will be a slight reduction (approx. 5%) in output when operated horizontally. These lamps are not subject to Purchase Tax.

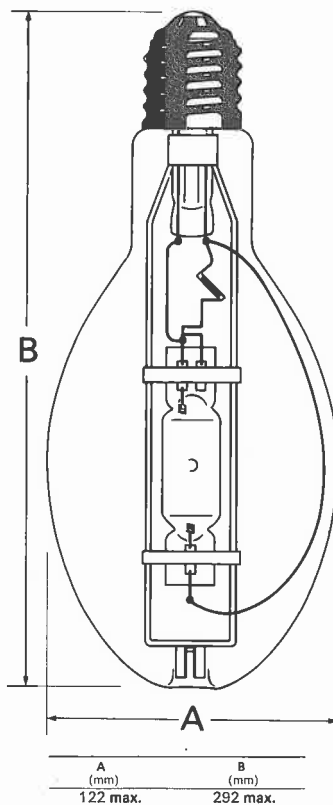
Supply voltage 200/250v.

Rated Life 7,500 hours.

Photograph showing appearance of MBIF °Kolorarc lamp.



Drawing showing construction of MBI lamp.



Discharge lamps

Mercury fluorescent lamps Type MBF °Kolorlux

Description

High pressure mercury vapour discharge operating in a quartz arc tube. The interior surface of the elliptical bulb is coated with a fluorescent phosphor which converts ultra violet radiation from the discharge into visible light.

°Kolorlux lamps employ new phosphor giving up to 10% higher light output than standard MBF lamps together with improved colour at the red end of the spectrum.

Applications

MBF lamps are widely used in industrial and streetlighting. The improved colour of °Kolorlux has extended the applications to commercial and display lighting, shopping centre and concourse lighting, and area floodlighting.

Burning Position

Universal—lamps may be operated in any position.

Control Gear

Choke and power factor correction capacitor required.

See page CF10.

Percentage luminance in spectral bands (400w °Kolorlux)

Band	Waveband (nm)	Colour	% Luminance
1	380–420	Far Violet	0.01
2	420–440	Violet	0.44
3	440–460	Blue	0.08
4	460–510	Blue Green	0.67
5	510–560	Green	37.7
6	560–610	Yellow	47.3
7	610–660	Light Red	13.7
8	660–760	Dark Red	0.12

Watts	Net Trade Price £ s. d.	Std Pack	Cap.	Lighting Design Lumens
50	1 7 6	50	E.S.	1,800
80	1 17 6	24	E.S.*	3,350
125	2 3 9	24	E.S.*	5,550
250	3 10 6	9	G.E.S.	12,000
400	5 7 6	9	G.E.S.	21,500
700†	9 5 9	1	G.E.S.	34,500†
1,000	11 11 0	4	G.E.S.	54,000

These lamps are not subject to Purchase Tax.

*3 pin B.C. cap also available.

†Standard MBF only available in this rating (not °Kolorlux phosphor).

Supply voltage 200/250v.

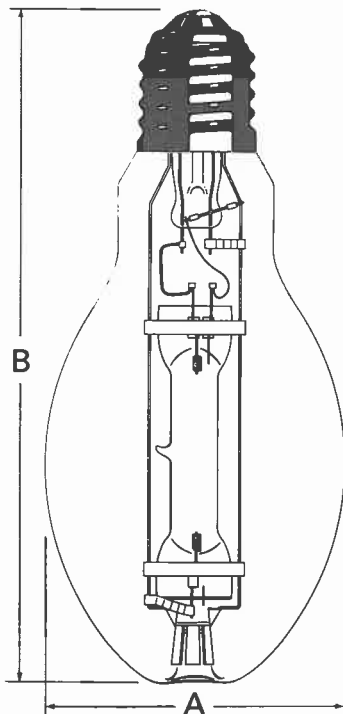
Rated Life 7,500 hours.

Further information: See pages CF9 and CF10

Photograph showing appearance of MBF 400w. lamp illustrated.



Drawing showing construction of MBF 400w. lamp illustrated.



	A (mm)	B (mm)
50w.	55±1	125±4
80w.	70±1	150±4
125w.	75±1	170±5
250w.	90±1	220±7
400w.	120±2	280±6
700w.	140±2	320±8
1000w.	165±2	400±10

Discharge lamps

Mercury reflector lamps Type MBFR °Kolorlux

Description

High pressure mercury vapour discharge operating in a quartz arc tube. A shaped outer bulb forms an integral reflector. The upper portion of the bulb is coated with a reflecting layer which directs most of the light downward but allows some upward light. This internal reflector is unaffected by atmospheric corrosion and dirt collection so that the lamp requires the minimum maintenance. The introduction of °Kolorlux phosphor into the range of reflector lamps gives a greatly improved colour and up to 10% higher output than previously available, with standard MBFR lamps.

Application

°Kolorlux reflector lamps are particularly suitable for medium and high bay lighting. The hard glass outer bulb allows the lamps to be used in exposed conditions for area lighting. The improved colour of °Kolorlux has widened the use of reflector lamps into commercial applications such as display lighting.

Burning Position

Reflector lamps can be operated in any position.

Control Gear

Choke and power factor correction capacitor required. See pages CF10.

Band	Waveband (nm)	Colour	% Luminance
1	380-420	Far Violet	0.01
2	420-440	Violet	0.48
3	440-460	Blue	0.10
4	460-510	Blue Green	0.71
5	510-560	Green	37.9
6	560-610	Yellow	49.3
7	610-660	Light Red	11.4
8	660-760	Dark Red	0.10

Watts	Net Trade Price £ s. d.	Std. Pack	Cap	Lighting Design Lumens
250	4 6 9	1	G.E.S.	10,000
400	5 15 6	1	G.E.S.	17,500
700*	9 18 0	1	G.E.S.	30,000
1000	12 7 6	1	G.E.S.	45,000

These lamps are not subject to Purchase Tax.

*Standard MBF only available in this rating.

Supply voltage 200/250v.

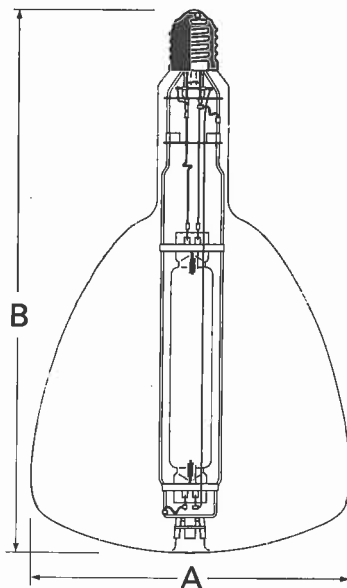
Rated life 7,500 hours.

Further information: See pages CF9 and CF10

Photograph showing appearance of MBFR—400w lamp illustrated.



Drawing showing construction of MBFR—1000w lamp illustrated.



	A (mm)	B (mm)
250w	130±2	220±7
400w	165±2	280±6
700w	200±2	320±8
1000w	236±2	360±10

Discharge lamps

Mercury tungsten lamps

Types MBTL °Kolorlux, MBTF and MBTL

Description

Mercury tungsten lamps consist of a high pressure mercury discharge in a quartz arc tube. Mounted coaxially with the arc tube and connected in series with it, is a coiled tungsten filament which provides light and colour correction to the output of the mercury discharge and acts as a ballast to the arc. No control gear is needed.

All ratings have pear-shaped outer bulbs.

The 160w °Kolorlux MBTF has an outer bulb coated with a new phosphor giving higher light output and improved colour in comparison with the 160w MBTL which has an inert diffusing coating.

The 250w and 500w MBTF lamps have a fluorescent coating on the outer bulb adding to the red output and diffusing the source.

Application

Mercury tungsten lamps can be used as direct replacements for tungsten filament lamps giving higher light output and six times the life. They are particularly suitable where labour costs are high and access is difficult. Applications include shop windows, garages, warehouses, streetlighting and in wellglass, bulk head and flameproof fittings.

Burning Position

Mercury tungsten lamps are designed for operation in the cap up position. They will only operate in other positions providing there is negligible fluctuation in the supply voltage.

Supply Voltage

Two voltage ratings of lamps are available 220/230v and 240/250v, and lamps must be operated on the correct supply. Sudden reductions in voltage will cause lamps to extinguish.

Control Gear

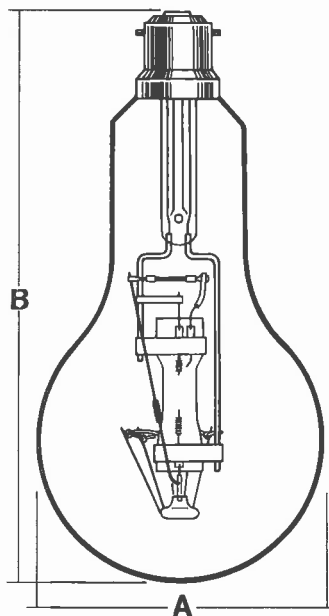
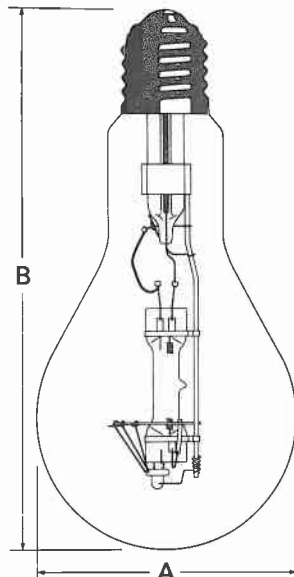
No control gear is required, mercury tungsten lamps operate direct from the supply.

Band	Waveband (nm)	Colour	% Luminance		
			160w MBTL	°Kolorlux 160w MBTF	250w & 500w MBTF
1	380-420	Far Violet	0.01	0.01	0.01
2	420-440	Violet	0.46	0.44	0.38
3	440-460	Blue	0.19	0.14	0.12
4	460-510	Blue Green	2.37	1.23	1.38
5	510-560	Green	46.8	41.9	46.6
6	560-610	Yellow	42.6	41.7	40.5
7	610-660	Light Red	6.86	14.2	9.86
8	660-760	Dark Red	0.68	0.37	1.11

Type	MBTL	°Kolorlux MBTF	MBTF	MBTF
Watts	160	160	250	500
Net Trade Price	£2 1 6	£2 5 9	£2 7 6	£4 6 9
Std. Pack	12	12	12	6
Cap	B.C. or E.S.	B.C. or E.S.	G.E.S.	G.E.S.
Lamp Current (Amps)				
220/230v	0.70	0.70	1.10	2.20
240/250v	0.65	0.65	1.05	2.10
Lighting Design Lumens	2,560	2,700	4,840	11,000

These lamps are not subject to Purchase Tax.

Rated life 6,000 hours



	A (mm)	B (mm)
160w	89±2	173±5.5*
250w	110±1.5	233±7
500w	130±1.5	267±8

*For E.S. Cap add 5mm.

Discharge lamps

Mercury lamps Type MB

Description

High pressure mercury vapour discharge operating in a quartz arc tube. 80 and 125w sizes have elliptical pearl bulbs, 250 and 400w ratings have clear tubular hard glass bulbs.

Application

MB lamps have been largely superseded for industrial and streetlighting by MBF *Kolorlux because of the higher light output and improved colour. MB lamps are still used for general illumination where colour is not important but are also used where the typical characteristics of mercury spectral power distribution are advantageous, e.g. for graphic arts, laboratory and scientific purposes, plant growth, floodlighting.

Control Gear

Choke and power factor correction capacitor required.
See page CF10.

Burning Position

Universal – lamps may be operated in any position.

Percentage Luminance in spectral bands (400w MB)

Band	Waveband (nm)	Colour	% Luminance
1	380-420	Far Violet	0.02
2	420-440	Violet	0.61
3	440-460	Blue	0.18
4	460-510	Blue Green	0.83
5	510-560	Green	47.7
6	560-610	Yellow	49.7
7	610-660	Light Red	0.84
8	660-760	Dark Red	0.07

Watts	Net Trade Price £ s. d.	Std. Pack	Cap	Lighting Design Lumens
80	1 17 6	24	ES*	2,720
125	2 3 9	24	ES*	4,900
250	3 0 0	12	GES	11,000
400	4 0 0	12	GES	18,800

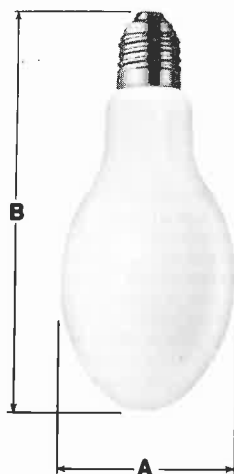
These lamps are not subject to Purchase Tax.

*3 pin B.C. cap also available.

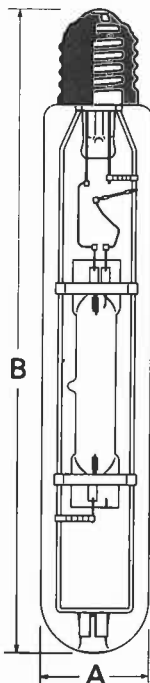
Supply voltage 200/250v.

Rated Life 7,500 hours.

Further information: See pages CF9 and CF10



	A (mm)	B (mm)
80w.	70 ± 1	150 ± 4
125w.	91 max.	183 max.



	A (mm)	B (mm)
250w.	51 ± 1	290 ± 8
400w.	51 ± 1	330 ± 8

Discharge lamps

Mercury lamp information

Lighting Design Lumens

The "Lighting Design Lumens" quoted are the lamp outputs at 2,000 hours and are recommended as a guide to lighting engineers planning scheme lay-outs. Lumen output beyond 2,000 hours decreases by 2-4% per 1,000 hours use according to type.

Striking Voltage

Mercury lamps are provided with an auxiliary electrode to initiate starting. Diagram 1 shows the lamp will start readily under all normal operating temperatures.

Mains Voltage Variation

Diagram 2 shows the effect of mains voltage variation on lumens, lumens per watt and lamp watts.

Run-up Characteristics

These are shown in diagram 3. The time taken will vary slightly depending upon the location and the type of fitting housing the lamp.

Nominal Electrical Characteristics for MB, MBF and MBFR lamps.

Watts	Rating	Volts	Lamp Operating Volts	Lamp Operating Current (amps)
50		200/250	85/105	0.61
80		200/250	105/130	0.8
125		200/250	110/140	1.15
250		200/250	115/145	2.15
400		200/250	120/150	3.2
700		200/250	125/155	5.6
1000		200/250	130/160	7.5

Nominal Electrical Characteristics for °Kolorarc and MBI lamps

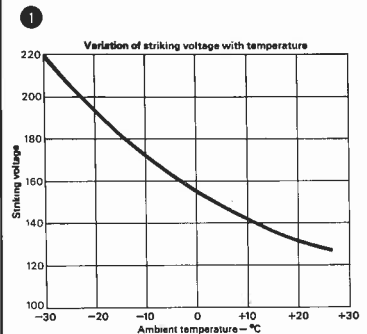
Watts	Rating	Volts	Lamp Operating Volts	Lamp Operating Current (amps)
400		200/250	120/150	3.3

British Standards

Lamps described in this catalogue conform to the following Standards where applicable.

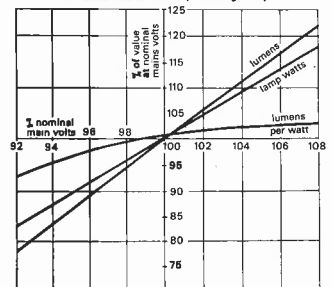
BS 3677 :- 1963 Schedule for Electric Discharge Lamps for General Purposes.

BS 98 :- 1962 Screw Caps and Holders.

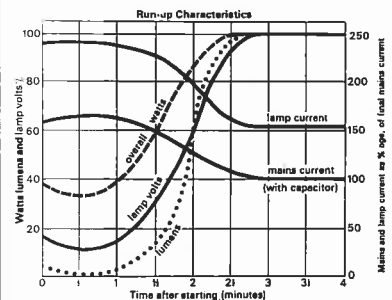


2

Effect of variation of mains voltage on the lamp
Characteristics of Mercury Discharge lamps



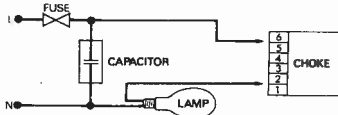
3



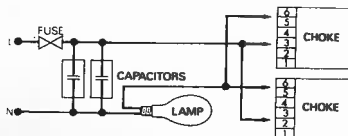
Discharge lamps

Mercury lamp information

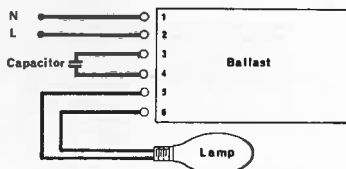
Circuit diagrams



(1) 50 TO 400W



(2) 700 AND 1000W



(3) 400 watt °KOLORARC

Control Gear for MB, MBF and MBFR lamps

The control gear for a mercury lamp comprises a choke and a power factor correction capacitor. Gear suitable for 240v 50Hz is summarised in the table below.

Details of 240v gear and gear suitable for other voltages are given in the Fittings Catalogue.

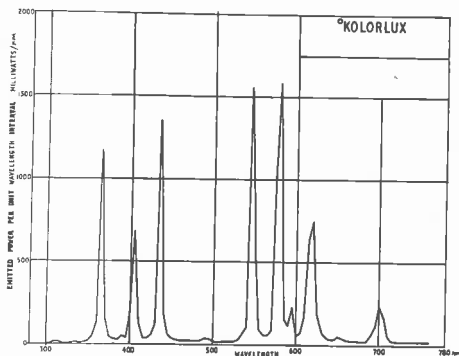
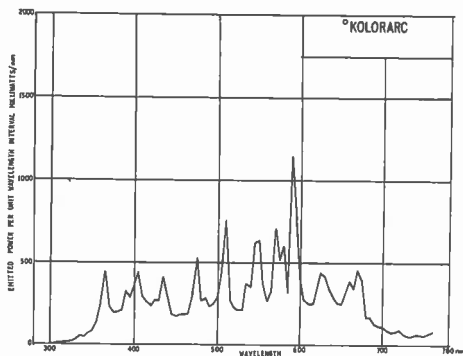
Lamp Rating	Choke Cat. No.	Choke Contract Price £ s. d.	Capacitor Cat. No.	Capacitor Contract Price £ s. d.
50w	AME53184.4	1 8 0	AMEC2203	11 0
80w	AME53162.4	1 7 0	AMEC2234	14 0
125w	AME53159.4	1 17 0	AMEC2234	14 0
250w	AME53158.4	3 5 0	AMEC2214	18 0
400w	AME53193.4	3 8 0	AMEC2218	1 7 0
700w	AME53158 T	3 13 0	AMEC2218	1 7 0
	+AME53157 T	4 9 0	+AMEC2214	18 0
1000w	2 x AME53164.4	4 0 0 ea.	2 x AMEC2236	1 10 0 ea.

Control Gear for 400w °Kolorarc and MBI lamps

Component	Contract Price £ s. d.
Ballast AME53195 T	7 1 0
Capacitor 2 x AMEC2278	1 12 0 each

Spectral Power Distribution

The spectral power distribution shown are for typical lamps at 400 watts.



Discharge lamps

140w. and 200w. SLI/H linear sodium lamps

Quality and Reliability

Since the introduction of the 140w linear sodium lamp by B.L.I. in 1966, it has achieved an unrivalled record of reliability. Installations throughout the country (including the first motorway lighting on the M4) have given fewer failures before relamping than any other type of sodium lamps to date. Statistical records show lamp survival to be more than 95% at the end of the rated life of 6,000 hours.

Research and Development

Intense study of the fundamental principals of sodium lamps has resulted in exceptionally high efficiency and reliability.

The shape of the inner tube, in particular, shows considerable ingenuity and contributes materially to the success of this lamp. In order to minimise energy losses due to atomic collisions, etc., and absorption of light by the sodium atoms themselves the cross-section must be kept as small as possible, but its surface must be large in order to achieve a high light output. By making the discharge-tube cross-shaped these apparently diametrically opposed conditions are satisfied and in addition there is a direct linear path between the electrodes of the lamp which helps to achieve a low starting voltage.

The tube is made with eighty sodium retention sinks, each of these is a few degrees lower in temperature than other parts of the discharge tube wall and small quantities of sodium condense in them to ensure an even distribution of sodium vapour throughout the life of the lamp. This helps to achieve 100% lumen maintenance throughout life, and to control lamp watts.

The lamp requires a sodium reservoir temperature of approximately 250°C to give optimum vapour pressure for efficient light radiation and a considerable portion of the power in the tube is used to achieve this.

An important design feature is the use of an infra-red reflecting film on the inside of the outer bulb. This film, which is composed of the oxides of metals such as tin and indium, conserves the thermal energy of the arc, thus increasing the proportion of energy available to produce light. The thickness of this film is strictly controlled to give optimum transmission of the visible D-line sodium radiation ensuring maximum light output. Its electrical resistance is such that by connecting it on to one cathode, it acts as a secondary starting electrode. Initially the 140w lamp absorbs about 135 watts which through life may rise by a maximum of less than 4% in 6,000 hours.

Special Advantages

Due to its electrical characteristics and low starting voltage, the 140w lamp is ideally matched to the standard control gear for the 140w and 90w "U" shaped lamps, giving completely reliable operation under normal and adverse conditions.

The small source size and uniform distribution conform to the design requirements of modern street lighting lanterns. 20,000 lumens are emitted uniformly from an arc 78 cm long and only 2.9 cm wide.

The compact and lightweight construction make it easy to handle during relamping. The lamp is 3' 0" long and 1½" diameter and weighs less than 1 lb. Transport and installation are further simplified by a 25-way pack which can easily be stored in service truck or tower wagon.



General Description

A low pressure sodium lamp incorporating the following essential factors:

- 1 A discharge tube of unique cross section containing metallic sodium in an inert gas.
- 2 An electrode sealed into each end terminating in bi-pin caps.
- 3 An outer envelope containing the discharge tube, with the intervening space evacuated to maintain thermal insulation to maintain the sodium in a fully vaporised condition.
- 4 A heat reflecting coating on the inside surface of the outer envelope to provide further thermal insulation.

Discharge lamps

Sodium lamps Type SLI/H linear

Description

Low pressure sodium discharge operating in an arc tube of unique cross section. The arc tube is enclosed in an outer envelope whose inside surface has a reflector coating which provides thermal insulation. A bi-pin cap is fitted at each end. For full description of linear sodium lamps see previous page.

Application

The primary application for linear sodium lamps is streetlighting where the construction of the lamp materially assists the design of lanterns and the light outputs are eminently suitable to meet M.O.T. requirements for major road lighting schemes.

Burning Position

The lamps must operate in a horizontal position $\pm 20^\circ$.

Control Gear

High reactance transformer and power factor correction capacitor required. See page CF15.

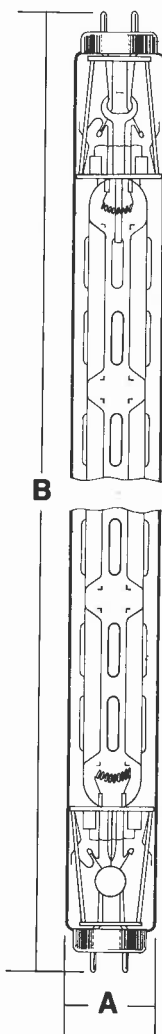
Watts	Net Trade Price £ s d	Std. Pack	Nominal Volts	Lamp Current (amps)	Lighting Design Lumens
140	5 3 0	25	175	0.9	20,000
200	6 1 0	25	135	1.6	25,000

Supply voltage 200/250v.

Rated Life 6,000 hours.

Guaranteed Life 4,000 hours.

Further information: See page CF15.



	A max (mm)	B max (mm)
140w	39.5	908.8
200w	39.5	908.8

Discharge lamps

Sodium lamps Type SOX

Description

Low pressure sodium discharge operating in a U-shaped arc tube. The U-tube is enclosed in a tubular outer bulb whose inside surface has a reflector coating to provide thermal insulation. This construction provides a lamp of considerably higher efficiency than the integral type. A BC cap is fitted.

Application

The primary application for SOX lamps is for streetlighting where their higher efficiency has superseded earlier types as follows:-

Sodium Lamp Equivalent

- 1 The 90w SOX lamp replaces the 140w SOI/H integral lamp and the 140w SO/H lamp and jacket. All three lamps have the same dimensions and can be operated from the same control gear.
- 2 The 55w SOX lamp replaces the 85w SOI/H integral lamp and 85w SO/H lamp and jacket. All three lamps have the same dimensions and can be operated from the same control gear.
- 3 The 35w SOX lamp replaces the 60w SOI/H integral lamp and the 60w SO/H lamp and jacket. All three lamps have the same dimensions and can be operated from the same control gear.

Burning Position

Horizontal $\pm 20^\circ$

35w and 55w ratings may also be operated in the vertical cap up position.

Control Gear

High reactance transformer and power factor correction capacitor required. See page CF15.

Watts	Net Trade Price			Std. Peck	Nominal Volts	Lamp Current (amps)	Lighting Design Lumens
	£	s	d				
35	2	19	0	9	70	0.6	4,300
55	3	10	9	9	104	0.6	7,150
90	4	5	6	9	112	0.95	12,250
135	5	4	0	9	164	0.95	21,200

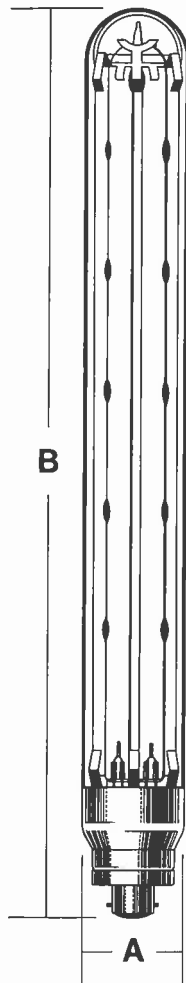
These lamps are not subject to Purchase Tax.

Supply voltage 200/250v.

Rated Life 6,000 hours.

Guaranteed Life 4,000 hours.

Further information: See page CF15.



	A max (mm)	B max (mm)
35w	52	310
55w	52	425
90w	67	528
135w	67	775

Discharge lamps

Sodium lamps Type SOI/H integral

Description

Low pressure discharge operating in a U-shaped arc tube. The U-tube is enclosed in a tubular outer bulb having a BC cap. Integral lamps have been superseded by SOX lamps with higher efficiencies, but are still available for replacement purposes.

Application

The primary application of Integral sodium lamps is for streetlighting. Full details of interchangeability with SOX lamps are given on Page CF13.

Burning Position

Horizontal $\pm 20^\circ$.

45w and 60w ratings may also be operated in the vertical cap up position.

Control Gear

High reactance transformer and power factor correction capacitor required. See page CF15.

Watts	Net Trade Price			Std. Pack	Nominal Volts	Lamp Current (amps)	Lighting Design Lumens
	£	s.	d.				
45	3	0	0	12	77	0.6	3,100
60	3	8	0	12	110	0.6	4,700
85	4	1	0	12	165	0.6	7,000
140	4	13	0	6	172	0.9	12,200

These lamps are not subject to Purchase Tax.

Supply voltage 200/250v.

Rated Life 6,000 hours.

Guaranteed Life 4,000 hours.

Further information: See page CF15.



Max. dimensions for SO/H and SOI/H

	A mm	B mm
45w	52	257
60w	52	310
85w	52	425
140w	67	528

Discharge lamps

Sodium lamp information

Lighting Design Lumens

The "Lighting Design Lumens" quoted are the lamp outputs at 3,000 hours, and represent an average over the first 6,000 hours life.

Mains Voltage Variation

Diagram 1 shows the effect of the variation of mains voltage on lumens, lumens per watt, total watts and mains current.

Circuit Diagrams

Circuits for sodium lamps are shown in diagrams 2, 3 and 4.

Spectral Distribution

The discharge has a characteristic yellow colour, almost all of the visible energy being concentrated at 589/589.6 n.m.

Run-up Time

This varies between 10 and 20 minutes according to type but there is no delay in starting if the lamp is switched on while hot.

Control Gear

The control gear for a sodium lamp comprises a high reactance transformer and power factor correction capacitor. Gear for 240v 50Hz is summarized below.

Details of 240v gear and gear for other voltages are given in the Fittings catalogue.

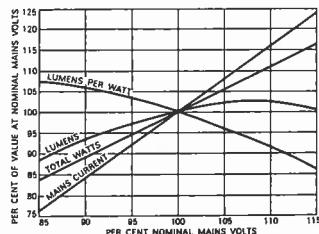
Type	Transformer Cat. No.	Contract Price £ s. d.	Capacitor Cat. No.	Contract Price £ s. d.
35w SOX	AME53182.4	3 4 0	AMEC2280	1 3 0
45w SOI/H			AMEC2216	1 3 0
55w SOX	AME53182.4	3 4 0	AMEC2280	1 3 0
60w SOI/H			AMEC2216	1 3 0
85w SOI/H	AME53182.4	3 4 0	AMEC2214	18 0
90w SOX			AMEC2236	1 10 0
140w SOI/H	AME53232.4	3 14 0	AMEC2218	1 7 0
140w SLI/H				
135w SOX	AME53166T	6 13 0	AMEC2281	1 11 0
200w SLI/H	AME53172H	7 2 0	AMEC2235	1 12 0

British Standards

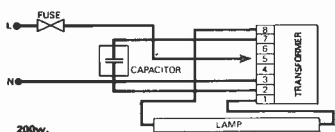
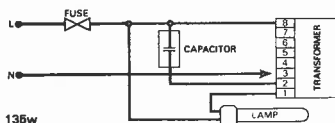
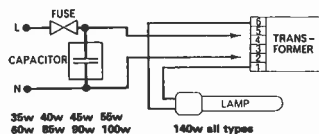
Lamps described in this catalogue conform to the following Standard where applicable.

BS 3767: 1964 Schedule of Sodium Discharge Lamps.

Effect of variation of mains voltage on sodium lamp characteristics.



Circuit Diagrams



Discharge lamps

High pressure sodium lamps type SON

Construction In appearance this lamp closely resembles an MBF mercury lamp: The hard glass outer bulb with its diffusing coating is the same size and shape and it has a GES cap which is locked onto the moulded neck eliminating any possibility of the lamp becoming detached from the cap.

The arc tube is made of sintered aluminium oxide, a translucent material capable of withstanding the intense chemical activity of sodium vapour at high temperature and pressure. Metal caps are sealed to its ends and support the electrodes and the tube is mounted in a robust frame which locates on a depression in the crown of the bulb to give great strength and optical control.

Starting and Operation The arc is struck by a high-voltage pulse supplied by the ignitor which ceases to function once the arc has struck. (See circuit diagram.) External starting simplifies lamp construction and is very reliable. The lamp takes 3-4 minutes to run up to full brightness when the arc operates at about 0.3 atmospheres. The arc tube contains a little mercury to facilitate starting, but this is not excited in the final discharge and no light is emitted by it.

The lamp takes 3-4 minutes to run up to full brightness and will normally restrike within a minute of extinction.

The lamp can be operated in any position. Control gear A conventional series choke is required to limit the current, together with the ignitor described above. To ensure reliable starting, the ignitor must be mounted within 1 metre of the lamp. A power-factor capacitor is also required.

Colour The colour appearance of the lamp resembles that of a black-body at 2300°K - a pleasant golden white. When the arc is run up, the monochromatic yellow characteristic of low-pressure sodium lamps disappears and is replaced by a broader distribution across the visible spectrum. This gives acceptable colour rendering, with a warm appearance and although blues and greens are somewhat subdued, reds and yellows are enhanced and all colours are easily distinguishable.

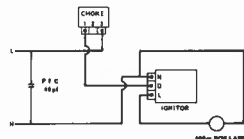
Applications

Public lighting - traffic routes, city centres, shopping areas.

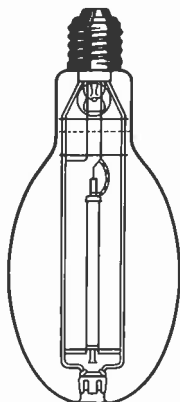
Area lighting - airports, dockyards, car parks, forecourts.

Floodlighting - Stadiums, buildings, marshalling yards, sports grounds.

Interior lighting - High-bay lighting for factories, warehouses, hangars, halls.



For 240v 50HZ supplies use choke tappings 1 and 3.
For 220v 50HZ supplies use choke tappings 1 and 2.
Power Factor Capacitor should be inserted between line and neutral.



Percentage Luminaence in Spectral Bands (400w lamp)

Band	Waveband (nm.)	Colour	% Luminaence
1	380-420	Far Violet	0.002
2	420-440	Violet	0.021
3	440-460	Blue	0.083
4	460-510	Blue-green	1.95
5	510-560	Green	7.56
6	560-610	Yellow	77.1
7	610-660	Light Red	12.9
8	660-760	Dark Red	0.372

Physical Characteristics

Lamp Rating	400w	250w
Overall length (mm.)	280 ± 6	220 ± 7
Diameter (mm.)	120 ± 2	90 ± 1
Cap	GES	GES
Burning position	Universal	Universal
Rated life	5000 hrs.	5000 hrs.
Lighting Design Lumens	36,000	19,500

Electrical Characteristics

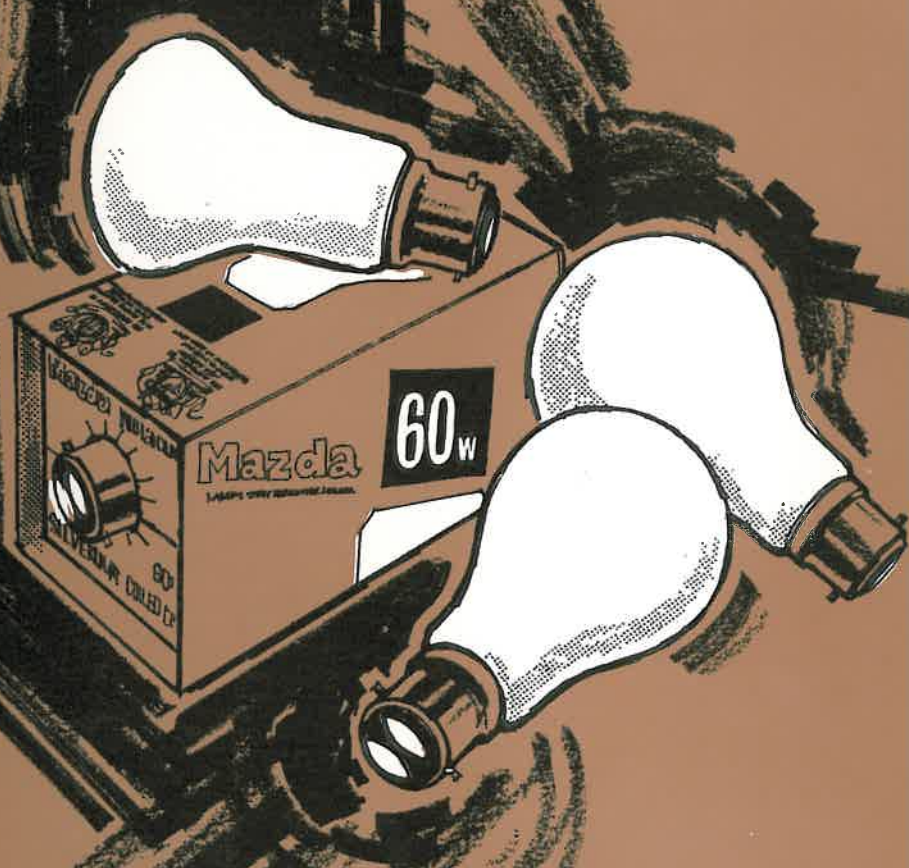
Lamp rating	400w	250w
Lamp volts	105 ± 15	100 ± 15
Lamp operating current (amps)	4.4	3.0
Circuit watts	455	285
Circuit operating current (amps)	2.2	1.4
Circuit starting current (amps)	3.0	2.5
Power factor (lagging)	0.86	0.86

Control Gear for 400w and 250w High Pressure Sodium Lamps

Lamp Rating	Component	Cat. No.	Can length mm.	ins.	Total length mm.	ins.	Dimensions mm.	ins.	Height mm.	ins.	Fixing Centre mm.	ins.	Weight kg.	lbs.
400 watts	Choke	AME53230T	139	5.5	175	6.785	105	4.125	102	4	160	6.25	5.7	12.65
	Ignitor*	AME53250	120	4.69	160	6.25	50	1.97	—	—	—	—	0.535	1.18
	Capacitor	2 x 20µF 250v	—	—	—	—	—	—	—	—	—	—	—	—
	2 x AMEC2218	—	—	—	109	4.3	79	3.125	54	2.125	—	—	—	—
250 watts	Choke	AME53251T	127	5.0	158	6.25	98	3.875	89	3.5	146	5.75	3.8	8.51
	Ignitor*	AME53250	120	4.69	160	6.25	50	1.97	—	—	—	—	0.535	1.18
	Capacitor	AMEC2235	133	5.25	151	5.375	92	3.625	64	2.5	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—

*NOTE: The ignitor must be mounted within one metre of the lamp.

STANDARD LAMPS



Standard lamps

Introduction

Three major lighting companies have amalgamated to form Thorn Lighting Ltd which now manufactures Atlas and Mazda brands of tungsten filament lamps. Mazda has always had a complete range of all types of lamps and will continue so to do, but Atlas brand are also available for general service and similar lamps.

'Prices' shown are those recommended as appropriate in U.K. for retail sale.

'Nett user prices' are those recommended as appropriate in U.K. for direct sale to users.

Standard lamps

Numerical and alphabetical indexes

Numerical Index

	Page
Introduction	CG2
Index	CG3
General Service Lamps	CG4
Home Lighting Lamps	CG5
Decorative and Coloured Lamps	CG6
Tubular Lamps	CG7
Reflector Lamps	CG8
Low Voltage Display Lamps	CG9
Heating Lamps	CG10
Arduous Duty Lamps	CG11
Floodlighting Lamps	CG12
Tungsten Halogen Lamps	CG13
Decoration Sets and Spares	CG14
Reflector Lamp Information	CG15
Low Voltage Display Lamp Information	CG16

Alphabetical Index

	Page
Arduous Duty Lamps	CG11
Decoration Sets and Spares	CG14
Decorative and Coloured Lamps	CG6
Floodlighting Lamps	CG12
General Service Lamps	CG4
Heating Lamps	CG10
Home Lighting Lamps	CG5
Index	CG3
Introduction	CG2
Low Voltage Display Lamp Information	CG15
Low Voltage Display Lamps	CG9
Reflector Lamp Information	CG14
Reflector Lamps	CG8
Tubular Lamps	CG7
Tungsten Halogen Lamps	CG13

Lamp cap code

B.C. Bayonet

S.B.C. Small Bayonet

S.C.C. Small Centre Contact

E.S. Edison Screw

S.E.S. Small Edison Screw

M.E.S. Miniature Edison Screw

G.E.S. Goliath Edison Screw

The dimension code indicates, first, by letter, the type of cap. The first two figures indicate the nominal outer diameter of the cap barrel or screw thread in millimetres. The next two figures indicate the overall length and the last two, the diameter of the flange.

Extras

Special capping. Where standard types of lamps are suitable for recapping, the following extras to the recommended retail prices will apply, when any of the caps below are fitted in place of the standard caps listed:

B.C., 3 Pin B.C., S.B.C., E.S., S.E.S.: 2s. each, **G.E.S.:** 3s. each (Nett Trade Price)

Colour spraying, frosting or bowl frosting. On any lamp suitable for colour spraying, frosting or bowl-frosting, for which prices are not shown in the catalogue, the following extras to recommended retail prices will apply, for carton quantities only.

Up to and including 200w: 1s. 6d., 300w and 500w: 3s., 750w and 1000w: 5s.

Special marking. Where general service or similar lamps are required to be etched with the user's name, initials or symbol, the following extras to recommended retail prices will be made.

Up to 2,000 identical lamps for delivery in one consignment: 3d. each

Over 2,000 identical lamps for delivery in one consignment: no extra charge.

Standard lamps

General lighting service lamps

Plus lamps – High efficiency coiled coil.

Watts	Net Trade Price £ s d			Pur. Tax s d	Std. Pack	Cap	Finish
40	1	9	9 per case	10 8	25	B.C., E.S.	Pearl
60	1	9	9 per case	10 8	25	B.C., E.S.	Pearl
100	1	9	9 per case	10 8	25	B.C., E.S.	Pearl
150	1	17	10 per case	13 6	25	B.C.	Pearl
300	5	7	each	—	24	E.S.	Clear

Voltages: 200/210, 220/230, 240, 250
300w – 240 and 250 only

Note: Prices given are for 240v lamps

Single coil – High and low voltage.

Watts	Net Trade Price £ s d			Pur. Tax s d	Std. Pack	Cap	Finish
25	1	11	10 per case	11 5	25	B.C., E.S.	Pearl
40	1	9	9 per case	10 8	25	B.C., E.S.	Pearl
60	1	9	9 per case	10 8	25	B.C., E.S.	Pearl
75	1	19	6 per case	14 1	25	B.C., E.S.	Pearl
100	1	9	9 per case	10 8	25	B.C., E.S.	Pearl
150	1	17	10 per case	13 6	25	B.C., E.S.	Pearl or
200	2	12	6 per case	18 9	25	E.S., B.C.	Clear
300	3	6	10 per case (12 way)	—	24 & 12	G.E.S.	Clear
500	4	12	5 per case (12 way)	—	24 & 12	G.E.S.	Clear
750	14	0	each	—	12	G.E.S.	Clear
1000	14	0	each	—	12	G.E.S.	Clear
1500	19	10	each	—	6	G.E.S.	Clear

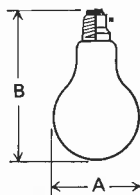
Voltages: 110, 120, 200/210, 220/230, 240, 250
75w and 1500w – 200/210, 220/230, 240, 250 only

Note: Prices are given for 240v lamps

Single coil – Extra low voltage.

Watts	Net Trade Price £ s d			Pur. Tax £ s d	Std. Pack	Cap	Finish
25	3	12	3 per case	1 5 10	25	B.C., E.S.	Pearl
40	3	12	3 per case	1 5 10	25	B.C., E.S.	Pearl
60	3	12	3 per case	1 5 10	25	B.C., E.S.	Pearl
100	4	12	10 per case	1 13 2	25	B.C., E.S.	Pearl

Voltages: 25/100w – 25, 50
150/500w – 50 only

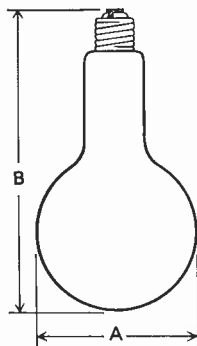


GENERAL LIGHTING SERVICE SINGLE COIL

	A	B
25–100w BC	60	105
150–200w BC	80	160

For E.S. caps add 1.5 mm to length
COILED COIL

	A	B
40–100w	60	105
150w	68	125
300w	88	173



GENERAL LIGHTING SERVICE

	A	B
300w & 500w GES	110	233
750w & 1000w GES	150	300
1500w GES	170	335

All dimensions in mm.

Standard lamps Home lighting lamps

Netabulb – Coiled coil in mushroom shaped bulbs.

Watts	Net Trade Price Per case of 25			Pur. Tax		Std. Pack	Cap	Finish
	£	s	d	s	d			
40	1	16	7	13	1	25	B.C.	Silverlight
60	1	16	7	13	1	25	B.C.	Silverlight
100	2	0	10	14	7	25	B.C.	Silverlight
150	2	6	5	16	7	25	B.C.	Silverlight
150	1	17	10	13	6	25	B.C.	Pearl

Voltages: 200/230, 240/250

Note: Prices apply to 240-250v lamps only.

Pink Pearl Netabulb – Coiled coil in mushroom shaped pearl bulbs.

Watts	Net Trade Price Per case of 25			Pur. Tax		Std. Pack	Cap	Finish
	£	s	d	s	d			
40	2	9	10	17	10	25	B.C.	An internal light pink diffuse coating with a Pearl window on the crown.
100	2	9	10	17	10	25	B.C.	

Voltage: 240/250

Pink Pearl – Single coil pearl bulbs with an external light pink ceramic coating.

Watts	Net Trade Price Per case of 25			Pur. Tax		Std. Pack	Cap	Finish
	£	s	d	s	d			
40	2	8	2	17	3	25	B.C.	Pink
60	2	8	2	17	3	25	B.C.	Pink
100	2	8	2	17	3	25	B.C.	Pink
150	3	0	2	21	6	25	B.C.	Pink

Voltages: 240/250

Clear – Single coil or coiled coil for decorative fittings.

Watts	Net Trade Price Per case of 25			Pur. Tax		Std. Pack	Cap	Finish
	£	s	d	s	d			
40	1	9	9	10	8	25	B.C.	Clear
60	1	9	9	10	8	25	B.C.	Clear
100	1	9	9	10	8	25	B.C.	Clear
150	1	17	10	13	6	25	B.C.	Clear

Voltages: 200/210, 220/230, 240, 250

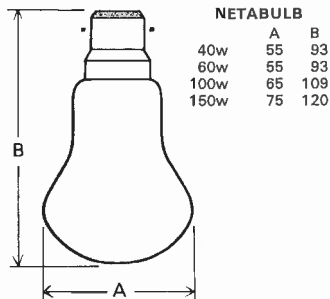
Note: Prices apply to 240v lamps only.

Economy Nightlight – Long life, low consumption. For children's or invalids' bedrooms and similar.

Watts	Net Trade Price Per case of 10			Pur. Tax		Std. Pack	Cap	Finish
	s	d		s	d			
5-8	16	8		6	0	10	B.C.	Pearl

Voltage: 200/250

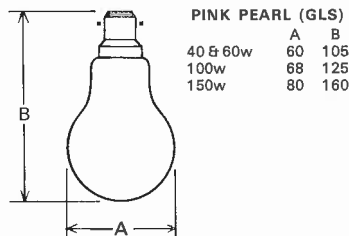
5-10 way boxes per container



NETABULB

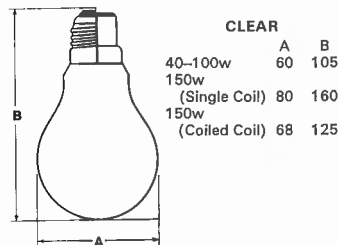
	A	B
40w	55	93
60w	55	93
100w	65	109
150w	75	120

The above dimensions are also applicable to Pearl Pink Netabulbs.



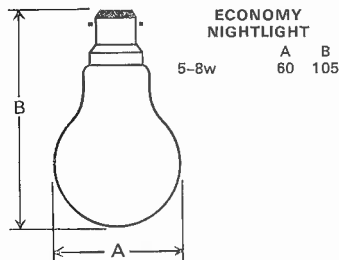
PINK PEARL (GLS)

	A	B
40 & 60w	60	105
100w	68	125
150w	80	160



CLEAR

	A	B
40-100w	60	105
150w		
(Single Coil)	80	160
150w		
(Coiled Coil)	68	125



ECONOMY
NIGHTLIGHT

	A	B
5-8w	60	105

All dimensions in mm

Standard lamps

Decorative and coloured lamps

Candle — Olive plain.

Watts	Net Trade Price Per case of 10			Pur. Tax		Std. Pack	Finish
	£	s	d	s	d		
25	1	4	10	8	11	10	Clear or Silverlight
25	1	11	1	11	1	10	Frosted, Coloured
40	1	4	10	8	11	10	Clear or Silverlight
40	1	11	1	11	1	10	Frosted, Coloured
60	1	11	1	11	1	10	Clear or Silverlight
60	1	15	3	12	7	10	Frosted, Coloured

Voltages: 200/230, 240/250

Caps: 25w and 40w B.C., S.B.C., S.E.S. — 60w B.C. and S.B.C.

5-10 way packs per container

Candle — Olive twisted.

Watts	Net Trade Price Per case of 10			Pur. Tax		Std. Pack	Finish
	£	s	d	s	d		
25	1	11	1	11	1	10	Clear
25	1	15	3	12	7	10	Frosted, Coloured
40	1	11	1	11	1	10	Clear
40	1	15	3	12	7	10	Frosted, Coloured
60	1	11	1	11	1	10	Clear
60	1	15	3	12	7	10	Frosted, Coloured

Voltages: 200/230, 240/250

Caps: 25w and 40w B.C., S.B.C., S.E.S. — 60w B.C. and S.B.C.

5-10 way packs per container

Candle — Pink Pearl.

Watts	Net Trade Price Per case of 10			Pur. Tax		Std. Pack	Finish
	£	s	d	s	d		
40	1	11	1	11	1	10	Pearl bulbs with an internal light pink diffuse coating
60	1	15	3	12	7	10	

Voltage: 240/250

Caps: B.C., S.B.C.

5-10 way packs per container

Round bulb

Watts	Net Trade Price Per case of 10			Pur. Tax		Std. Pack	Finish
	£	s	d	s	d		
25	2	2		9	10	10	Silverlight each
40	2	2		9	10	10	Silverlight each

Voltage: 240/250

Caps: B.C., S.B.C., S.E.S.

5-10 way packs per container

Round bulb festive

Watts	Net Trade Price Per case of 10			Pur. Tax		Std. Pack	Finish
	£	s	d	s	d		
15	2	4	each	10	50	50	Amber, blue, green, red, white, yellow
25	2	4	each	10	50	50	

Voltage: 200/250

Caps: B.C., E.S.

Internally coloured G.L.S.

Watts	Net Trade Price Per case of 10			Pur. Tax		Std. Pack	Finish
	£	s	d	s	d		
15	1	9	each	8	25	25	Amber, blue, green, pink, red, white, yellow
25	1	9	each	8	25	25	
40	2	0	each	9	25	25	
60*	2	0	each	9	25	25	

Voltage: 200/250

Caps: 15/25 B.C., E.S. — 40/60 B.C.

*Not suitable for use outdoors unless
enclosed for protection against rain.

Gala internally coloured

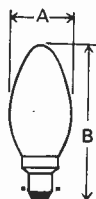
Watts	Net Trade Price Per case of 10			Pur. Tax		Std. Pack	Finish
	£	s	d	s	d		
25	1	9	each	8	25	25	Pink, yellow, amber Red, green, blue
40	2	0	each	9	25	25	
25/40	1	2	6 per pack	8	1	12	Assorted colours in a box

Voltage: 200/250

Gala lighting set

A string of 12 waterproof lampholders for gala lamps.

Cat. No. AME1809 Lamp Ref. No. 30-9995. Price £3.6.0. No Pur. Tax



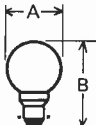
PLAIN CANDLE

	A	B
25w-40w BC	35	92
SBC	35	96
40w-60w BC	45	123
SBC	45	123



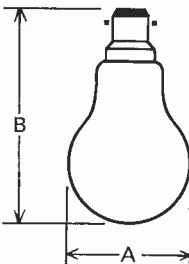
TWISTED CANDLE

	A	B
25w BC	35	95
SBC	35	99
40w-60w BC	46	123
SBC	46	128



45mm ROUND BULB

	A	B
BC	45	65
SBC	45	70
SES	45	74



INTERNALLY COLOURED & GALA

	A	B
15w, 25w, 40w & 60w	60	105

All dimensions in mm

Standard lamps

Tubular lamps

Architectural curved — $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$ circle.

Watts	Length	Net Trade Price s d	Pur. Tax s d	Std. Pack	Finish
60	—	32 0	11 5	1	Opal
Voltage: 240/250		Tube diameter 30mm.			
Caps: Peg					

Architectural straight

Watts	Length	Net Trade Price s d	Pur. Tax s d	Std. Pack	Finish
35	12"	13 0	4 8	25	Opal
53	18"	18 9	6 8	1	Opal
*60	20"	1 1 0	7 6	1	Opal
75	24"	1 4 0	8 7	1	Opal
110	36"	1 12 0	11 5	1	Opal
150	48"	1 17 0	13 3	1	Opal
Voltage: 200/230, 240/250		Tube diameter 30mm.			
Caps: Peg		£240/250v only			

*Price for peg-contact lamp

Double cap — Striplites

		Net Trade										
Watts	Length	Price	s	d	Pur. Tax	Std. Pack						
		s	d		s	d						
30 or 60	221mm	5	2	1	10	25						
30 or 60	284mm	5	2	1	10	25						
30 or 60	221mm	5	7	2	0	25						
30 or 60	284mm	5	7	2	0	25						
30 or 60	221mm	6	0	2	2	25						
30 or 60	284mm	6	0	2	2	25						

Single cap

Watts	Length	Net Trade Price s d	Pur. Tax s d	Std. Pack	Finish
25 or 40	82mm	3 6	1 3	50	Clear
25 or 40	82mm	4 4	1 7	50	Frosted
40 or 60	302mm	10 0	3 7	25	Opal (Long-Lite)
Voltages: 25/40w — 110, 200/230, 240/250					
Caps: B.C., S.B.C., E.S., S.E.S.					
Voltages: 60w — 200/230, 240/250					
Cap: B.C.					

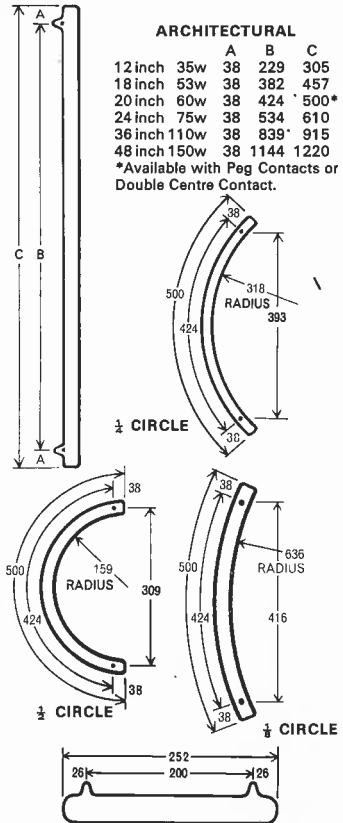
Maxtrip

Watts	Length	Net Trade Price s d	Pur. Tax s d	Std. Pack	Finish
40 or 60	252mm	5 7	2 0	1	Opalised
Voltage: 240/250					
Cap: Peg					

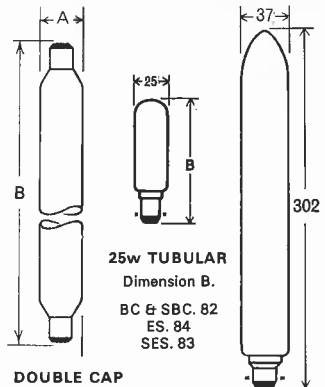
ARCHITECTURAL

		A	B	C
12inch	35w	38	229	305
18inch	53w	38	382	457
20inch	60w	38	424	500*
24inch	75w	38	534	610
36inch	110w	38	839	915
48inch	150w	38	1144	1220

*Available with Peg Contacts or Double Centre Contact.



MAXTRIP



25w TUBULAR

Dimension B.

BC & SBC. 82
ES. 84
SES. 83

DOUBLE CAP TUBULAR

	A	B
30w	25	221
60w	25	284

LONG-LITE

All dimensions in mm

Standard lamps

Reflector lamps

Interior display spotlights and floodlight

For display areas and interior floodlighting.

Type	Watts	Net Trade Price £ s d			Pur. Tax s d	Std. Pack
Spotlight	100	8	9	3	2	12
Spotlight	150	14	0	5	0	12
Floodlight	150	14	0	5	0	12
Spotlight	250	1	2	8	2	12
For Chelsea glass*	60	2	9	1	0	12

Voltages: 110, 200/230, 240/250

*110v Chelsea not available, 200/230 240/250 B.C. only

Caps E.S., B.C. Except 250W which is E.S. only

Life:- 1,000 hours

150w. PAR 38 sealed beam

For outdoor and indoor application.

Type	Watts	Net Trade Price £ s d			Pur. Tax s d	Std. Pack
Clear Spotlight	150	16	9	6	0	10
Clear Floodlight	150	16	9	6	0	10
Clear Floodlight - 24v.	150	1	5	8	11	10
Color-Ray Spot-Red	150	1	10	11	0	10
Color-Ray Spot-Yellow	150	1	10	11	0	10
Color-Ray Spot-Blue	150	1	10	11	0	10
Color-Ray Spot-Green	150	1	10	11	0	10
Cool-Ray Spotlight	150	1	14	12	5	10

Voltages: Color-Ray and Cool-Ray 240/250 only.

Others 110/120, 200/210, 220/230, 240/250 (except 24v flood)

Cap: E.S.

Life:-2,000 hours

High bay reflector

Watts	Net Trade Price £ s d	Pur. Tax s d	Std. Pack	Cap
500	2 10 0	—	6	G.E.S.

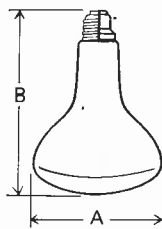
Voltages: 240, 250. Life:-1,000 hours

Mains voltage display lamp

For use in Atlas fittings VM100 and DM100.

Type	Watts	Net Trade Price £ s d	Pur. Tax s d	Cap	Std. Pack
Crown silvered	100	5 5	1 11	3 pin B.C.	25

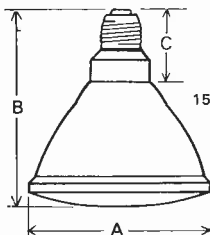
Voltage: 240/250 Life:-1,000 hours



REFLECTOR
FLOODLIGHT
AND SPOTLIGHT

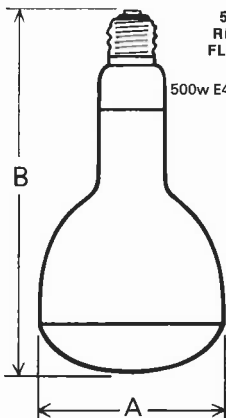
	A	B
100w	95	135
150w	126	178
250w	126	178

CHELSEA FITTINGS
60w 55 93



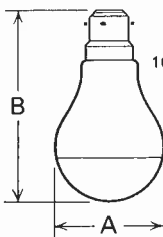
SEALED BEAM
REFLECTOR
FLOODLIGHT
& SPOTLIGHT

	A	B	C
150w	121.5	135	51



500 WATT
REFLECTOR
FLOODLIGHT

	A	B
500w E40/45	165	312



DISPLAY LAMP

	A	B
100w 3-Pin BC	60	105

All dimensions in mm

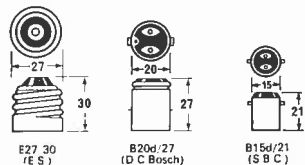
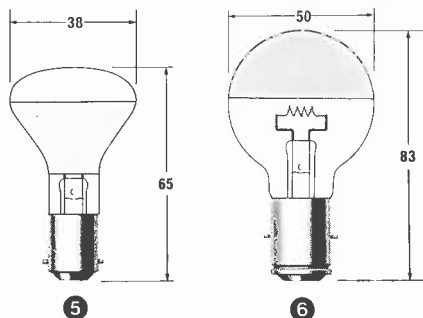
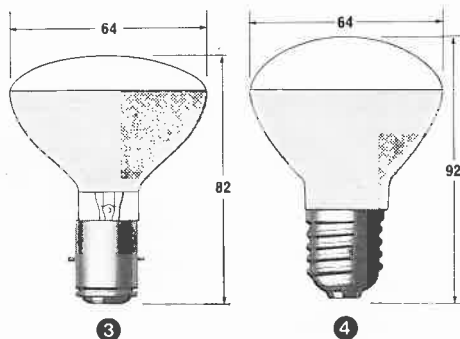
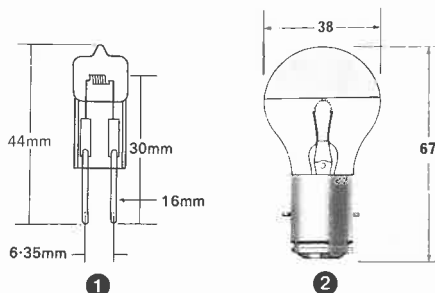
Standard lamps

Low voltage display lamps

1. The compact tungsten halogen lamp THD/50/12 has been developed for use in the low voltage display lighting fitting. This lamp has all the advantages of tungsten halogen lamps with a long life of 2,000 hours, high efficiency and nearly 100% lumen maintenance. The fitting (Cat. No. ES.1050) has an integral transformer and, therefore, offers a compact combination for shop window display accent lighting.
2. The 38mm lamp is spherical in shape and is used in the DB.1050 and DS.1050 fittings. It is internally crown silvered and gives a non-spill narrow beam of light.
3. The mushroom-shaped 64mm sealed beam lamp with Bosch cap is used as a lamp replacement in the DA.1050, DC.1050 and DAM.1050 fittings. It is internally silvered with a diffusing front face and gives a soft edge beam of high intensity.
4. The 12v. 50w. lamp has a clear front, and an internal reflector aluminised to the parabolic bulb. This gives a narrow beam of light and is used in the DAS.1050 and DCS.1050 fittings. The lamp has an E.S. cap.
5. The 12v. 24w. sealed beam lamp is used as a replacement in the DC.0024 fitting and gives a high intensity soft edged beam.
6. The 24v. 150w. lamp is used in the DEW.1150 (weatherproof) long range narrow beam projector.

The 12v. lamps have a nominal life of 1,000 hours (except THD/50/12 which has a rated life of 2,000 hours), whilst the 24v. 150w. lamp has been designed to give a life of 500 hours.

For photometric information see page CG14.

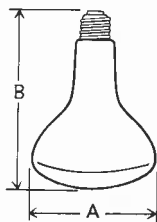


Ilus.	Volts	Watts	Lamp Ref. No.	Net Trade Price s d	Pur. Tax	Std. Pack	Type	Cap
1	12	50	11-8015	18 0	6 5	1	Tungsten Halogen	Bi-pin
2	12	50	11-7015	5 0	1 9	25	Crown Silvered Clear Back	Bosch
3	12	50	11-8012	7 5	2 8	25	Internal Reflector Diffusing Front	Bosch
4	12	50	11-7014	9 10	3 6	25	Internal Reflector Clear Front	E.S.
5	12	24	11-7005	6 10	2 5	25	Internal Reflector Diffusing Front	S.B.C.
6	24	150	11-7040	8 9	3 2	12	Crown Silvered Clear Back	Bosch

A transformer is normally required for the operation of these lamps.

Standard lamps

Heating lamps



INFRA-RED REFLECTOR

	A	B
150w	126	178
275w	126	178

Infra-red reflector (Std. bulb)

Watts	Net Trade Price £ s d	Pur. Tax s d	Std. Pack	Cap	Finish
150	10 9	3 10	12	ES	Clear Front
275	17 6	—	12	ES., B.C.	Clear Front
275	17 6	—	12	ES., B.C.	Satin Front
275	1 1 0	—	12	ES., B.C.	Red Front

Voltages: 100/130, 200/250

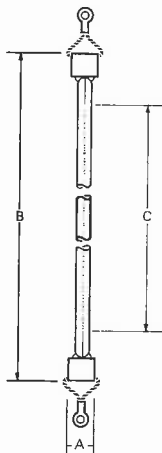
INFRA-RED ROUND BULB

	A	B
250w ES	88	180

Infra-red reflector (Hard glass bulb)

Watts	Price on application	Std. Pack	Cap	Finish
275	Price on application	12	ES., B.C.	Clear Front
275	Price on application	12	ES., B.C.	Satin Front
275	Price on application	12	ES., B.C.	Red Front

Voltages: 200/250 only



Infra-red round bulb

Watts	Net Trade Price £ s d	Pur. Tax s d	Std. Pack	Cap	Finish
250	9 0	3 3	25	E.S.	Pearl

Voltages: 100/130, 200/250

Infra-red tubular quartz

Watts	Net Trade Price £ s d	Pur. Tax s d	Std. Pack	Cap	Finish
1000	3 10 0	—	1	Special	Clear

Voltages: 230/240

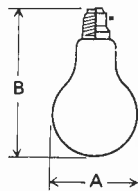
Carbon

Watts	Net Trade Price £ s d	Pur. Tax s d	Std. Pack	Cap	Finish
65	6 0	2 2	25	B.C.	Clear
130	6 0	2 2	25	B.C.	Clear

Voltages: 220/230, 240/250

INFRA-RED TUBULAR

	A	B	C
1000w	10	350	290



CARBON HEATERS

	A	B
65w BC	60	110
130w BC	65	117

All dimensions in mm

Standard lamps

Arduous duty lamps

Rough service – These lamps have additional filament supports and are for use in portable handlamps and similar locations.

Watts	Net Trade Price			Pur. Tax.			Std. Pack	Cap	Finish
	£	s	d	£	s	d			
25	2	1	3	14	9		25	B.C.	Pearl
40	2	1	3	14	9		25	B.C., E.S.	Pearl
60	2	1	3	14	9		25	B.C., E.S.	Pearl
100	2	16	9	20	3		25	B.C., E.S.	Pearl

Voltages: 40/100w – 110, 120, 200/230, 240/250; 25w – 200/230, 240/250

Fireglow – For use in heaters to provide “firelight flicker effects”.

Watts	Net Trade Price			Pur. Tax.			Std. Pack	Cap	Finish
	£	s	d	£	s	d			
60	3	1	11	1	2	2	25 & 10	B.C.	Lacquered
60	3	1	11	1	2	2	25 & 10	3-pin B.C.	Lacquered
60	5	10	0	1	19	4	25 & 10	2-pin	Lacquered
60	6	14	2	2	8	0	25 & 10	B.C.	Natural glass
60	6	14	2	2	8	0	25 & 10	3-pin B.C.	Natural glass
60	11	0	0	3	18	8	25 & 10	2-pin	Natural glass

Voltage: 200/250

5-10 way packs per container

Traffic signal – For use in traffic signals.

Watts	Net Trade Price			Pur. Tax.			Std. Pack	Cap	Finish
	£	s	d	£	s	d			
65	2	6	5	16	7		25	E.S., B.C.	Clear
50	18	0	*	6	5	*	1	BIPin	Clear

12v Tungsten
Halogen THS/50/12

Voltages: 65w in 240, 250v E.S. 250v only B.C. THS/50/12 in 12v only

* Per Single lamp.

Pygmy sign

Watts	Net Trade Price			Pur. Tax			Std. Pack	Cap	Finish
	£	s	d	£	s	d			
*15 or 25	1	7	7				50	All lamps E.S. B.C. S.E.S. S.B.C.	Clear
*15 or 25	1	10					50		Frosted
*15 or 25	1	10					50		Colours
*15 or 25	2	2	9				50		Clear Rough Service
15†	2	4	10				50		Clear (L. V. types)

*Prices for 200/250v lamps †100/130v.

Switchboard indicator

Watts	Net Trade Price			Pur. Tax			Std. Pack	Cap	Finish
	£	s	d	£	s	d			
15	2	2	9				50	B.C.	Clear

Voltages: 100/130, 200/250

Pilot indicator

Watts	Net Trade Price			Pur. Tax			Std. Pack	Cap	Finish
	£	s	d	£	s	d			
6	3	4		1	2		25	All lamps S.B.C., S.E.S., CAND.	Clear
10	3	4		1	2		25		Clear

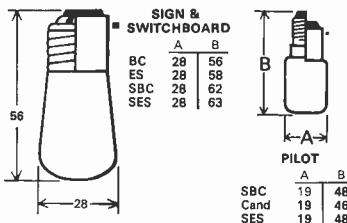
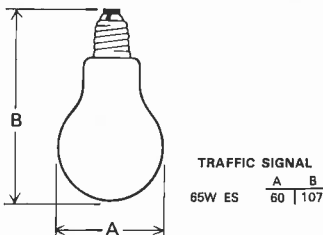
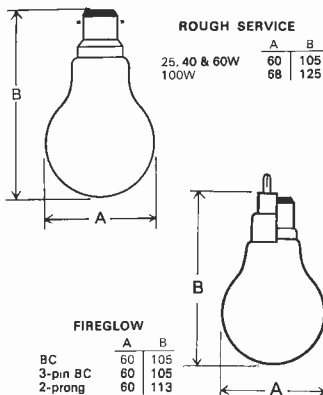
Voltages: 6w – 100/130

10w – 100/130, 200/250

Cooker lamp – For operation in ovens and similar up to 500°F. Special cement and high temperature solder on cap.

Watts	Net Trade Price			Pur. Tax			Std. Pack	Cap	Finish
	£	s	d	£	s	d			
25	2	2					50	E.S.	Pearl

Voltage: 200/250



All dimensions in mm.

Standard lamps

Floodlighting lamps

Class B1 (Spherical bulbs)

For floodlighting of buildings and for studio and theatre sports and floodlights.

The objective average life in ventilated fittings is 800 hours. The burning position is within 135° from cap down.

Ref. No.	Watts	Net Trade Price £ s d	Pur. Tax s d	Std. Pack	Finish
B1/1	100	13 3	4 9	12	Clear
B1/2	250	1 1 0	7 6	12	Clear
B1/3	500	1 9 0	—	12	Clear
B1/4	1000	2 4 0	—	12	Clear

Ref. No.	Cap	Lumens at 100/110/115v	Lumens at 200/250v*
B1/1	E.S.	1,100	900
B1/2	E.S.	3,600	3,100
B1/3	G.E.S.	8,000	7,250
B1/4	G.E.S.	18,000	16,500

*Lamps available in 10v steps

Class B2 (G.L.S. bulbs)

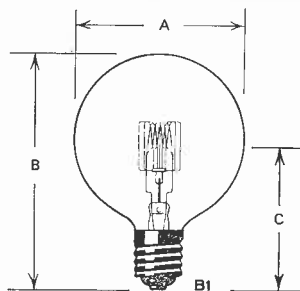
Applications are similar to Class B1 especially floodlighting from high towers for football grounds, stadiums, tattoos and similar.

The average objective life for lamps B2/1-3 is 800 hours in well-ventilated fittings. For B2/4 it is 200 hours which is very adequate for a full season of evening matches.

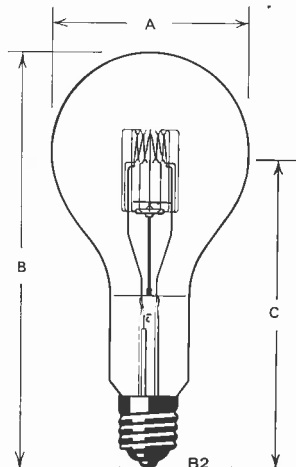
Ref. No.	Watts	Net Trade Price £ s d	Pur. Tax s d	Std. Pack	Finish
B2/1	500	1 9 0	—	9	Clear
B2/2	1000	1 15 0	—	6	Clear
B2/3	1500	2 7 0	—	6	Clear
B2/4	2000	2 10 0	—	6	Clear

Ref. No.	Cap	Lumens at 100/110/115v.	Lumens at 200/250v*
B2/1	G.E.S.	8,000	7,250
B2/2	G.E.S.	18,000	16,500
B2/3	G.E.S.	—	26,000
B2/4	L.P.F. — P40/41	—	42,000

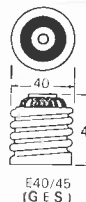
*Lamps available in 10v steps



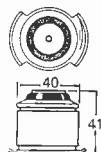
TYPE	A (max)	B (max)	C (nom)
B1/1	82	125	75
B1/2			
B1/3	132	190	115
B1/4			



TYPE	A (max)	B (max)	C (nom)
B2/1	132	275	202
B2/2	152	309	225
B2/3	172	344	250
B2/4	172	344	207



E40/45
(G.E.S.)



LARGE
PRE-FOCUS
(P.40/41)



E27/30
(E.S.)

All dimensions in mm.

Standard lamps

Tungsten halogen lamps

A new and powerful light source in the range of tungsten filament lamps.

Application – General illumination floodlighting and display lighting.

Range: four linear lamps – 500w, 750w, 1,000w, 1,500w.

Compact spot lamp – 50w.

Traffic signal lamp – 50w.

Rated life – 2,000 hours.

Control Gear – None required.

Operating positions – Linears horizontal $\pm 4^\circ$. Single ended lamps – Universal.

Principle – The tungsten filament is enclosed in a gasfilled quartz tube, together with a carefully controlled quantity of iodine. When the tungsten filament is heated by the electric current the iodine vaporises and controls the evaporation of the filament; the tungsten vapour being carried to the contrastingly comparative cool wall of the bulb where it combines with the iodine to form tungsten iodide.

This compound then returns to the filament where it is chemically converted back to tungsten and iodine and the action continues to repeat itself while the lamp is in operation.

The regenerative cycle performs a 'self-cleaning' action on the inner surface of the bulb resulting in nearly 100% lumen maintenance.

Advantages

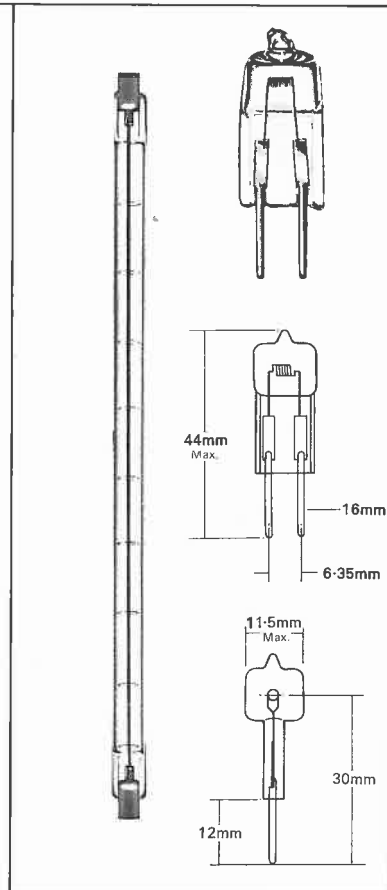
1. Up to 20% more light output compared to corresponding G.L.S. lamp.
2. Double life – 2,000 hours.
3. Constant light output through life.
4. Compact, easily controllable light source.

Watts	Net Trade Price £ s d	Pur. Tax s d	Std. Pack	Voltage	Nominal Lumens
50	18 0	6 5	1	12	900
500	2 17 9	—	1 $\frac{1}{2}$	110 & 120	10,500
500	2 17 9	—	1 $\frac{1}{2}$	200/230	9,500
750*	3 5 0	—	1 $\frac{1}{2}$	and	15,000
1,000†	3 12 0	—	1 $\frac{1}{2}$	240/250	21,000
1,500	3 18 0	—	1 $\frac{1}{2}$		33,000

†Also available 110v.

*750w lamps standard 189mm O.A.L. – also available 178mm O.A.L.

**Spotlight or Traffic Signal Lamp.



Nom. watts	Voltage	Nom. lumens At rated voltage	Rated life hours	Nom. colour temp. °K	Overall lamp length	Bulb diam.	Nom. lighted length	Type of contacts	Burning position	Catalogue no.
50	12	900	2,000	3,000	44 max.	11.5 max.	3.5 x 2.5	Single ended bi-pin	Universal	THD/50/12
50	12	900	2,000	3,000	44 max.	11.5 max.	3.5 x 2.5	Single ended bi-pin	Universal	THS/50/12
500	110	10,500	2,000	3,000	117 ± 2.5	10 ± 0.25	60	R7s‡	To within 4° of horizontal	THD/500/110
500	120	10,500	2,000	3,000	117 ± 2.5	10 ± 0.25	60			THD/500/120
500		9,500	2,000	2,850	117 ± 2.5	10 ± 0.25	75			THD/500/voltage rating
750*	200/230	15,000	2,000	2,900	189 ± 2.5	10 ± 0.25	130			THD/750/voltage rating*
1,000†	240/250	21,000	2,000	3,000	189 ± 2.5	10 ± 0.25	140			THD/1000/voltage rating
1,500		33,000	2,000	3,000	254 ± 2.5	10 ± 0.25	200			THD/1500/voltage rating

NOTES

All lamps with the exception of the THD/50/12 and THS/50/12 are fitted with an internal fuse. It is an advantage to have an additional fuse in the fitting or external circuit. During operation, the temperature of the lamp pinch seal should not exceed 350°C, whilst the bulb wall temperature must not drop below 250°C in order to maintain the tungsten halogen cycle.

*The Standard length of the 750w lamp is 189mm. Lamps with an overall length of 178mm are also available. Please specify length when ordering.

†The 1000w lamp is also available in 110v rating.

‡Double ended lamp with ceramic end-caps and recessed contacts (R7s). For distance between contacts deduct 4mm from overall length.

Standard lamps

Decoration sets and spare lamps

Decoration sets for 200/250v operation



Fairy-Lites

The ever-popular family favourite. Twelve gaily coloured Mazda lamps, and a spare, with flex, holders and B.C. connector.

Net trade 17/6 each + 6/3 PT.



Festive-Lites

A brand new set with the sparkle of cut crystal. Twelve new coloured crystal coated lamps and a spare with flex, holders and B.C. connector.

Net trade 18/9 each + 6/8 PT.



Satin-Lite

The soft, silky sheen of satin. Twelve coloured Mazda lamps plus a spare with flex, holders and B.C. connector.

Net trade 18/6 each + 6/7 PT.



Firefly

Glowing 'pin-points' of colour add touches of brilliance and the atmosphere of a continental Fiesta. L.E.S. capped lamps.

Twentylite sets:
20 12v 1-2w lamps + a spare,
Net trade 18/6 each + 6/7 PT.

Fortylite sets:
40 6v 0-75w lamps + 2 spares,
Net trade £1/12/9 each + 1 1/9 PT



Jack Frost

An icy, brilliant sparkle with twelve frost coated coloured lamps and a spare plus flex and B.C. connector.

Net trade 18/9 each + 6/8 PT.



Spare lamps



Fairy-Lites

Three 20 volt 3 watt Mazda lamps of different colours for use in twelve lamp sets.

Net trade £2/2/9 + 15/3 PT per 15 bubbles.



Festive-Lites

Three 20 volt 3 watt Mazda lamps in a bubble pack in various colours with a crystal finish. Suitable for replacement in Fairy-Lites sets.

Net trade £2/5/6 + 16/3 PT per 15 bubbles.



Satin-Lite

Three 20 volt 3 watt Mazda lamps in various attractive satin finished colours.

Net trade £2/5/6 + 16/3 PT per 15 bubbles.



Fireflies

Bubble packs containing five different coloured new Mazda capless lamps. 6 volt lamps for Fortylites sets and 12 volt lamps for Twentylites sets.

Net trade £3/0/6 + 21/8 PT per 20 bubbles.



Firefly (L.E.S. Capped)

Bubble packs containing five different coloured Mazda lamps. 6 volt lamps for Fortylites sets and 12 volt lamps for Twentylites sets.

Net trade £3/0/6 + 21/8 PT per 20 bubbles.



Jack Frost

Three 20 volt 3 watt Mazda lamps with frosted finish in different gay colours.

Net trade £2/5/3 + 16/3 PT per 15 bubbles.



Pom Pom

Individually packed 12 volt 7 watt S.E.S. spares in gay cartons.

Net trade £1/1/4 + 7/9 PT per 10 lamps.

Standard lamps

Reflector lamp information

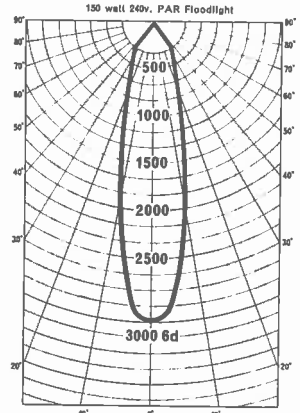
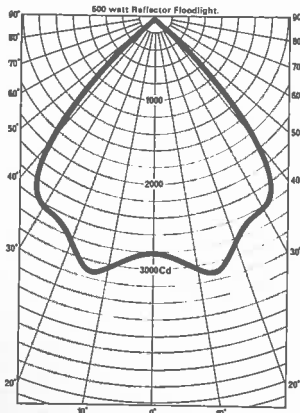
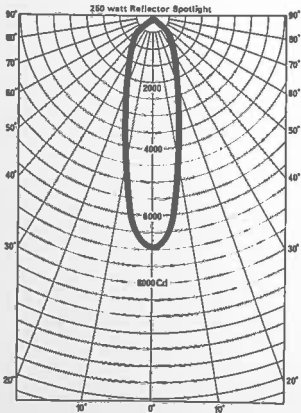
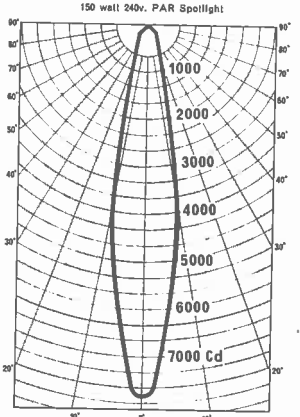
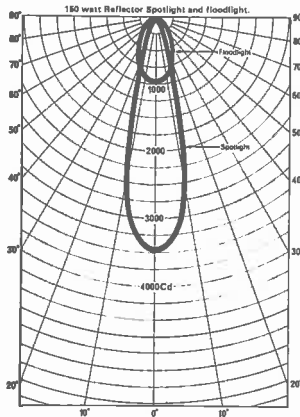
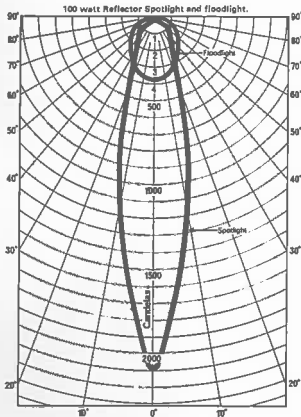
150w PAR 38 sealed beam spotlight and floodlights

These lamps, with the exception of the Cool-Ray lamp, are for indoor and outdoor applications.

The Color-Ray spotlights have internal thin film dichroic lenses which have a high transmission factor and maintain constant colour through life.

The Cool-Ray lamp has a dichroic reflector, allowing much of the heat to pass through the back of the lamp without loss of light. This lamp is for use in special fittings only, indoors. Its primary use is for the illumination of food displays, including meat and fish.

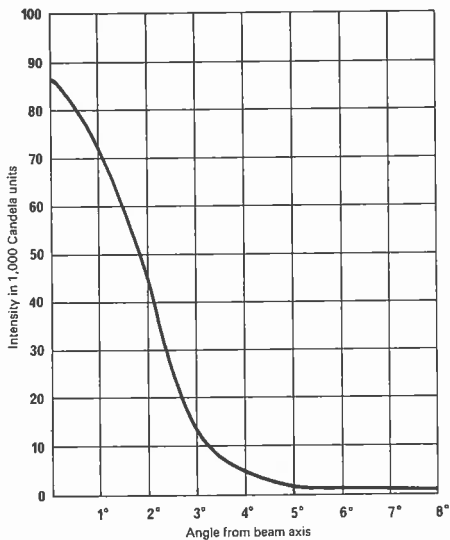
Polar Curves



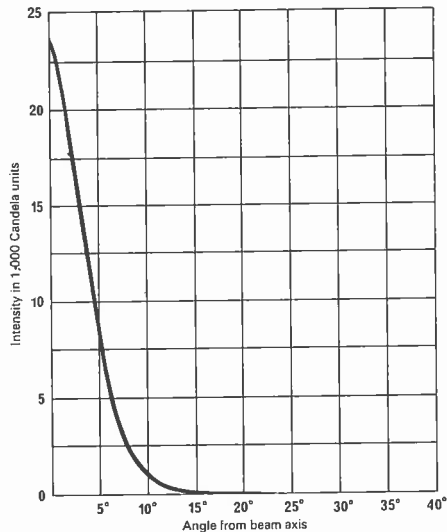
Standard lamps

Low voltage display lamp information

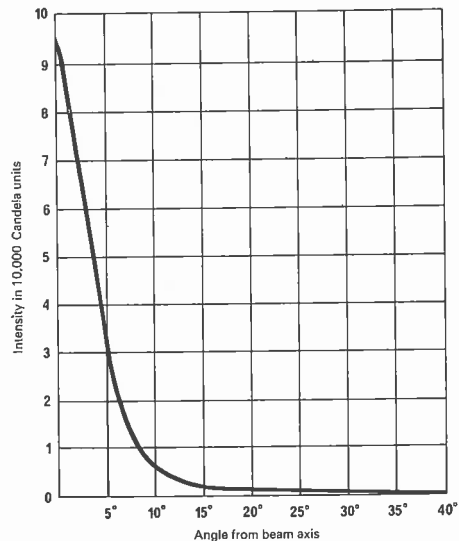
The figures in brackets refer to the illustrations overleaf on page CG15.
Performance data for lamps nos. (3) and (5) is not given as these lamps are for replacement only.



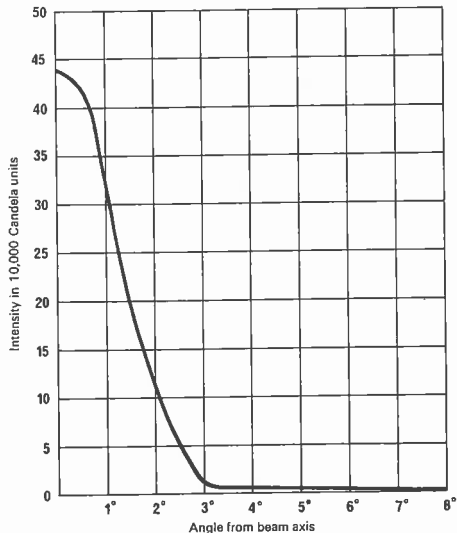
(1) Light intensity distribution 12v 50w (THD/50/12) tungsten halogen display lamp when used in Atlas ES.1050 fitting.



(2) Light intensity distribution curve for 12v 50w crown silvered round lamp when used with Atlas DB.1050 fitting.

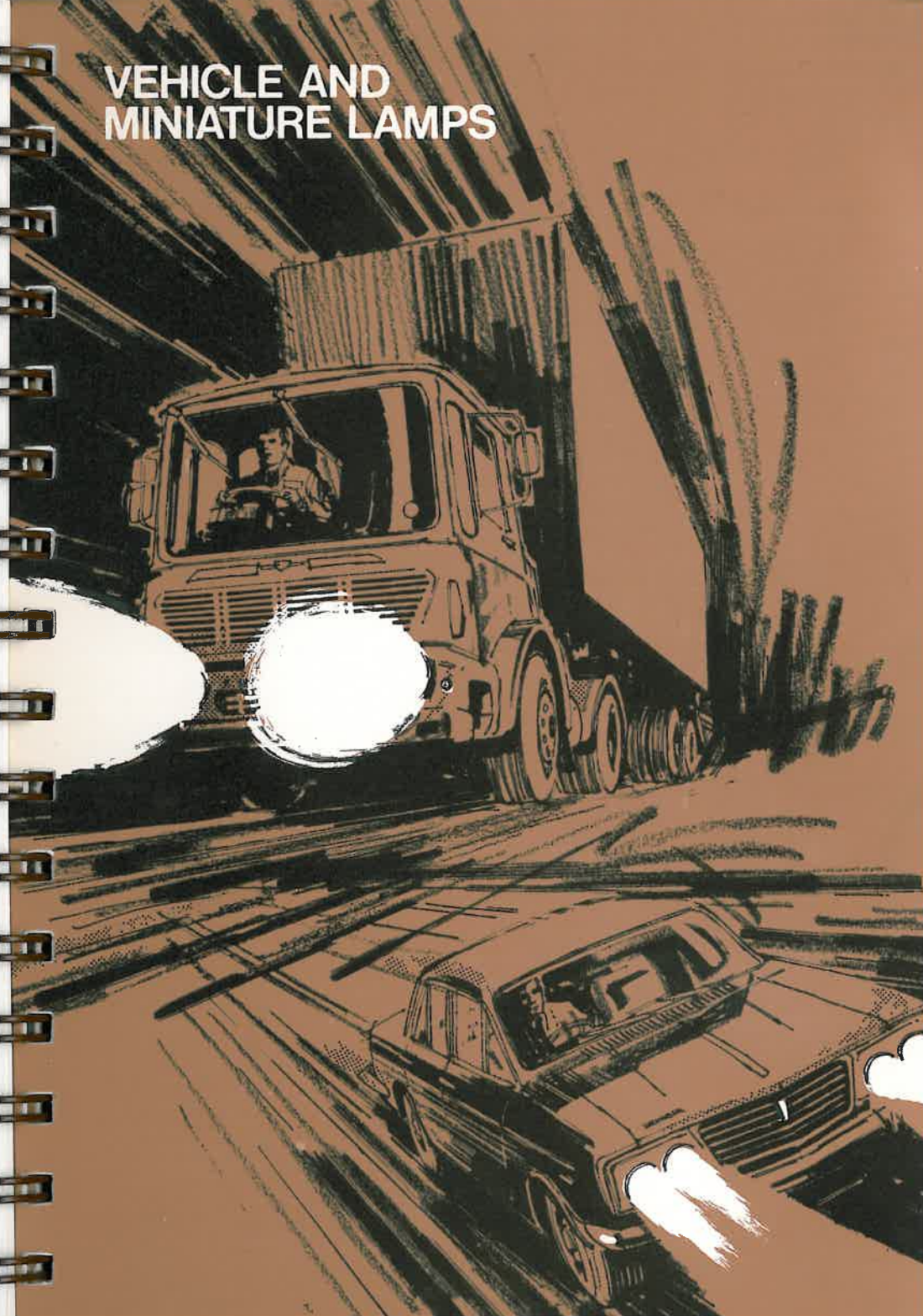


(4) Light intensity distribution curve of 12v 50w lamp with parabolic bulb.



(6) Light intensity distribution curve for 24v 150w lamp when used with Atlas DEW.1150 fitting.

VEHICLE AND MINIATURE LAMPS



Vehicle and miniature lamps

Introduction

The range of lamps shown in this catalogue covers the requirements for private and commercial vehicles in Great Britain and Western Europe.

Mazda has made many outstanding and exclusive contributions to vehicle lamp progress. The Automobile Association has awarded Mazda a Silver Medal for its double filament tungsten halogen lamp. The Mazda wedge base and capless lamps have given the vehicle industry a more simple, more compact and overall less costly lamp. The wedge base lamp is without doubt the vehicle ancillary lamp of the future.

Mazda are also the prominent manufacturers of sealed beam tungsten filament headlamps and auxiliary lamps which provide a completely sealed weatherproof lamp assembly with untarnishable reflector and filaments accurately focused in the factory for precise optical control.

Mazda vehicle lamps are leaders in outstanding developments and high quality precision manufacture. All Mazda lamps are Lucas authorised spares.

'Prices' shown are those recommended as appropriate in U.K. for retail sale.

'Nett user prices' are those recommended as appropriate in U.K. for direct sale to users.

Vehicle and miniature lamps

Numerical and alphabetical indexes

Numerical Index—Section five

	Page
Introduction	CH2
Index	CH3
Sealed Beam Lamps	CH4
British and American Prefocus Headlamps— Single Filament Type	CH5
British Prefocus Headlamps — Double Filament Type	CH6
Tungsten Halogen Lamps	CH7
Ordinary Headlamps	CH8
Ancillary Lamps —	
Flasher and Stop/Tail/Reversing	CH9
Ancillary Lamps — Side and Tail	CH10
Ancillary Lamps —	
Indicator, Panel and Instrument Warning	CH11
Ancillary Lamps —	
Festoon and Wedge Base (Capless)	CH12
Cycle Dynamo Lamps	CH13
Flashlamps	CH13
Bus, Coach and Yacht Lamps	CH14
Telephone Visual Lamps	CH15
Telewriter Lamps	CH15
Radio Panel Lamps	CH16
Miners Lamps	CH16
Lamp Cap Dimensions	CH17
Obsolete Lamps and Extras	CH18
Lamp Number Index	CH19
Lamp Number Index	CH20

Alphabetical Index—Section five

	Page
American Prefocus Headlamps	CH5
Ancillary Lamps	CH9/CH12
British Prefocus Headlamps	CH5/CH6
Bus Lamps	CH14
Capless Lamps	CH12
Coach Lamps	CH14
Cycle Dynamo Lamps	CH13
Extras	CH18
Festoon Lamps	CH12
Flashlamps	CH13
Flasher Lamps	CH9
Headlamps	CH4/CH8
Index	CH3
Introduction	CH2
Lamp Cap Dimensions	CH17
Lamp Number Index	CH19/CH20
Miners Lamps	CH16
Obsolete Lamps	CH18
Ordinary Headlamps	CH8
Panel Lamps	CH11
Prefocus Headlamps	CH5/CH6
Radio Panel Lamps	CH16
Reversing Lamps	CH9
Sealed Beam Lamps	CH4
Side Lamps	CH10
Stop Lamps	CH9
Tail Lamps	CH10
Telephone Visual Lamps	CH15
Telewriter Lamps	CH15
Tungsten Halogen Lamps	CH7
Wedge Base Capless Lamps	CH12
Yacht Lamps	CH14

Vehicle and miniature lamps

Sealed beam lamps

Sealed Beam Lamps are available in various forms: single and double filament headlamps and auxiliary fog and spot lamps. The main advantages of Sealed Beam Lamps are:—

- 1 The completely sealed reflector remains in perfect condition throughout the life of the lamp, it is dustproof, waterproof and un tarnishable.
- 2 Filaments are accurately focused in the factory to give permanent precisely controlled beams.
- 3 There is no "blind spot" behind the filament since all the reflector surface is used.
- 4 Large gas volume reduces lamp blackening giving 95% lumen maintenance throughout life.
- 5 Hard glass lenses are moulded integrally with the reflectors to give fine light control and add robustness.
- 6 Fitted with aiming studs to ensure final, permanent beam adjustment.
- 7 Headlamp main beams are high wattage to ensure more penetration for night driving. Dipped beams have a sharp, crisp cut-off ensuring no dazzle to oncoming traffic whilst clearly lighting kerbs, road signs and pedestrians.
- 8 They have a long life and are interchangeable with metal glass reflector units fitted with separate bulbs.

Headlamps — with 5½ in. dia. lens.

Volts	Watts	Std. Pack	Drive	Dip	Lamp Ref. No.
12	37.5	10	R.H.	—	60-5700
12	50/37.5	10	R.H.	Left	60-5702
12	50	10	R.H.	—	60-5712
12	100	10	R.H.	—	60-5717
12	50/37.5	10	R.H.	Left	60-5718*

*With pilot aperture for 1968 Vauxhall Victor.

Headlamps — with 7 in. dia. lens.

Volts	Watts	Std. Pack	Drive	Dip	Lamp Ref. No.
12	60/45	10	R.H.	Left	60-7002
12	50/40	10	L.H.	Right	60-7005†
12	75/50	10	R.H.	Left	60-7010
12	75	10	R.H.	—	60-7012
12	60/45	10	R.H.	Left	60-7014*

*With pilot aperture for B.M.C. Mini Cars. †Supplied only to special order.

Headlamps, rectangular

Volts	Watts	Std. Pack	Drive	Dip	Lamp Ref. No.
12	60/60	10	R.H.	Left	60-7502††

††With pilot aperture for Ford Capri

Auxiliary lamps — with 5½ in. dia. lens.

Volts	Watts	Std. Pack	Application	Lamp Ref. No.
6	40	10	Spot	60-5713
6	40	10	Fog	60-5714
12	50	10	Spot	60-5704
12	50	10	Fog	60-5706
12	50	10	Spot	60-5705*
12	50	10	Fog	60-5709*

*Yellow front lens.

Tungsten halogen auxiliary lamps — with 5½ in. dia. lens.

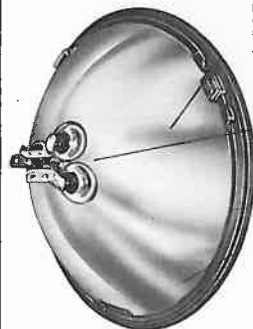
Volts	Watts	Std. Pack	Application	Lamp Ref. No.
12	55	10	Fog	60-5720
12	55	10	Spot	60-5721

These lamps are suitable for replacements in Lucas FT9 Units — Lucas Silver Sabre and Lucas Silver Lance.

Lens carefully moulded to exacting tolerances to ensure accurate light control.

Larger gas volume reduces lamp blackening maintains light output through life.

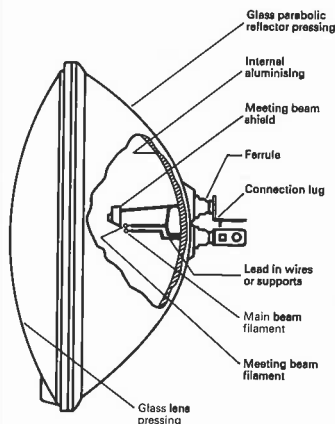
Aiming studs for final, permanent adjustment of beam.



Reflector starts clean and stays so throughout life. Dustproof. Waterproof. Untarnishable.

Filaments focused in the factory and remain focused throughout life.

There is no 'blind spot' behind the filament so all the reflector surface is used.



Vehicle and miniature lamps

British and American prefocus headlamps

For use in headlamps and fog and spot auxiliaries.

Single filament type—
with B.P.F. cap P22s/21 and P22d/21 as illustrated.

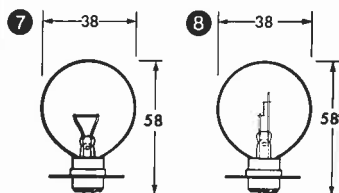
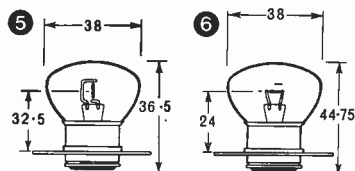
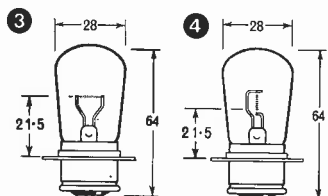
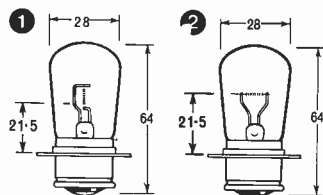
Volts	Watts	Std. Pack	Filament	Contact	Illus.	Lamp Ref. No.
12	48	10	Axial	Single	1	26-0185
12	48	10	Transverse	Single	2	26-0323
24	44	10	Axial	Double	4	26-0331
24	44	10	Transverse	Double	3	26-0330

Single filament type—with special prefocus cap P48d/21.

Volts	Watts	Std. Pack	Filament	Contact	Illus.	Lamp Ref. No.
12	48	10	Axial	Double	5	26-0432
12	48	10	Transverse	Double	6	26-0432

Single filament type—
with American prefocus type cap P15s/19.

Volts	Watts	Std. Pack	Filament	Contact	Illus.	Lamp Ref. No.
6	36	10	Transverse	Single	7	26-0667
6	36	10	Axial	Single	8	26-0669
12	36	10	Axial	Single	8	26-0670



All dimensions in mm.

Vehicle and miniature lamps

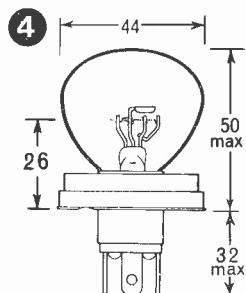
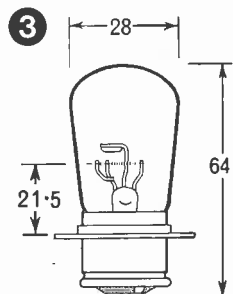
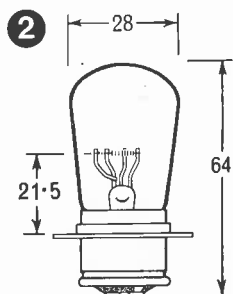
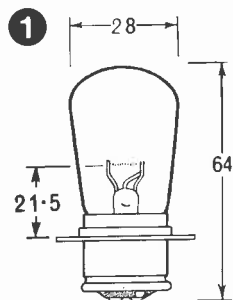
British prefocus headlamps

Double filament type—with double contact caps as illustrated and transverse filaments.

Volts	Watts	Std. Pack	Dip	Drive	Illus.	Lamp Ref. No.
6	30/24	10	Vert.	Either	1	26-0312
12	50/40	10	Left	R.H.	3	26-0414*
12	50/40	10	Right	L.H.	3	26-0415*
12	60/40	10	Left	R.H.	4	26-0416*†
12	60/40	10	Right	L.H.	4	26-0417*†
24	44/38	10	Left	R.H.	2	26-0359

*These lamps have transverse shielded filaments (see illustrations)

†UEC - Unified European Cap



All dimensions in mm

Vehicle and miniature lamps

Tungsten halogen lamps

The widest range in Europe for dipping headlights and all types of fog and spot units.

These lamps of very advanced design have many advantages:—

- 1 These lamps have a higher source brightness and produce more light than conventional lamps of the same wattage.
- 2 The tungsten halogen cycle gives virtually total elimination of bulb blackening ensuring that the lamp maintains full performance throughout life.
- 3 The light is 'whiter'.
- 4 Compact filaments give extremely precise optical control putting light in the right place without producing unwanted, wasteful glare.
- 5 Overall robustness, high resistance to mechanical and thermal shock.
- 6 Long life. Typical value: 350 Hrs. at 12v.
- 7 The double filament headlamp and lamps (26-0450, 26-0454, 26-0458 and 26-0459) are directly interchangeable with conventional lamps fitted with B.P.F. caps.

Volts	Watts	Std. Pack	Application & Illus. No.	Cap	Lamp Ref. No
6	50	10	Fog & Spot (1)	B.P.F. Single	26-0454
12	55	10	Fog & Spot (1)	Contact P22s/21	26-0450
6	50	10	Fog & Spot (5)	PL22s	26-0455
12	55	10	Fog & Spot (5)		26-0453*
6	50	10	Fog & Spot (2)	M.P.F. Double Contact PK22.5	26-2949
12	55	10	Fog & Spot (3)	P145s	26-0448†
24	70	10	Fog & Spot (1)	P22s/21	26-0459
24	70	10	Fog & Spot (4)	P22d/21	26-0458
12	55/43	10	Dipping Headlamps-(6)	B.P.F. Double P22d/21	26-0457
6	10	10	M29 miniature halogen (7)	Bi-pin 94	85-7015
6	20	10	M30 (7)	Bi-pin G4	85-7016

*Internationally standardised and known as H3.

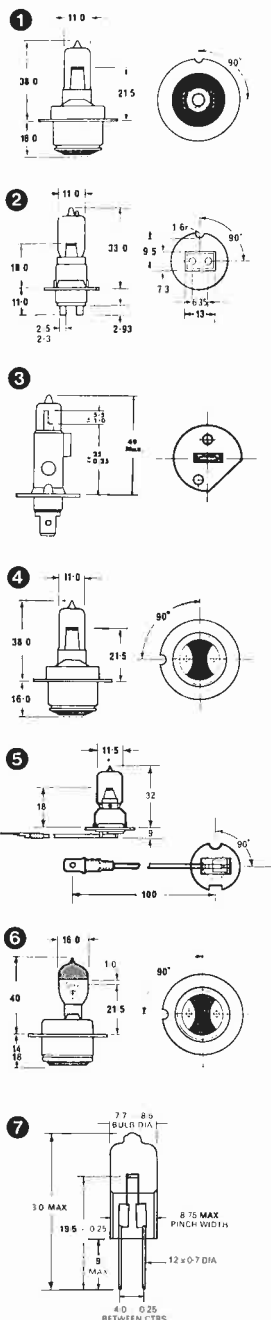
†Internationally standardised and known as H1.

‡These new lamps have a number of interesting possibilities. They are likely to prove useful in:—

- (1) Industrial heavy duty and rechargeable torches.
- (2) Aircraft safety devices.
- (3) Film editor lamps.
- (4) Copying machines.
- (5) High intensity hand lanterns, railway signal lamps.
- (6) Flashing beacons, road works, warning signs.
- (7) Scientific equipment (e.g. densitometers, industrial endoscopes).
- (8) Medical equipment.
- (9) Fibre optic systems.
- (10) High intensity desk-lights, compact reading lamps.
- (11) Low-voltage shop-window or display applications.
- (12) Domestic spots or flood units.
- (13) Lighting pictures, etc.
- (14) Photocell energising.

AA National Motoring Award for 1967

Mazda has been awarded a Silver Medal by the AA for the introduction of the world's first practical double filament halogen headlamp, Mazda no. 26-0457. The citation reads 'Silver Medal, for the year's most significant improvement to motor vehicle safety, comfort or economy... primarily in relation to technical progress'.



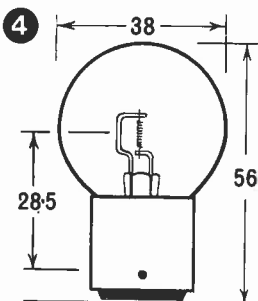
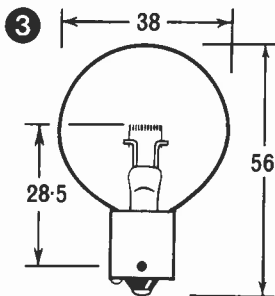
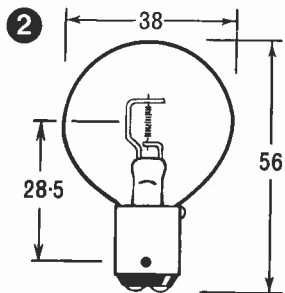
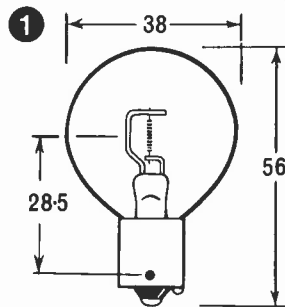
All dimensions in mm.

Vehicle and miniature lamps

Ordinary headlamps

Single filament type

Volts	Watts	Std. Pack	Cap	Filament	Illus.	Lamp Ref. No.
12	24	10	S.C.C.	Axial	1	25-0106
12	24	10	S.C.C.	Axial	1	25-0001
12	24	10	S.B.C.	Axial	2	25-0004
12	36	10	S.C.C.	Axial	1	25-0002
12	36	10	S.B.C.	Axial	2	25-0005
12	36	10	S.C.C.	Transverse	3	25-0057
12	24	10	S.B.C.	Axial	2	25-0122
12	36	10	S.B.C.	Axial	2	25-0123
12	36	10	B.C.	Axial	4	25-0622



All dimensions in mm.

Vehicle and miniature lamps

Ancillary lamps

Flasher and Stop/Tail – with transverse filaments.

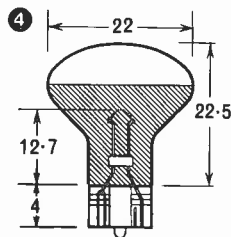
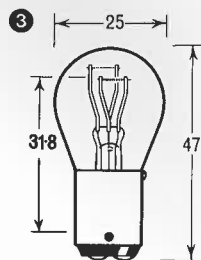
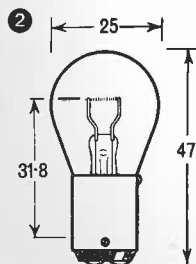
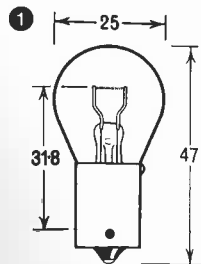
Volts	Watts	Std. Pack	Cap	Illus.	Lamp Ref. No.
6	21	10	S.C.C.	1	25-0317
6	21	10	S.B.C.	2	25-0319
6	6/18	10	S.B.C. index	3	25-0384
12	21	10	S.C.C.	1	25-0382
12	21	10	S.B.C.	2	25-0335
12	21	10	S.C.C.	1	25-0343*
12	6/21	10	S.B.C.	3	25-0381
12	5/21	10	S.B.C. index	3	25-0380
24	24	10	S.C.C.	1	25-0339
24	24	10	S.B.C.	2	25-0333
24	6/24	10	S.B.C. index	3	25-0334

*Amber bulb.

Reversing

Volts	Watts	Std. Pack	Cap	Illus.	Lamp Ref. No.
12	5	10	wedge base	4	20-0503*
12	21	10	S.C.C.	1	25-0382

*Externally silvered.



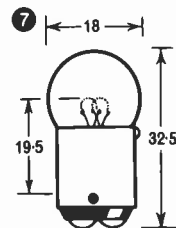
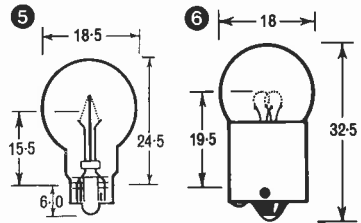
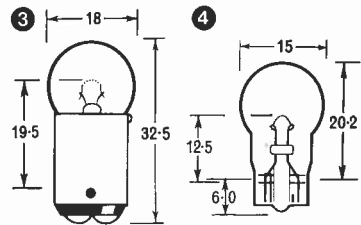
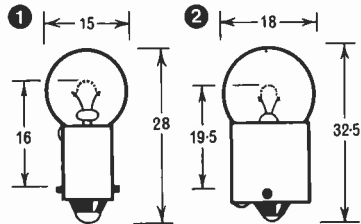
All dimensions in mm.

Vehicle and miniature lamps

Ancillary lamps

Side and Tail – with bow filaments.

Volts	Watts	Std. Pack	Cap	Illus.	Lamp Ref. No.
6	3	10	M.C.C.	1	20-0988
6	6	10	M.C.C.	1	20-0951
6	5	10	S.C.C.	2	20-0205
6	6	10	S.B.C.	3	20-0206
12	5	10	wedge base	4	20-0501
12	5	10	M.C.C.	1	20-0989
12	5	10	S.C.C.	2	20-0207
12	5	10	S.B.C.	3	20-0209
24	5	10	wedge base	5	20-0502
24	5	10	S.C.C.	6	20-0149
24	5	10	S.B.C.	7	20-0150
28	6	10	S.B.C.	3	20-0228



All dimensions in mm.

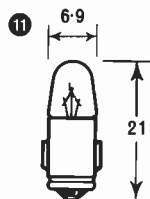
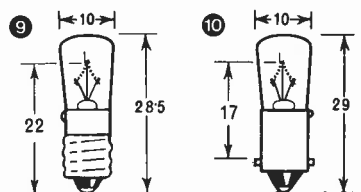
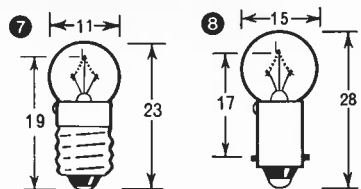
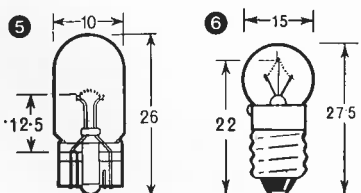
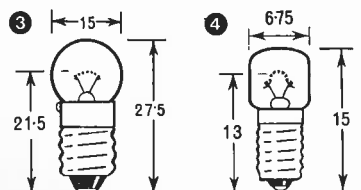
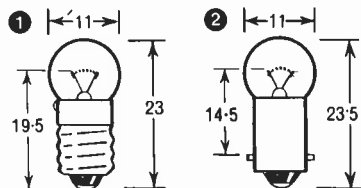
Vehicle and miniature lamps

Ancillary lamps

Indicator, Panel and Instrument Warning

Volts	Watts	Std. Pack	Cap	Illus.	Lamp Ref. No.
6	3	10	M.E.S.	1	21-0990
6	3	10	M.C.C.	2	21-0641
6	6	10	M.E.S.	3	21-0950
12	1.5	10	L.E.S.	4	21-0280
12	1.5	10	wedge base	5	21-2131
12	1CP	10	wedge base	5	21-2104
12	2	10	BA7s/11	11	21-0281
12	2.2	10	M.E.S.	1	21-0987
12	2.2	10	M.C.C.	2	21-0643
12	3	10	wedge base	5	21-0504*
16	3	10	M.E.S.	6	21-0985
24	2.8	10	M.E.S.	7	21-0650
24	2.8	10	M.C.C.	8	21-0651
24	2.8	10	M.E.S.	9	21-0695
24	2.8	10	M.E.S.	6	21-0993
24	2.8	10	M.C.C.	10	21-2020
24	3	10	wedge base	5	21-0505

*Formerly rated 2-2w.



All dimensions in mm.

Vehicle and miniature lamps

Ancillary lamps

Festoon for Trafficators and Roof-lights

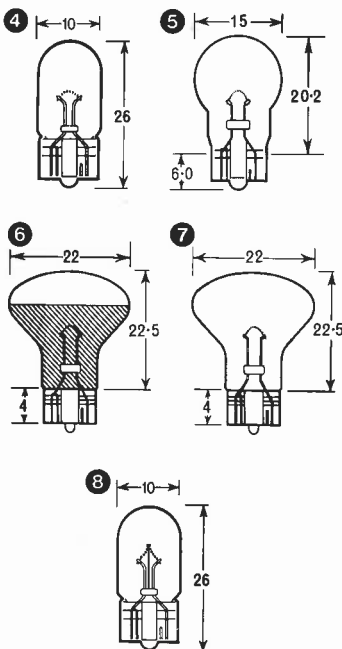
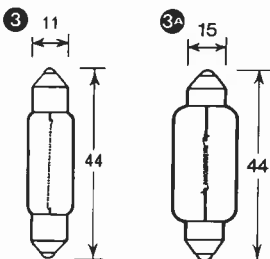
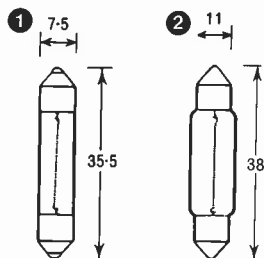
Volts	Watts	Std. Pack	Cap	Illus.	Lamp Ref. No.
6	3	10	S7/8	1	23-0255
6	6	10	S8-5/8	2	23-0253
12	3	10	S7/8	1	23-0256
12	6	10	S8-5/8	2	23-0254
12	10	10	S8-5/8	2	23-0272
12	18	10	S8-5/8	3A	23-0270
12	21	10	S8-5/8	3A	23-0273
24	6	10	S8-5/8	2	23-0653
24	6	10	S8-5/8	3	23-0260
24	6	10	S8-5/8	2	23-0654*
24	10	10	S8-5/8	2	23-0274

*Supported filament.

Wedge Base (Capless)

Volts	Watts	Std. Pack	Application	Illus.	Lamp Ref. No.
12	1CP	10	Panels	4	21-2104
12	1.5	10	and	4	21-2131
12	3	10	Instruments	4	21-0504
12	5	10	Side and No. Plate	5	20-0501
12	5	10	Reversing	6	20-0503*
24	3	10	Indicator	8	21-0505
24	5	10	Marker	7	20-0502
28	2.8	10	Aircraft Panel	8	28-6624 (A400)
28	11	10	Reading Lamp	7	28-6680 (A401)

*Externally silvered.



All dimensions in mm.

Vehicle and miniature lamps

Cycle dynamo lamps and flashlamps

Cycle dynamo lamps

Headlamps

Volts	Amps	Std. Pack	Cap	Finish	Illus.	Lamp Ref. No.
6	0.2	10	M.E.S.	Granulated	1	24-2162
6	0.25	10	M.E.S.	Granulated	1	24-2012
6	0.25	10	wedge base	Clear	7	24-2049
6	0.3	10	M.E.S.	Granulated	1	24-2013
6	0.4	10	wedge base	Clear	7	24-2053
6	0.5	10	M.E.S.	Granulated	1	24-0997
6	0.65	10	wedge base	Clear	7	24-2060

Tail and battery operated

Volts	Amps	Std. Pack	Cap	Finish	Illus.	Lamp Ref. No.
6	0.04	10	M.E.S.	Clear	2	24-0991
6	0.1	10	M.E.S.	Clear	2	24-0998
6	0.1	10	wedge base	Clear	7	24-2048

Flashlamps—with clear bulbs

Ordinary type

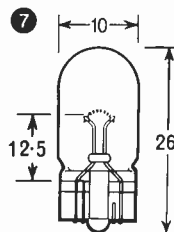
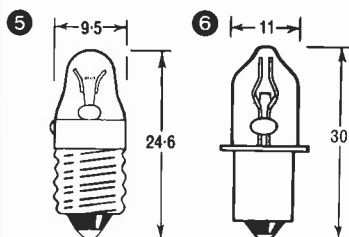
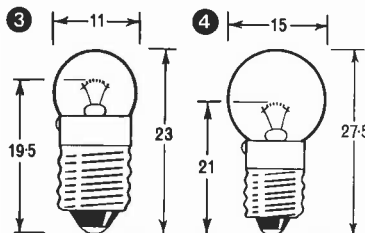
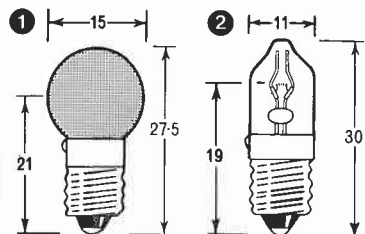
Volts	Amps	Std. Pack	Cap	Illus.	Lamp Ref. No.
1.5	0.2	10	M.E.S.	3	22-0390
2.5	0.2	10	M.E.S.	3	22-0970
2.5	0.3	10	M.E.S.	3	22-0972
3.5	0.15	10	M.E.S.	3	22-0974
3.5	0.3	10	M.E.S.	3	22-0977
4	0.3	10	M.E.S.	3	22-2008
4.5	0.3	10	M.E.S.	4	22-2004
5	0.15	10	M.E.S.	4	22-2076

Lens end type

Volts	Amps	Std. Pack	Cap	Illus.	Lamp Ref. No.
1.5	0.25	10	M.E.S.	5	22-2031

Prefocus flashlights

Volts	Amps	Std. Pack	Cap	Illus.	Lamp Ref. No.
2.5	0.3	10	Prefocus P13.5s	6	22-2046
3.5	0.3	10		6	22-2061
5.5	0.3	10		6	22-2077



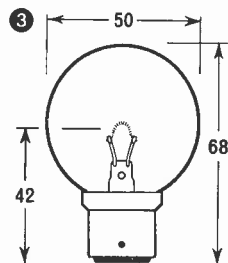
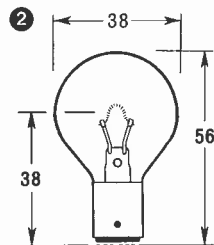
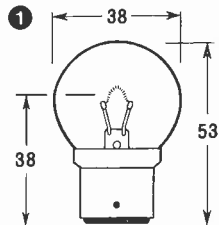
All dimensions in mm.

Vehicle and miniature lamps

Bus, coach and yacht lamps

For interior lighting

Volts	Watts	Std. Pack	Cap.	Finish	illus.	Lamp Ref. No.
12	12	10	B.C.	Clear	1	27-3120
12	12	10	S.B.C.	Clear	2	27-3121
12	12	10	B.C.	Pearl	1	27-2123
12	12	10	S.B.C.	Pearl	2	27-3124
12	24	10	B.C.	Pearl	1	27-3204
12	24	10	S.B.C.	Pearl	2	27-3205
24	12	10	B.C.	Clear	1	27-3128
24	12	10	S.B.C.	Clear	2	27-3129
24	12	10	B.C.	Pearl	1	27-3131
24	12	10	S.B.C.	Pearl	2	27-3132
24	12	10	B.C.	Pearl	3	27-3230
24	15	10	B.C.	Pearl	3	27-3250
24	20	10	B.C.	Pearl	1	27-3184
24	20	10	S.B.C.	Pearl	2	27-3182
24	20	10	B.C.	Pearl	3	27-3264
40	36	10	B.C.	Clear	1	27-3217



All dimensions in mm.

Vehicle and miniature lamps

Telephone visual lamps and telewriter lamps

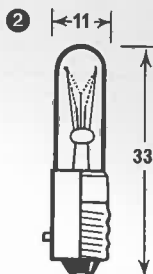
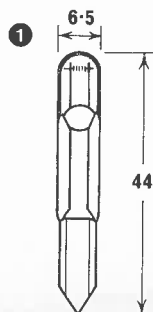
Telephone visual lamps

Side contact plates and coloured endpieces.

Volts	Amps	Std. Pack	Fila- ment	Endpiece colour	Illus.	Lamp Ref. No.
6	0.041	50	No. 2	Grey	1	24-3125
17	0.045	50		Orange	1	24-3165
24	0.10	50	M E T A L	Yellow	1	24-3171
24	0.055	50		Yellow/ Black	1	24-3172
60	0.06	50		White/ Grey	1	24-3461
12	0.117	50	No. 2	Red	1	24-3001
36	0.075	50	CAR- BON	Black	1	24-3015
50	0.107	50		White	1	24-3035

Telewriter lamps Illus. 2

Volts	Amps	Std. Pack	Cap	Lamp Ref. No.
24	0.1	50	M.C.C.	24-3551
24	0.1	50	M.E.S.	24-3552
50	0.05	50	M.C.C.	24-3626
50	0.05	50	M.E.S.	24-3627



All dimensions in mm.

Vehicle and miniature lamps

Radio panel lamps and miners lamps

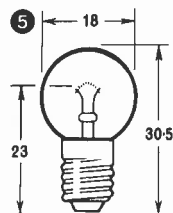
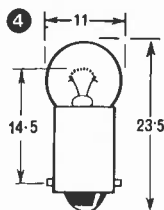
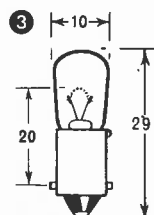
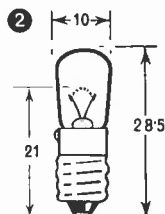
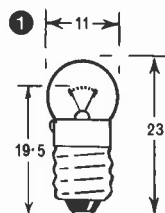
Radio panel lamps

Volts	Amps	Std. Pack	Cap	Illus.	Lamp Ref. No.
6.2	0.3	10	M.E.S.	2	21-3025
6.3	0.11	10	M.E.S.	1	21-3094
6.3	0.15	10	M.C.C.	3	21-3074
6.3	0.15	10	M.C.C.	3	21-3033*
6.3	0.15	10	M.E.S.	2	21-3051
6.3	0.25	10	M.C.C.	3	21-3043
6.5	0.35	10	M.E.S.	1	21-3029
6.5	0.3	10	M.C.C.	4	21-3030
6.5	0.3	10	M.E.S.	2	21-3028

*Long life lamp.

Miners lamps

Volts	Amps	Std. Pack	Cap	Illus.	Type	Lamp Ref. No.
4	0.46	25	M.E.S.	1	Vacuum	24-5106
3-6	1	25	M.E.S.	5	Krypton	24-5657
4	0.8	25	M.E.S.	5	Krypton	24-5721
4	0.9	25	M.E.S.	5	Krypton	24-5726
4	1	25	M.E.S.	5	Krypton	24-5730



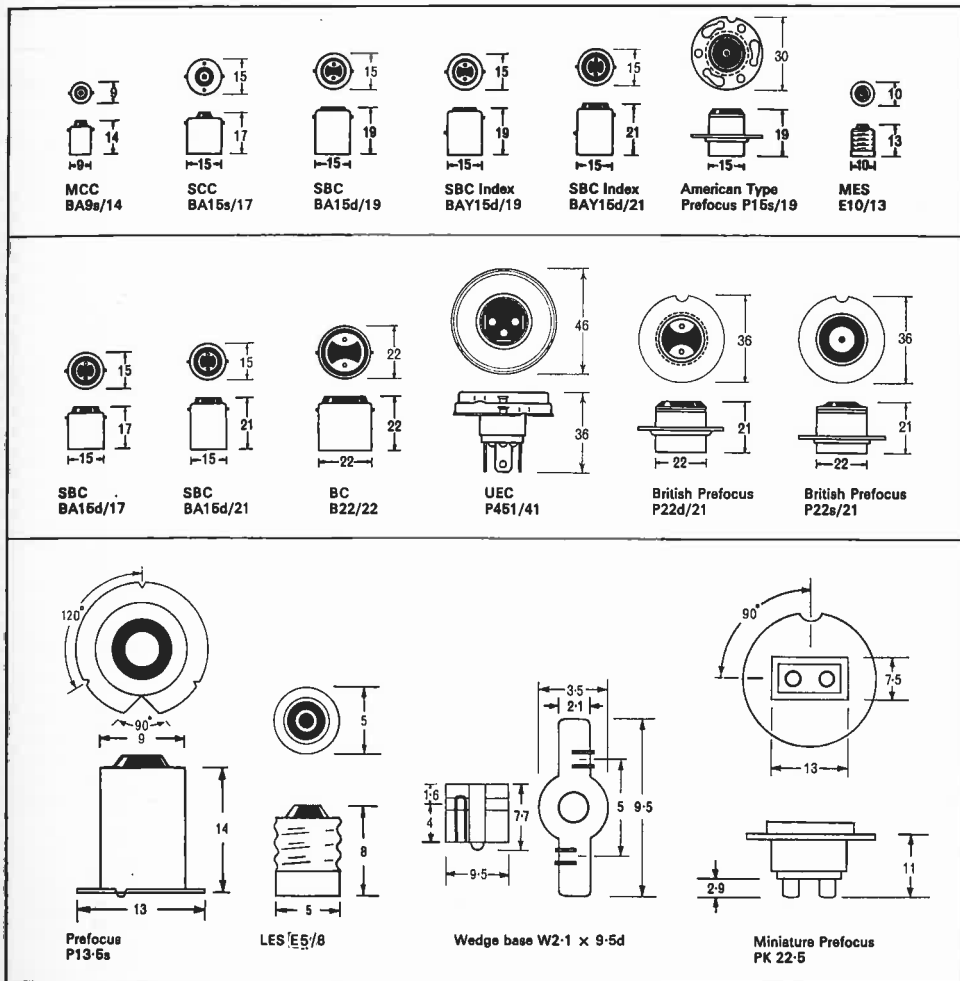
All dimensions in mm.

Vehicle and miniature lamps

Lamp cap dimensions

The dimensions and details of the caps used on the range of vehicle and miniature lamps are given below.

All dimensions in mm.



Vehicle and miniature lamps

Obsolete lamps and extras

Obsolete lamps

Current Lamp Number		
27	386	981
108	451	2180
109	452	2185
111	600	2190
140	606	2225
171	620	3019
172	624	3058
173	637	3083
306	638	5101
337	668	5705
356	671	5707
358	685	5708
383	692	

These items may be made available against large volume enquiries to special order.

Extras

Certain lamps in this catalogue are available with non-standard finish and/or non-standard caps. Where such alternatives are available, the following extra charge to list prices will be made.

Colour spraying and external frosting

	Price each list extra s d
10mm, 11mm and 15mm bulbs	6
18mm bulbs and above	1 0

Caps—quantities of less than 1000 identical lamps

M.E.S., M.C.C.	6
B.C., E.S., S.B.C., S.B.C. Index, A.S.B.C., A.S.C.C., 3-pin B.C., Bosch, S.E.S., A.P.F.	1 0

Extra for 1000 and over identical lamps on application.

Vehicle and miniature lamps

Lamp number index

The full vehicle or miniature lamp reference number consists of six figures – the first two denoting the group and the last four the serial number in the group. Colloquially, these numbers are known by their last significant digits only and in many cases these last digits are also the Lucas reference numbers. In the table the lamp serial numbers and the full lamp reference numbers are both given.

Lamp Serial No.	Lamp Ref. No.	Volts	Watts	Description	Standard Pack	Net Trade Price/Ten £ s d	P.T. Per Ten £ s d
1	25-0001	12	24	Ordinary Headlight S.C.C.	10	2 2 9	15 3
2	25-0002	12	36	Ordinary Headlight S.C.C.	10	2 2 9	15 3
4	25-0004	12	24	Ordinary Headlight S.B.C.	10	2 2 9	15 3
5	25-0005	12	36	Ordinary Headlight S.B.C.	10	2 2 9	15 3
57	25-0057	12	36	Ordinary Headlight S.C.C.	10	2 2 9	15 3
106	25-0106	6	24	Ordinary Headlight S.C.C.	10	2 2 9	15 3
122	25-0122	24	24	Ordinary Headlight S.B.C.	10	2 2 9	11 8
123	25-0123	24	36	Ordinary Headlight S.B.C.	10	2 2 9	11 8
149	20-0149	24	5	Side S.C.C.	10	15 0	5 4
150	20-0150	24	5	Side S.B.C.	10	15 0	5 4
185	26-0185	12	48	Prefocus Headlight	10	1 17 9	13 6
205	20-0205	6	5	Side S.C.C.	10	13 0	4 8
206	20-0206	6	6	Side S.B.C.	10	13 0	4 8
207	20-0207	12	5	Side S.C.C.	10	8 0	2 10
209	20-0209	12	5	Side S.B.C.	10	8 0	2 10
228	20-0228	28	6	Side S.B.C.	10	18 9	6 8
253	25-0253	6	6	Festoon	10	1 0 0	7 2
254	23-0254	12	6	Festoon	10	1 0 0	7 2
255	23-0255	6	3	Festoon	10	1 0 0	7 2
256	23-0256	12	3	Festoon	10	1 0 0	7 2
260	23-0260	24	6	Festoon	10	1 0 0	7 2
270	23-0270	12	18	Festoon	10	1 10 0	10 9
272	23-0272	12	10	Festoon	10	1 0 0	7 2
273	23-0273	12	21	Festoon	10	1 10 0	10 9
274	23-0274	24	10	Festoon	10	1 0 0	7 2
280	21-0280	12	1.5	Indicator E5/8	10	13 0	4 8
281	21-0281	12	2	Indicator, Panel, Instrument	10	13 0	4 8
312	26-0312	6	30 & 24	Prefocus Headlight	10	2 5 0	16 1
317	25-0317	6	21	Stop S.C.C.	10	19 5	6 11
319	25-0319	6	21	Stop S.B.C.	10	19 5	6 11
323	26-0323	12	48	Prefocus Headlight	10	1 17 9	13 6
330	26-0330	24	44	Prefocus Headlight	10	1 17 9	13 6
331	26-0331	24	44	Prefocus Headlight	10	1 17 9	13 6
333	25-0333	24	24	Stop S.B.C.	10	1 2 0	7 10
334	25-0334	24	6 & 24	Stop S.B.C. Index	10	1 5 0	8 11
335	25-0335	12	21	Stop S.B.C.	10	15 9	5 8
339	25-0339	24	24	Stop S.C.C.	10	1 2 0	7 10
343	25-0343	12	21	Flasher, Stop, Tail, S.C.C.	10	1 7 9	9 11
359	26-0359	24	44 & 38	Prefocus Headlight	10	2 5 0	16 11
380	25-0380	12	5 & 21	Stop S.B.C. Index	10	18 0	6 5
381	25-0381	12	6 & 21	Stop S.B.C.	10	1 2 0	7 10
382	25-0382	12	21	Stop S.C.C.	10	15 9	5 8
384	25-0384	6	6 & 18	Stop S.B.C. Index	10	1 2 0	7 10
390	22-0390	1.5	0.2a	Flashlight M.E.S.	10	4 0	1 5
414	26-0414	12	50 & 40	Prefocus Headlamp	10	2 5 0	16 1
415	26-0415	12	50 & 40	Prefocus Headlamp	10	2 5 0	16 1
416	26-0416	12	60 & 40	Prefocus Headlamp	10	3 15 0	1 6 10
417	26-0417	12	60 & 40	Prefocus Headlamp	10	3 15 0	1 6 10
432	26-0432	12	48	Prefocus Fog Lamp	10	3 3 9	1 2 9
434	26-0434	12	48	Prefocus Spot Lamp	10	3 3 9	1 2 9
448	26-0448	12	55	Tungsten Halogen Fog	10	10 0 0	3 11 6
450	26-0450	12	55	Prefocus Halogen Fog/Spot	10	10 0 0	3 11 6
453	26-0453	12	55	Tungsten Halogen Fog & Spot	10	10 0 0	3 11 6
454	26-0454	6	50	Tungsten Halogen Fog & Spot	10	10 0 0	3 11 6
455	26-0455	6	50	Tungsten Halogen Fog & Spot	10	10 0 0	3 11 6
457	26-0457	12	55/43	Tungsten Halogen Dipping Headlamp	10	15 0 0	5 7 3
458	26-0458	24	70	Tungsten Halogen Fog & Spot	10	12 5 0	4 9 5
459	26-0459	24	70	Tungsten Halogen Fog & Spot	10	12 5 0	4 9 5
501	20-0501	12	5	Capless Side and Tail	10	15 0	5 4
502	20-0502	24	5	Capless Side and Tail	10	18 9	6 8

Vehicle and miniature lamps

Lamp number index (contd.)

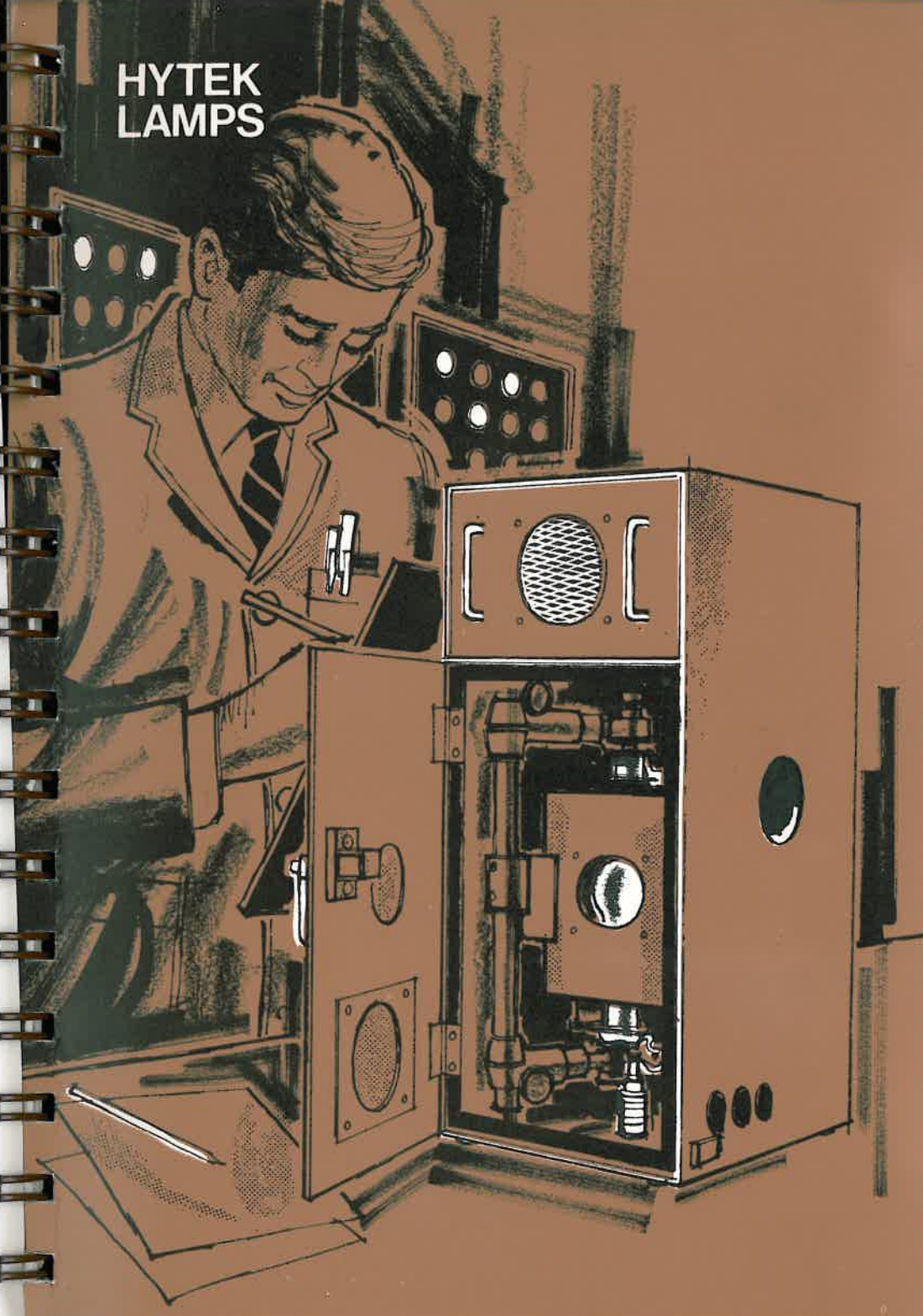
Lamp Serial No.	Lamp Ref. No.	Volts	Watts	Description	Standard Pack	Net Trade Price/Ten £ s d	P.T. Per Ten £ s d
503	20-0503	12	5	Reversing Lamp Capless	10	1 17 9	13 6
504	21-0504	12	3	Capless Indicator	10	13 0	4 8
505	21-0505	24	3	Indicator, Panel, Instrument	10	16 9	6 0
622	25-0622	24	36	Ordinary Headlight B.C.	10	2 2 9	15 3
641	21-0641	6	3	Indicator M.C.C.	10	11 5	4 1
643	21-0643	12	2.2	Indicator M.C.C.	10	9 5	3 4
650	21-0650	24	2.8	Indicator M.E.S.	10	13 0	4 8
651	21-0651	24	2.8	Indicator M.C.C.	10	13 0	4 8
653	23-0653	24	6	Festoon	10	1 0 0	7 2
664	23-0654	24	6	Festoon (supported)	10	2 0 0	14 4
667	25-0667	6	36	American Prefocus Head	10	2 2 9	15 3
669	26-0669	6	36	American Prefocus Head	10	2 2 9	15 3
670	26-0670	12	36	American Prefocus Head	10	2 2 9	15 3
695	21-0695	24	2.8	Indicator M.E.S.	10	13 0	4 8
950	21-0950	6	6	Indicator M.E.S.	10	11 5	4 1
951	20-0951	6	6	Side M.C.C.	10	13 0	4 8
970	22-0970	2.5	0.2a	Flashlight M.E.S.	10	4 0	1 5
972	22-0972	2.5	0.3a	Flashlight M.E.S.	10	4 0	1 5
974	22-0974	3.5	0.15a	Flashlight M.E.S.	10	4 0	1 5
977	22-0977	3.5	0.3a	Flashlight M.E.S.	10	4 0	1 5
985	21-0985	16	3	Indicator M.E.S.	10	18 9	6 8
987	21-0987	12	2.2	Indicator M.E.S.	10	5 9	2 1
988	20-0988	6	3	Side M.C.C.	10	13 0	4 8
989	20-0989	12	5	Side M.C.C.	10	8 0	2 10
990	21-0990	6	3	Indicator M.E.S.	10	11 5	4 1
991	24-0991	6	0.04a	Cycle Dynamo Tail	50	9 0	3 3
993	21-0993	24	2.8	Indicator M.E.S.	10	13 0	4 8
997	24-0997	6	0.5a	Cycle Dynamo Head	50	9 0	3 3
998	24-0998	6	0.10a	Cycle Dynamo Tail	50	9 0	3 3
2003	22-2003	5.0	0.15a	Flashlight M.E.S.	50	7 6	2 8
2004	22-2004	4.5	0.3a	Flashlight M.E.S.	50	4 0	1 5
2008	22-2008	4	0.3a	Flashlight M.E.S.	50	4 0	1 5
2012	24-2012	6	0.25a	Cycle Dynamo Head	50	9 0	3 3
2013	24-2013	6	0.3a	Cycle Dynamo Head	50	9 0	3 3
2020	21-2020	24	2.8	Indicator, Panel, Instrument	10	13 0	4 8
2031	22-2031	2.2	0.25a	Lens-End-Flashlight	10	7 6	2 8
2046	22-2046	2.5	0.3a	Prefocus Flashlight	10	7 6	2 8
2048	24-2048	6	0.1a	Cycle tail	10	9 9	3 6
2049	24-2049	6	0.25a	Cycle tail	10	9 9	3 6
2053	24-2053	6	0.4a	Cycle Headlamp	10	9 9	3 6
2060	24-2060	6	0.65a	Cycle Headlamp	10	9 9	3 6
2061	22-2061	3.5	0.3a	Prefocus Flashlight	10	7 6	2 8
2076	22-2076	5.5	0.3a	Flashlight M.E.S.	10	7 6	2 8
2077	22-2077	5.5	0.3a	Prefocus Flashlight	10	7 6	2 8
2104	21-2104	12	1CP	Indicator Capless	10	13 0	4 8
2131	21-2131	12	1.5	Indicator Capless	10	13 0	4 8
2162	24-2162	6	0.2a	Cycle Head M.E.S.	10	9 0	3 3
2949	26-2949	6	50	Tungsten Halogen Fog & Spot	10	10 0 0	3 11 6
2951	26-2951	12	55	Prefocus Halogen Fog & Spot	10	10 0 0	3 11 6
3025	21-3025	6.2	0.3	Radio panel	10	4 5	1 7
3028	21-3028	6.5	0.3	Radio panel	10	4 5	1 7
3029	21-3029	6.5	0.35	Radio panel	10	4 5	1 7
3030	21-3030	6.5	0.3	Radio panel	10	4 5	1 7
3033	21-3033	6.3	0.15	Radio panel	10	7 9	2 9
3043	21-3043	6.3	0.25	Radio panel	10	7 9	2 9
3051	21-3051	6.3	0.15	Radio panel	10	4 5	1 7
3074	21-3074	6.3	0.15	Radio panel	10	4 5	1 7
3094	21-3094	6.3	0.11	Radio panel	10	4 5	1 7
3001	24-3001	12	0.117	Telephone visual	50	1 0 9	7 5
3015	24-3015	36	0.045	Telephone visual	50	1 0 9	7 5
3035	24-3035	50	0.107	Telephone visual	50	1 0 9	7 5
3120	27-3120	12	12	Bus Interior B.C.	10	1 0 0	7 2
3121	27-3121	12	12	Bus Interior S.B.C.	10	1 0 0	7 2
3123	27-3123	12	12	Bus Interior B.C.	10	1 0 0	7 2
3124	27-3124	12	12	Bus Interior S.B.C.	10	1 0 0	7 2
3125	27-3125	6	0.04a	Telephone Visual	50	16 9	6 0
3128	27-3128	24	12	Bus Interior B.C.	10	1 0 0	7 2

Vehicle and miniature lamps

Lamp number index (contd.)

Lamp Serial No.	Lamp Ref. No.	Volts	Watts	Description	Standard Pack	Net Trade Price/Ten £ s d	P.T. Per Ten £ s d
3129	27-3129	24	12	Bus Interior S.B.C.	10	1 0 0	7 2
3131	27-3131	24	12	Bus Interior B.C.	10	1 0 0	7 2
3132	27-3132	24	12	Bus Interior S.B.C.	10	1 0 0	7 2
3166	24-3166	17	0-045	Telephone visual	50	16 9	6 0
3171	24-3171	24	0-10	Telephone visual	50	16 9	6 0
3172	24-3172	24	0-055	Telephone visual	50	16 9	6 0
3182	27-3182	24	20	Bus Interior S.B.C.	10	1 5 0	8 11
3184	27-3184	24	20	Bus Interior B.C.	10	1 5 0	8 11
3204	27-3204	12	24	Bus Interior B.C.	10	1 5 0	8 11
3205	27-3205	12	24	Bus Interior S.B.C.	10	1 5 0	8 11
3217	27-3217	40	36	Bus Interior B.C.	10	1 15 0	12 6
3230	27-3230	24	12	Bus Interior B.C.	10	1 0 0	7 2
3250	27-3250	24	15	Bus Interior B.C.	10	1 5 0	8 11
3264	27-3264	24	20	Bus Interior B.C.	10	1 5 0	8 11
3461	24-3461	60	0-06	Telephone visual	50	1 0 9	7 5
3551	24-3551	24	0-1	Telewriter	50	1 3 9	8 6
3552	24-3552	24	0-1	Telewriter	50	1 3 9	8 6
3626	24-3626	50	0-05	Telewriter	50	1 3 9	8 6
3627	24-3627	50	0-05	Telewriter	50	1 3 9	8 6
5106	24-5106	4	0-46	Miners	25	On Application	
5657	24-5657	3-6	1	Miners	25	On Application	
5700	60-5700	12	37-5	Sealed Beam Head	10	9 10 0	—
5702	60-5702	12	50/37-5	Sealed Beam Head	10	10 0 0	—
5704	60-5704	12	50	Sealed Beam Spot	10	10 0 0	—
5705	60-5705	12	50	Sealed Beam Spot	10	13 0 0	—
5706	60-5706	12	50	Sealed Beam Fog	10	10 0 0	—
5709	60-5709	12	50	Sealed Beam Fog	10	13 0 0	—
5712	60-5712	12	50	Sealed Beam Head	10	10 0 0	—
5713	60-5713	6	40	Sealed Beam Spot	10	11 0 0	—
5714	60-5714	6	40	Sealed Beam Fog	10	11 0 0	—
5717	60-5717	12	100	Sealed Beam Headlamp	10	11 0 0	—
5718	60-5718	12	50/37-5	Sealed Beam Headlamp	10	10 0 0	—
5720	60-5720	12	55	Tungsten Halogen Fog	10	20 0 0	—
5721	60-5721	12	55	Tungsten Halogen Spot	10	20 0 0	—
5721	24-5721	4	0-8	Miners	25	On Application	
5726	24-5726	4	0-9	Miners	25	On Application	
5730	24-5730	4	1	Miners	25	On Application	
6624	28-6624	28	2-8	Aircraft Panel	10	2 2 0	15 0
6680	28-6680	28	11	Reading Lamp	10	2 2 0	15 0
7002	60-7002	12	60/45	Sealed Beam Head	10	10 0 0	—
7005	60-7005	12	50/40	Sealed Beam Head	10	10 0 0	—
7010	60-7010	12	75/50	Sealed Beam Head	10	11 0 0	—
7012	60-7012	12	75	Sealed Beam Head	10	10 0 0	—
7013	60-7013	12	50/60	Sealed Beam Head	10	11 0 0	—
7014	60-7014	12	60/45	Sealed Beam Head	10	10 0 0	—
7016	85-7016	6	10	Min. Th.	10	10 17 5	3 17 10
7016	85-7016	6	20	Min. Th.	10	10 17 5	3 17 10
7502	60-7502	12	60/60	Sealed Beam Head	10	15 0 0	—

HYTEK LAMPS



Hytek lamps

Introduction

The Mazda Hytek lamps are specialised mercury and xenon lamps manufactured to meet the needs of research and industry for advanced compact and high brightness light sources. There is also a variety of ultra-violet sources. These proven ranges of lamps are used for inspection and development projects in many locations and they undoubtedly have done much to maintain the superior quality and advanced design of much British industrial and engineering equipment. The lamps are manufactured to exacting specification with advanced or high techniques – hence the name Hytek.

'Prices' shown are those recommended as appropriate in U.K. for retail sale.

'Nett user prices' are those recommended as appropriate in U.K. for direct sale to users.

Comprehensive catalogue 1969/70 – Hytek section

Numerical Index	CJ3
Mercury Lamps for Projector Purposes – Type MB/D	CJ4
Mercury Lamps for Projector Purposes – Type ME/D	CJ5
Mercury Lamps for Long Wave U.V. – Type MBW (Blacklight)	CJ6
Miniature Mercury Lamps for Long Wave U.V. – Types M1 and M2	CJ7
Mercury Lamps for Short Wave U.V. – Type MBL/D	CJ8
Mercury Iodide Lamp – Type MBIL/H	CJ9
Compact Source Mercury Iodide Lamp for Projector Purposes	CJ10/11

Compact Source Xenon Lamp – Type XE/D	CJ12
Compact Source Xenon Lamp – Type XE/D	CJ13
Compact Source and Linear Source Xenon Lamp – Type XB	CJ13
Pulsed Xenon Arc Lamps	CJ14
Germicidal Tubes	CJ15
Neon High Intensity Obstruction Light	CJ16
Xenon Flash Tubes	CJ17
Xenon Flash Tubes	CJ18

Hytek lamps

Mercury lamps for projector purposes — Type MB/D

Supply voltage 200/250 AC.

Description

Mercury vapour discharge lamps with quartz arc tubes loaded below 100w/cm. of arc length and operating at pressures of 8/10 atmospheres.

The arc tubes are mounted in tubular outer bulbs, and the lamps are designed for vertical burning cap down.

Restrictions in the arc tube ensure a stabilised and accurately focussed linear light source for projection purposes.

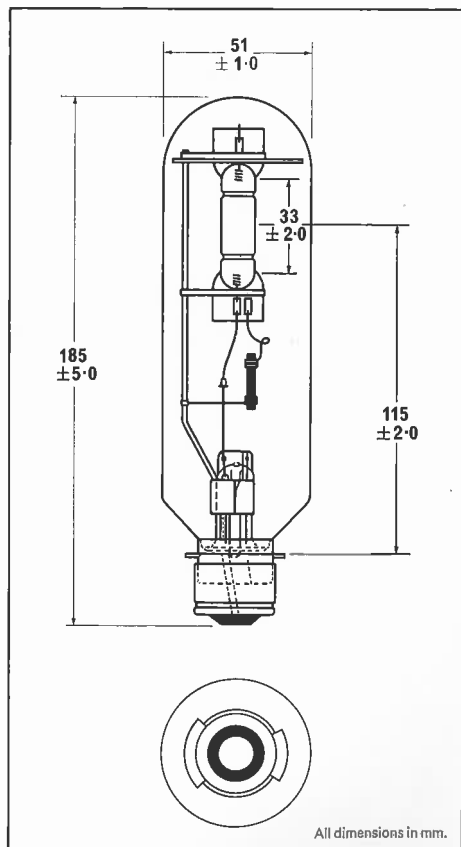
Lamps

The lamps require control gear consisting of a choke and power factor correction capacitor. For details of control gear see catalogue page CD33.

Typical application

Optical instruments requiring accurate optical control e.g. spectroscopes, comparators, and other 'slit' instruments.

Ref. No.	Watts	Arc Length	Cap	Lamp Operating		Starting Current	Design Average Lumens	Life Hrs.	Price
91-1159	125	33 ± 2	P28/25	110/140	1.15	2.0-1.5	4,000	1,500	£3 16 0



All dimensions in mm.

Hytek lamps

Mercury lamps for projector purposes — Type ME/D

Supply voltage 200/250.

Description

Mercury vapour discharge lamps with quartz arc tubes loaded above 100w/cm of arc length and operating at a pressure of about 30 atmospheres.

The arc operates between solid tungsten electrodes providing a compact light source of high brightness. In the 250w ratings the quartz arc tube is enclosed in a metal case with clear apertures or with a quartz window to enable short wave U.V. to be utilised from the lamp, or with a glass window where short wave U.V. is not required. Alternatively the quartz arc tube is enclosed in a tubular glass outer bulb.

The 1,000w rating is a bare quartz arc tube.

Lamps may be operated on DC or AC supplies in

conjunction with appropriate control gear. For AC supplies this consists of a choke and power factor correction capacitor. In addition the 1,000w lamp utilises a starting capacitor in series with a push button switch. For DC operation of 250w lamps a choke and series resistance are required, the choke being retained for starting purposes. The 1,000w lamp on DC operation requires a series resistance, the lamp being started by means of a Tesla coil. For details of control gear see catalogue page CD33.

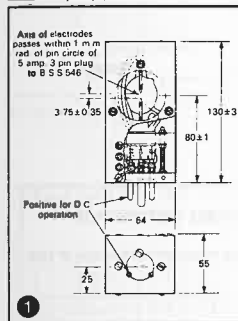
The lamps are designed for burning in the vertical position.

Typical applications

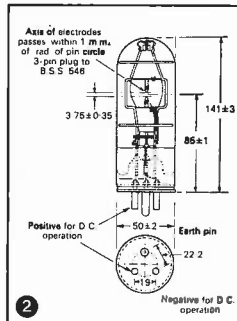
Monochrome slide and film projectors. Film printing. Projection microscopes. Profile projectors.

Lamps

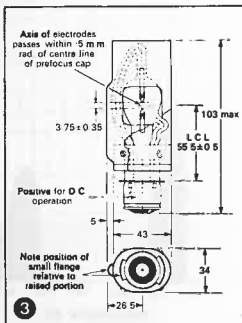
Ref. No.	Watts	Arc Length mm	Cap	Outer Casing	Illus.	Lamp Operating Volts	Amps.	Starting Current Amps.	Max. Brightness Stilbs	Mean HCP	Life Hrs.	Price
94-0001	250	3.75	3-pin	Metal Box Glass Window	1	60/75	3.7/4.6	4/5	20,000	1,300	500	£22 11 0
94-0006	250	3.75	3-pin	Metal Box Quartz Window	1	60/75	3.7/4.6	4/5	20,000	1,300	500	£30 3 0
94-0061	250	3.75	3-pin	Tubular Glass Bulb	2	60/75	3.7/4.6	4/5	20,000	1,300	500	£16 15 0
94-0101	250	3.75	P28/25	Oval Metal Case	3	60/75	3.7/4.6	4/5	20,000	1,300	500	£23 17 0
94-0151	1,000	6.5	Cylindrical with Disc	—	4	60/75	16/18	20/22	40,000	7,000	500	£72 5 0



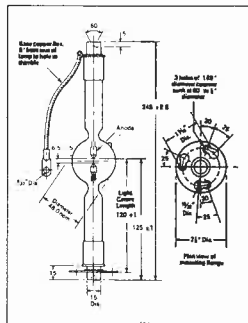
3-PIN BOX TYPE LAMP 250w



LAMP WITH TUBULAR GLASS ENVELOPE 250w



PREFOCUS LAMP 250w



LAMP WITH TAG/LEAD CONNECTION 1000w

All dimensions in mm.

Hytek lamps

Mercury lamp for long wave U.V. —Type MBW (Blacklight)

Supply voltage 200/250 AC.

Description

Mercury vapour discharge lamps with quartz arc tubes loaded below 100w/cm of arc length and operating at pressures of 8/10 atmospheres. The quartz arc tube is enclosed in a pear shaped outer bulb of Woods glass which absorbs virtually all radiation from the arc tube other than that in the long wave U.V. of predominantly 365 Nanometers, little visible light is emitted. The lamp is thus eminently suitable as a source of long wave U.V. radiation to excite fluorescence in

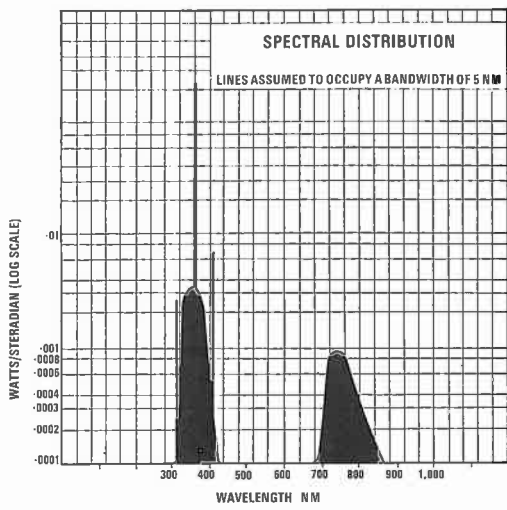
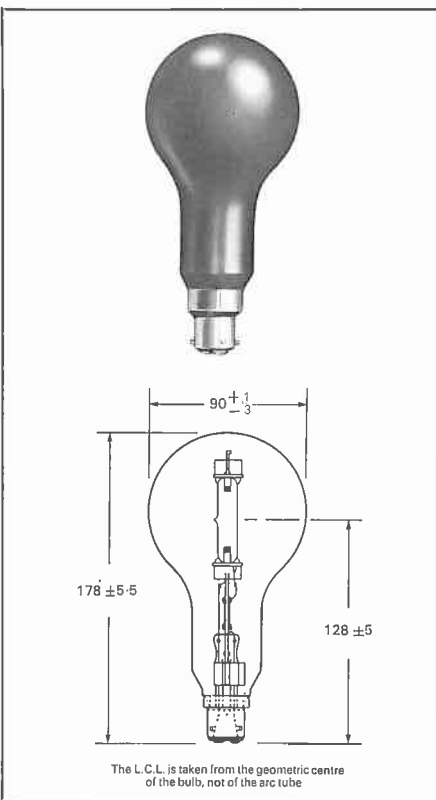
susceptible substances.
The lamp is designed for operation on 200/250v AC supplies with suitable control gear in the form of a series choke and power factor correction capacitor. It will operate in any position. For details of control gear see catalogue page CD33.

Typical applications

As a source of long wave U.V. for bacteriological, mineralogical and forensic investigations. In connection with fluorescent pigments for various detection methods and for special effects in entertainments and shop window lighting.

Lamps

Ref. No.	Watts	Cap	Lamp Operating		Starting Current	Life Hrs.	Price	
			Volts	Amps.				
91-6217	125	B22/31 x 30 3-pin	110/140	1.15	2.0/1.5	1,500	£3	2 0



All dimensions in mm.

Hytek lamps

Miniature mercury lamps for long wave U.V. — Types M1 and M2

Description

Low pressure discharge in mercury vapour between electrodes in a tubular glass envelope, these lamps provide both U.V. and visible radiation especially useful in providing excitation of fluorescent materials at low illumination levels. The M1 lamp is designed for operation on 24v DC supplies with suitable series resistances, and the M2 type is designed for

200/250v AC supplies with suitable control gear either in the form of a choke or series resistance. For details of control gear see catalogue page CD32. The lamps operate in any position.

Typical application

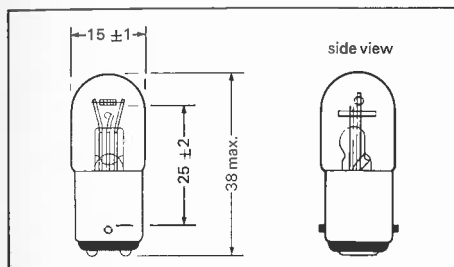
As a source of long wave U.V. for the excitation of low lumen levels of fluorescent pigments in display work.

Lamps

Type	Ref. No.	Rating*	Supply Volts	Cap	Filament Current	Max. Arc Current	Life Hrs.	Price
M1	98-9001	4-5w	22 DC Min	S.B.C.	0.8 Amp	0.75 Amp	200	£3 18 0
M2	98-9002	4-5w	200/250 AC	S.B.C.	—	0.5/1.5 Amp	200	£3 18 0

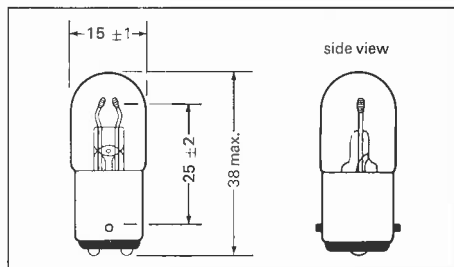
*At 0.75 Amp.

Mercury discharge tube M.1



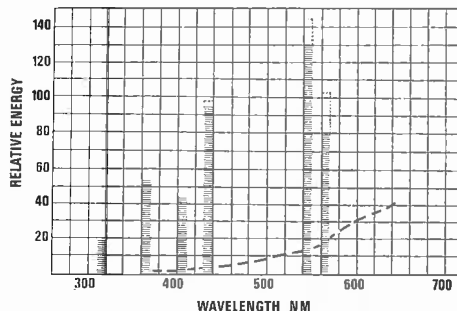
All dimensions in mm.

Mercury discharge tube M.2



APPROXIMATE SPECTRAL ENERGY DISTRIBUTION FOR M.1 AND M.2 MERCURY DISCHARGE TUBES

(Principal mercury lines shown as 10NM, wide.)



Hytek lamps

Mercury lamp for short wave U.V. — Type MBL/D

Supply voltage 200/250.

Description

Mercury discharge lamps with bare quartz arc tubes loaded below 100w/cm of arc length and operating at a pressure of 8/10 atmospheres. The lamp transmits both long wave and short wave U.V. as well as visible light. Perforated diaphragms mounted above the electrodes ensure a stabilised and accurately focussed linear light source for optical purposes.

The lamp is designed to operate in the vertical cap

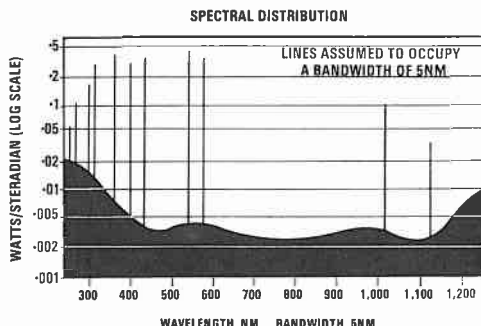
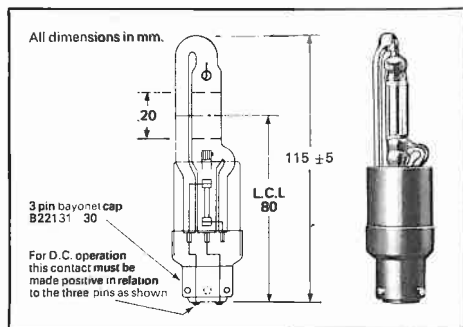
down position on 200/250v AC and DC supplies with suitable control gear. For AC operation this consists of a series choke and power factor correction capacitor. For DC operation, a series choke and a series resistor are required together with a quick break switch for starting purposes. For details of control gear see catalogue page CD32.

Typical application

As a source of short wave U.V. in measuring instruments e.g. spectral photometers.

Lamps

Ref. No.	Watts	Arc Length mm	Cap	Lamp Operating Volts	Amps	Starting Current Amps	Max. Brightness Stilbs	Life Hrs	Price
91-9006	125	20	B22/31 x 30 3-pin	110	1.25	3.0	800	1,000	£15 6 0



Hytek lamps

Mercury iodide lamp—Type MBIL/H*

Supply voltage 240—Life 3,000 hours.

Description

A mercury iodide lamp with a quartz tube loaded below 100w/cm. arc length at a pressure of 8/10 atmospheres.

The lamp is for use in OD.0750 floodlight fitting only and the data for the lamp in this fitting is as below:—

Lighting design lamp lumens	60,000
Lamp operating position—horizontal	$\pm 20^\circ$
Total circuit watts per fitting	900
Circuit power factor (lagging)	0.80
Mains current at 240v	4.7 Amps

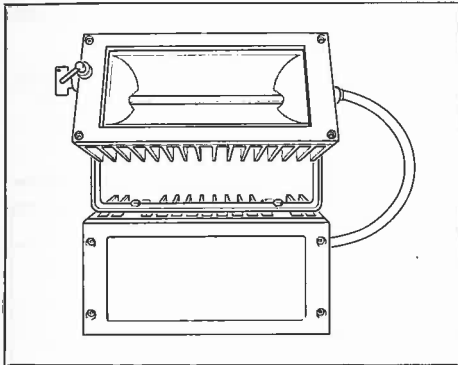
Application

The lamp is an integral part of the OD.0750 floodlight which is primarily used for high tower floodlighting applications outdoors. For further details see catalogue page CC18.

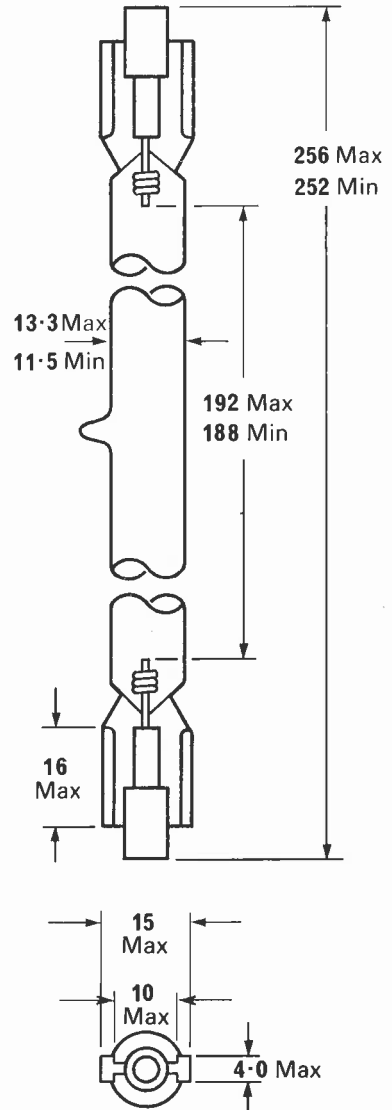
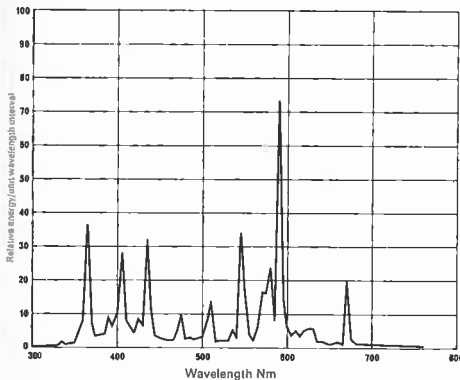
Watts	Lamp Ref. No.	Price	Std. Pack
750	91-7461	£9 10 0	1

The lamp is not subject to purchase tax.

OD.0750 fitting with 750w lamp and gear



Spectral distribution diagram for 750w mercury iodide lamp



All dimensions in mm.

Hytek lamps

Compact source mercury iodide lamp for projector purposes

Description

The 400 watt compact source iodide lamp is a new design of projector lamp giving white light of good colour rendering properties at an efficiency of 80 l/w for 100 hours. The source size is approximately 9mm x 5mm and the brightness is about 8,000 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.

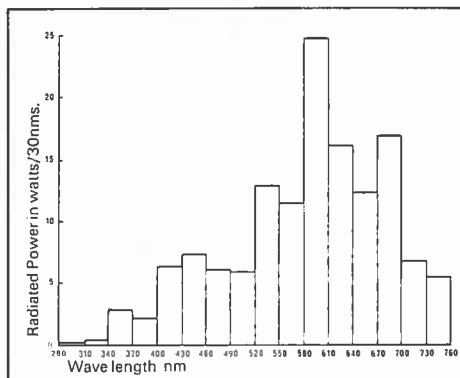
The lamp is somewhat unconventional in appearance. It is extremely rugged. The small total physical size and the ability to operate it in any position ensures that the lamp can be readily fitted into existing equipment and simplifies the design of new equipment. The single ended construction and the degree of prefocusing provided means that lamp replacement is straightforward.

Applications

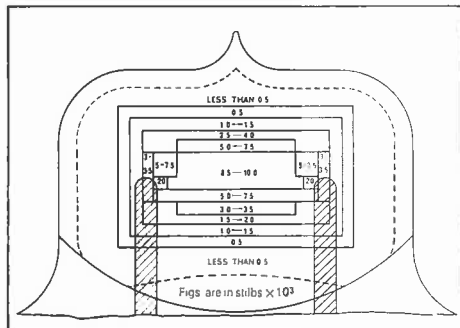
The major advantage of this lamp is its high efficiency, combined with its robustness, simplicity, small size and relatively low power consumption.

In general, considerations of source size, lamp size, lamp rating and efficiency indicates that it can be used in applications which at present use 100v-240v hard glass filament projector lamps of 250w-1,000w rating to give a substantial advantage in terms of either increased light output or a reduction in input power and heat.

Typical spectral power histogram for the 400w compact source iodide lamp



Typical brightness distribution diagram

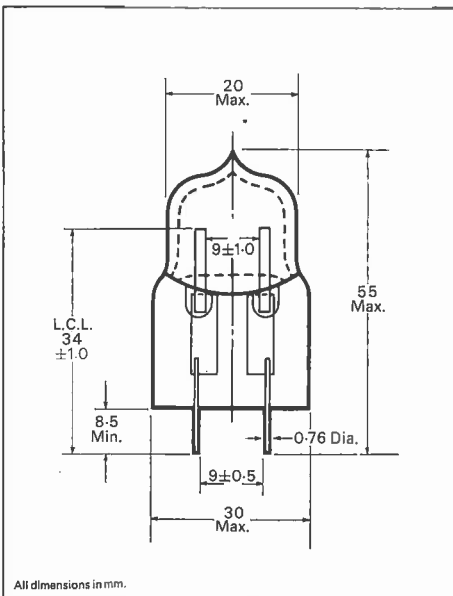


Control gear

The lamp is designed for operation with control gear consisting of a choke, capacitor and starter switch which gives a high-voltage, high frequency pulse. For further details see catalogue page CD35. Lampholder L1101 designed for use with the lamp is shown on page CD41.

Lamp Ref. No. 99-0201—Price £5 16 0.

FOR ADDITIONAL INFORMATION ON THIS LAMP—SEE OVERLEAF.



All dimensions in mm.

Electrical characteristics

Supply Volts AC	240
Arc Watts	400
Arc Volts	100
Arc Current (amps)	5
Run up Time (secs.)	30
Re-starting Time (mins.)	3/5

Physical dimensions (in millimetres)

Arc Length	9 ± 1.0
Arc Size	9×5
Overall Length (max.)	55
L.C.L.	34 ± 1
Diameter (max.)	30
Pin Length (min.)	8.5
Pin Spacing	9.0 ± 0.5
Pin Diameter	.76

Luminous characteristics

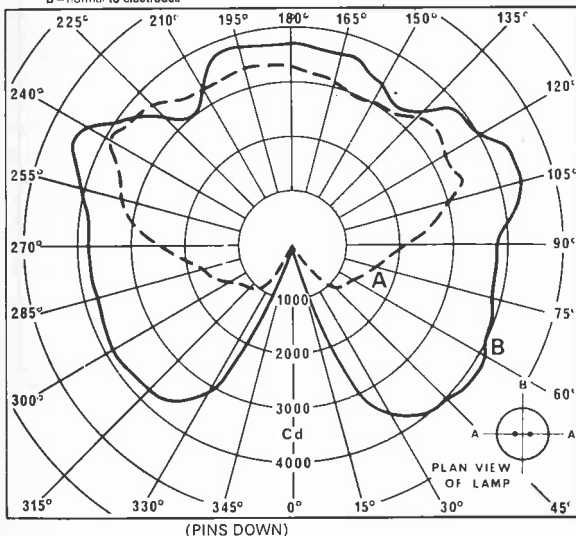
Initial Lum. Eff. (min.)	80 lumens/watt
Lumen Maintenance	90%
Colour Rendering	Good
Chromaticity Co-ordinates	$x = .433, y = .382$

Life (normal objective)—100 hours

Operating position—universal

Typical Candlepower Distribution in vertical planes

A — through electrodes
B — normal to electrodes



Hytec lamps

Compact source xenon lamps—Type XE/D

Description

Xenon compact source discharge lamps consist of an arc burning between electrodes of tungsten in a high pressure of pure xenon contained in a quartz bulb.

The high brightness light source emits virtually continuous radiation, extending from the ultra-violet through the visible into the infra-red. The approximate colour temperature is 5,600°K., similar to noon sunlight.

All lamps require a starter unit to strike the arc. In addition AC lamps require control gear in the form of a series inductance and a power factor correction capacitor, while DC lamps require series resistances.

Alternatively the DC lamps may be run off AC supplies using a rectifier ballast unit.

All starters require a 200/250v 50c/s 2 amp supply.

For further details of control gear and lamphousings see catalogue pages CD34 & 35.

Application

High speed photography and cinematography

Colour matching

Fadeometer testing

Graphic arts

Optical instruments

Laboratory and general scientific purposes.

Lamps

Rating Watts	Ref. No.	Supply Volts	Arc size mm	Lamp Operating Volts	Amps	Lumens	Luminance*	Life Hrs.	Nett Price†
250	98-0352	65 Min. DC	3 x 2	16.5	15	5,000	11,000	1,500	£27 10 0
250	98-0351	200/250 AC	3 x 2	16	17	5,000	10,000	500	£22 0 0
500	98-1002	65 Min. DC	5 x 3	22	23	12,000	20,000	1,000	£72 1 0
500	98-1001	200/250 AC	5.5 x 3	20	27	11,000	11,000	500	£51 14 0
2Kw	98-1506	65 Min. DC	4.5 x 4	25	80	70,000	120,000	1,000	£123 4 0
2Kw	98-1503	35 Min. DC	7.5 x 4	27	74	64,000	67,000	1,000	£123 4 0

*Luminance = Average luminance of brightest circle of 2mm diam. in candelas/sq. cm.

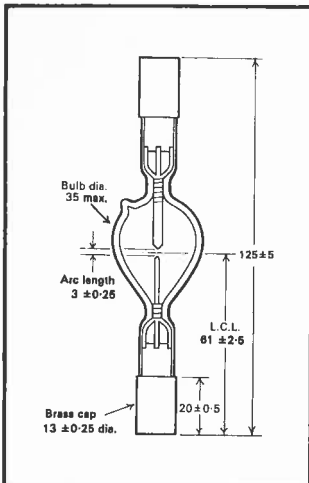
†Not subject to discounts.

Position of burning: Vertical $\pm 15^\circ$ except for 2Kw 3 electrode lamp which burns vertically or horizontally $\pm 15^\circ$.

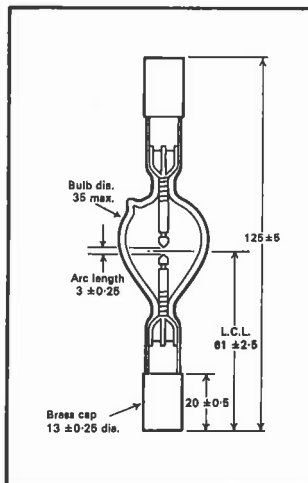
Caps: All lamps are fitted with special cylindrical caps. Lamps of 500w and 2Kw have a cone centre for mounting, and a flexible lead.

FOR ADDITIONAL INFORMATION ON THESE LAMPS—SEE OVERLEAF.

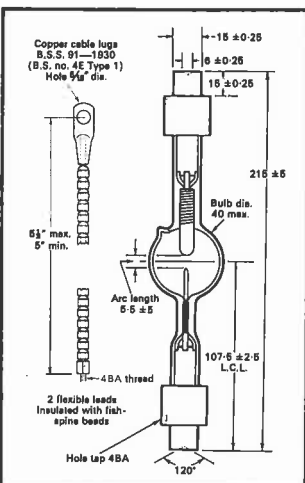
250w/DC



250w/AC



500w DC



All dimensions in m.m. unless otherwise stated.

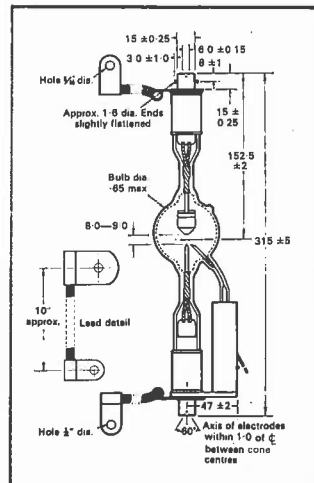
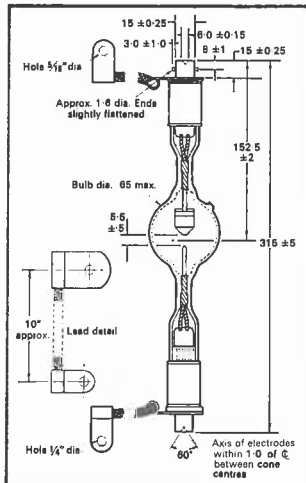
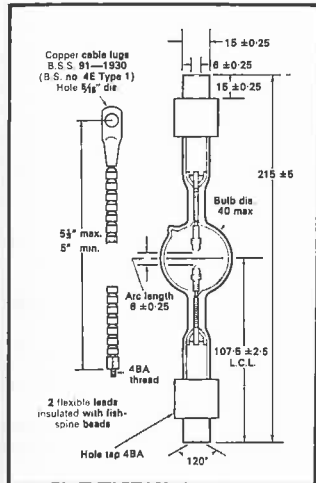
Hytek lamps

Compact source xenon lamps—Type XE/D

500w/AC

2Kw2 Electrode

2Kw DC 3 electrodes



All dimensions in mm. unless otherwise stated

Linear source xenon lamps—Type XB

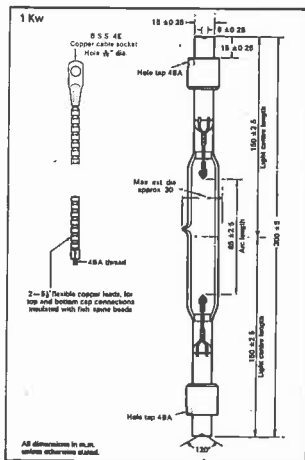
Description

Linear source xenon lamps consist of an arc burning between tungsten electrodes operating in an atmosphere of pure xenon contained in a tubular quartz bulb. The spectrum of the radiation is virtually continuous extending from the ultra-violet through the visible into the infra-red. The colour of the visible radiation is very similar to noon sunlight with a colour temperature of approximately 5,600°K. Light output may be modified over a wide range without appreciably altering the colour of the light by adjusting the power input.

The lamps require a starter unit to initiate the arc, and a series inductance and power factor correction capacitor are also required. For further details see catalogue page CD34.

Application

High speed photography and cinematography
Colour matching
Fadometer testing
Graphic arts
Optical instruments
Laboratory and general scientific purposes.



All dimensions in mm. unless otherwise stated.

Lamps

Rating	Ref. No.	Supply Volts	Arc Length (mm)	Lamp Operating		Lumens	Life	Net Price
				Volts	Amps			
1 Kw	98-0125	200/250v 50c/s	85 ± 2.5	42	25	22,000	500	£61 12 0†

†Not subject to discount.

Position of burning: vertical ± 15°.

Caps: Special cylindrical caps with a cone centre for mounting, and a flexible lead.

Hytek lamps

Pulsed xenon arc

Description

These pulsed xenon arc lamps consist of an arc between tungsten electrodes operating in an atmosphere of pure xenon contained in a tubular quartz bulb. Until recently, the standard light source for copyboard illumination in photo reproduction has been the open carbon arc. Over the last two or three years special discharge lamps have been utilised, particularly pulsed xenon arc lamps.

The spectrum of the radiation is virtually continuous extending from the ultra-violet through the visible into the infra-red. The colour of the visible radiation is very similar to noon sunlight having a colour temperature of 5,600°K. Light output is controlled by the gear which pulses the lamp for a specific period. Application : Photo-reproduction.

Control gear

The lamp is designed to operate with control gear which provides a 100 c.p.s. pulse rate for a pulse width of one millisecond at half peak. Suitable gear for operating the lamp is manufactured by Thymer, Ascorlux & Littlejohn. Other companies have gear under development.

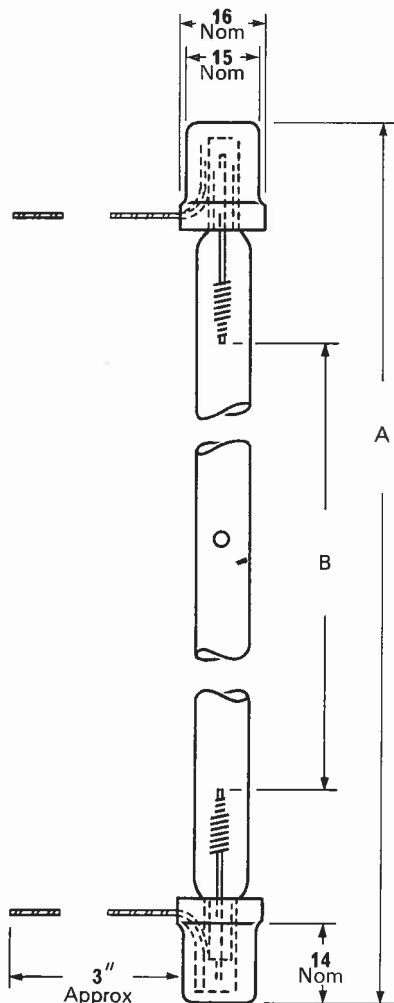
Lamp specification

Type:	Pulsed Xenon Arc.
Cap:	Ceramic with flexible leads.
Operating Position:	Universal.
	Forced cooling essential.
Arc Voltage:	110 ± 5.
Supply Voltage:	200/250v 50Hz.
Pulsed Frequency:	100Hz.
Design Wattage:	1,500 and 3,000.
Efficiency:	25 lumens per watt.
Life:	500 hours.
Arc Length:	310mm nominal.

Lamp prices

Rating	Lamp Ref. No.	Price
1,500w	98-2015	£9 18 0
3,000w	98-2030	£12 2 0

Pulsed Xenon Discharge lamp



Rating	A	B
1500W	392 ± 3	310 Approx
3000W	695 ± 3	615 Approx

All dimensions in m.m. unless otherwise stated.

Fluorescent type germicidal tubes

These lamps are in standard fluorescent lamp sizes. The lamps are made without phosphors, and the tube is a special glass which transmits short wave U.V. Approximately 95% of the radiated energy is in the 253.7 Nanometers band which is near the maximum for germicidal effectiveness. The lamps are useful for the irradiation of airborne bacteria or moulds, and also for the irradiation of surfaces on which bacteria and/or mould spores have collected.

A publication 'Germicidal Radiation and its Application' is available on request.

Typical application

For hospitals etc. : for sterilising purposes.

Tubes

Rating	Lamp Ref. No.	Nominal Dimensions		Price		Std. Pack
		ins.	mm.			
15w	92-2013	18" x 1"	457 x 25	£2 18 0	25	
30w	92-4540	3' x 1"	914 x 25	£4 10 0	25	

Long wave ultra-violet fluorescent type tubes

The germicidal tubes shown are short wave ultra-violet sources. Long wave ultra-violet fluorescent type tubes as below are also available and details are given on pages CE6 & CE12.

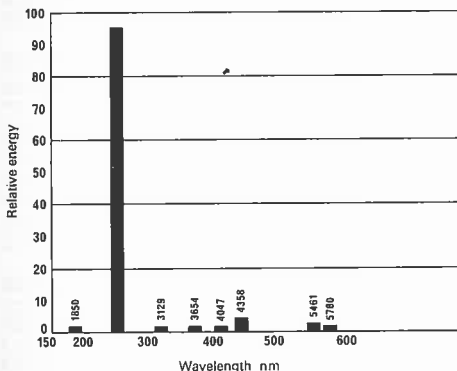
Type	Rating
Ultra-Violet (Non filter)	5 ft. 65/80w, 4 ft. 40w, 2 ft. 20w, 1 1/2 ft. 15w, 12 in. 8w.
Blacklight blue U-V	4 ft. 40w, 1 1/2 ft. 15w, 12 in. 8w, 9 in. 6w, 6 in. 4w.

Fittings and control gear

All tubes on this page go into standard fittings and operate on standard fluorescent control gear.

The 30w tube operates on 200/250v AC and the 15w on 100/250v AC. Alternatively two 15w tubes may be run as a series pair on 200/250v AC.

Spectral energy distribution germicidal tube



Hytek lamps

Linear neon high intensity obstruction lights

Lamp reference number 98-4501

Description

The 160w linear neon high intensity obstruction light is designed to give red light at high efficiency, with long life and low power consumption. The main spectral energy line is at 640 nanometres, and the lamp is designed to operate either as a static burning source or, by means of an electronic switching unit, to operate as an occulting beacon which flashes up to 180 per minute.

Applications

For use on masts, chimneys or buildings which constitute a hazard or obstruction to military and civil aviation.

Fittings and control gear

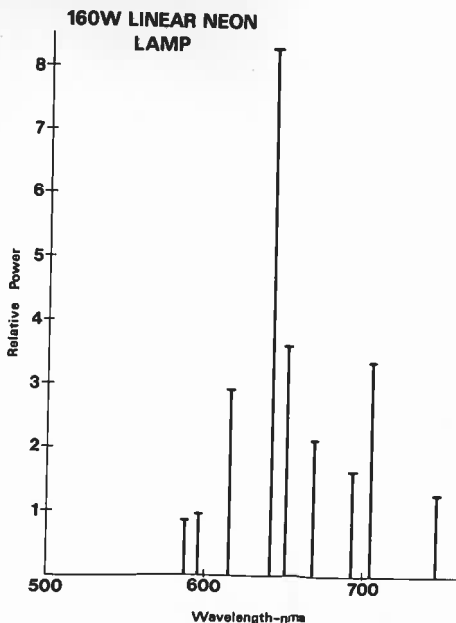
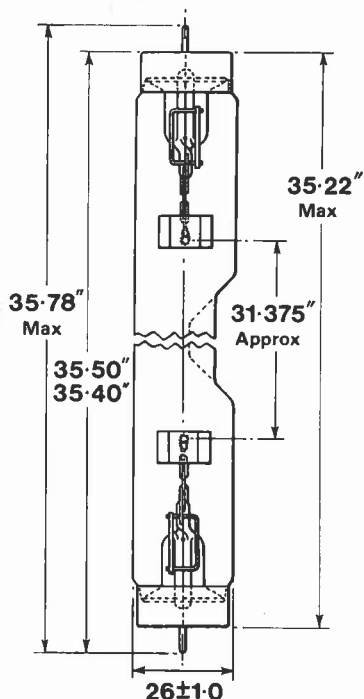
Details of a specially designed fitting unit including control gear, are available on request. Details of a separate flashing control unit are also available.

Lamp data

Watts 160
Nominal arc current 1.33 amps
Nominal arc voltage 157
Initial light output 2,000 lumens
Minimum light output at 4,000 hours 1850 lumens
Rated life continuous burning 4,000 hours
Rated life flashing 30 million flashes

Dimensions

Diameter 26 mm \pm 1 mm
Overall length 35.78 in maximum
Caps G 13/10 x 24 - bi-pin
Price CJ16 Price on application



Hytek lamps

Xenon flash tubes

General Description

A Xenon flash tube is a light source giving a pulse of high intensity and extremely short duration. The flash times are in the range millionths and thousandths of a second depending on the type. There are generally two categories, namely 'Single Flash' types in which maximum intensity flashes can be repeated at fairly long intervals, e.g. one every ten seconds, and 'Stroboscopic' types where somewhat lower power flashes can be repeated at intervals up to, for example 300 per second.

Applications

High Speed Photography
Optical Instruments
Stroboscopes
Laboratory and general scientific purposes.

Circuits and Control Gear

The performance characteristics can be varied over a relatively wide range by the design of the circuit, usually of the electronic type.

This control gear is not supplied by Thorn Lighting Limited but details of suitable circuits are obtainable on request.

PHYSICAL CHARACTERISTICS

Single Flash Types

Type	Lamp Ref. No.	Overall Length mm	LCL mm	Arc Length mm	Bulb Dia. mm	Anode	CAPS Cathode	Trigger	Nett Price
SF7	97-2507	122 ± 5	65 ± 5	30	26 ± 2	ES	9mm ferrule	9mm ferrule	£14 9 0
FA32	97-2032	65 max.	—	50	7	fly leads	fly leads	fly leads	£1 18 0
FA10	97-2010	50 ± 2	—	—	8	2 pin 2 amp	2 pin 2 amp	nickel strip	£2 6 0
FA5	97-2005	148 ± 4	74 ± 2	5	32 ± 2	9mm ferrule	9mm ferrule	9mm ferrule	£18 12 6
FA7	97-2007	80 ± 2*	45*	—	31	UX 4 pin —35mm	UX 4 pin —35mm	UX 4 pin —35mm	£7 9 0

Stroboscopic Types

Type	Lamp Ref. No.	Overall Length mm	LCL mm	Bulb Dia. mm	Cap	Nett Price
FA7S-1	97-2108	90 ± 2*	45*	31 ± 2	UX 4 pin 35mm	£7 17 6
FA2S	97-2102	90 ± 5*	45*	46 ± 2	3 pin 5 amp	£6 40 6

*Excluding cap pins.

Note: Single flash types FA7 and FA32 can also be used as stroboscopic tubes.

ELECTRICAL CHARACTERISTICS

Single Flash Types

Type	Operating Voltage	Max. Loading Watt/Secs.	Max. Repetition Rate at max. Loading	Trigger Volts	Approx. Peak Lumens	Flash Duration microsecs ½ peak	Flash Duration microsecs ¾ peak
SF7	7500	56	1 in 10 secs.	12Kv	100 million	3	1
FA32	500	65	1 in 10 secs.	8Kv	5.5 million	800	360
FA10	250	100	1 in 10 secs.	4Kv	3.5 million	2620	865
FA5	1000/2000	150	1 in 10 secs.	12Kv	2 million	↑	↑
FA7	2500	200	1 in 10 secs.	4Kv	24.5 million	800	290

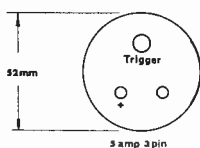
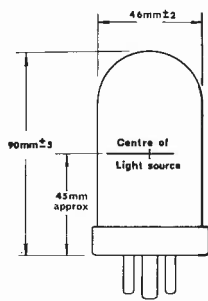
↑ 1 millisecond to ½ peak.

Stroboscopic Types

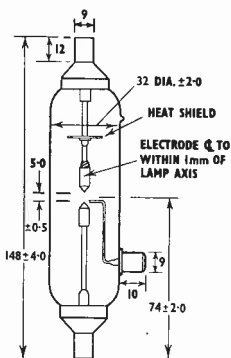
Type	Operating Volts	Max. Power Watts	Max. Repetition Rate	Trigger Volts
FA32	500	4	50/sec.	8Kv
FA7S-1	2000	12	300/sec.	4Kv
FA7	2500	14	50/sec.	4Kv
FA2S	2000	36	300/sec.	8Kv

Hytek lamps

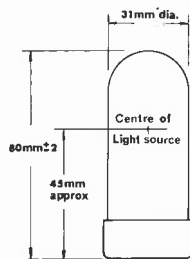
Xenon flash tubes



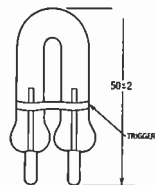
FA 25



FA 5

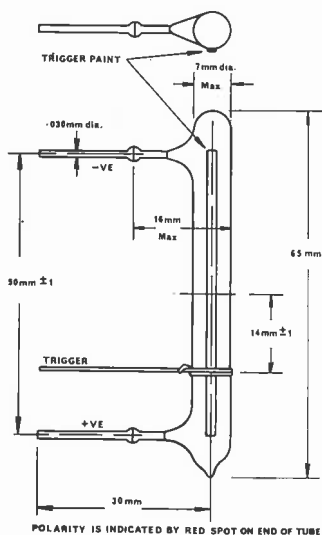


FA 7

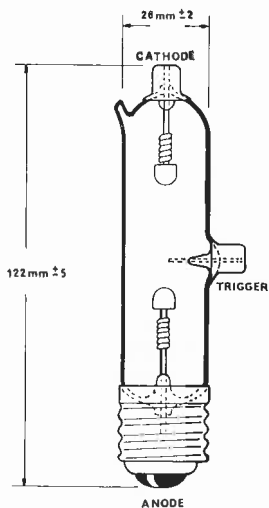


Pins fit 2 pin 2 amp socket

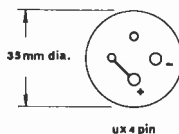
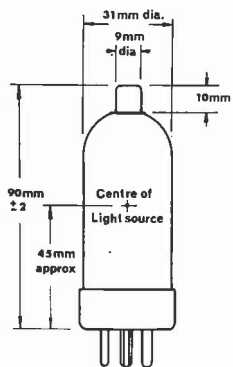
FA 10



FA 32

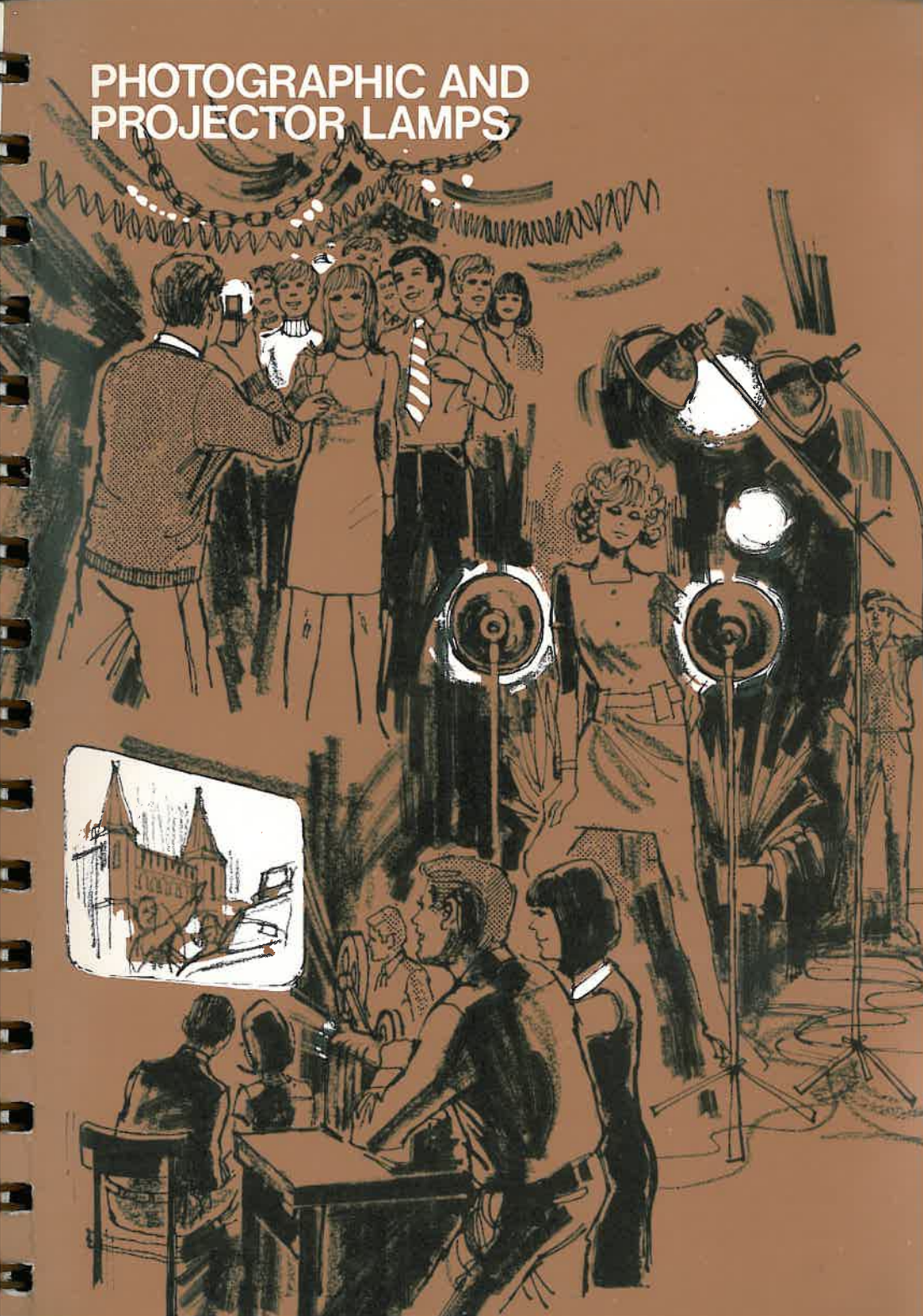


SF 7



FA 7S-1

PHOTOGRAPHIC AND PROJECTOR LAMPS



Photographic lamps

Introduction

Photographic lamps made by Thorn Lighting Ltd. are second to none. Constant research in the Thorn laboratories 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 or change of colour of the light throughout life. You may be certain that there is a lamp in our range for every photographic purpose.

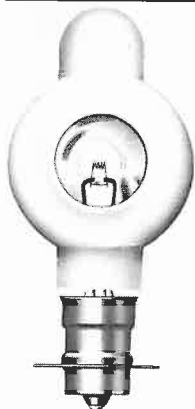
Prices shown are those recommended as appropriate in UK for retail sale.

Nett user prices are those recommended as appropriate in UK for direct sale to users.

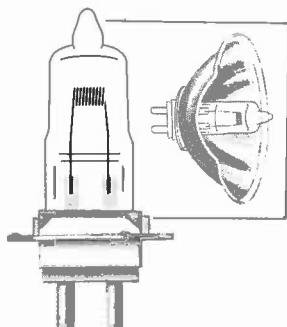
Photographic lamp section

	Page
A1 class 50–100w (illustrations of A1/17, A1/45, A1/215)	CK4
A1 class 150w (illustrations of A1/184, A1/232)	CK5
A1 class 200–500w (illustrations of A1/201, A1/205, A1/223, A1/227)	CK6
A1 class 600–1200w (illustrations of A1/228, A1/223, A1/207, A1/53)	CK7
F class Micro-projector lamps (illustrations)	CK8
G class Exciter lamps (illustrations of G40, G29 and G27)	CK9
Classes E & T lamps (illustrations of E3 and T3)	CK10
Photographic lamps classes P1, P2, P3 and P4 (illustrations of P1/11, P1/12, P1/13, P1/1, P1/6, and P3/3)	CK11, 12, 13, 14
Flash bulbs and flash cubes (illustrations of AG1 B type 1 B and flash cube)	CK15, 16

atlas Projector lamps



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.



A1/229 8v 50w Tungsten Halogen Projector Lamp
The A1/229 has been designed particularly for Super 8 cine projectors. It is a complete optical system comprising a tungsten halogen lamp integral with an aluminised 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

Lamp Ref.	Volts	Watts	Dimensions mm			Nominal Lumens	Base	Filament Formation	Average Life (Hours)	Special Features	Trade Price		P.T.		
			Maximum Diameter	Maximum Overall Length	Light Centre Length						£	s	d	£	s
A1/17	8	50	33x34	96	47±0.5	—	Small Pre-Focus P30s	M	25	A.B.H.I.	1	0	6	11	0
A1/19	115	50	26	78	35±1	800	S.B.C. BA15d	H2	50	A	17	6	9	5	
A1/202	8	50	31	96	47±0.1	—	Small Pre-Focus P30s	M	25	A.B.F.I.	1	0	6	11	0
A1/220	12	50	11.5	44	30±0.25	1400	2Pin G6.35	M	50	E.J.	18	9	10	1	
A1/225	240/250	50	26	67	35±1	675	S.C.C. BA15s	J3	50	A.K.	18	9	10	1	
A1/229	8	50	50	42	—	—	2 Pin G6.35	M	50	E.I.J.L.N.	2	3	9	1	3
A1/230	12	75	50	42	—	—	2 Pin G6.35	M	50	E.I.J.M.N.	2	13	9	1	8
A1/4	12	100	26	135	55±0.5	2700	Med Pre-Focus P28s	L2	25	A	1	4	9	13	3
A1/4	115	100	26	135	55±0.5	1850	Med Pre-Focus P28s	J3	25	A	1	4	9	13	3
A1/4	240, 250	100	26	135	55±0.5	1650	Med Pre-Focus P28s	J4	25	A.C.	1	4	9	13	3
A1/21	115	100	26	78	35±1	1850	S.C.C. BA15s	J3	25	A	11	0	5	11	
A1/21	240, 250	100	26	78	35±1	1650	S.C.C. BA15s	J4	25	A.C.	11	0	5	11	
A1/45	12	100	11.5	45	18±0.2	3000	2 Pin Pre-Focus PG22	M	50	E.J.	1	4	9	13	3
A1/121	115	100	26	78	35±1	1850	S.B.C. BA15d	J3	25	A	16	6	8	10	
A1/121	240, 250	100	26	78	35±1	1650	S.B.C. BA15d	J4	25	A.C.	16	6	8	10	
A1/186	12	100	26	78	35±1	2800	S.C.C. BA15s	M	25	A	10	9	5	9	
A1/193	12	100	26	78	29.5±0.5	2800	BA21s 4 Pin	M	25	—	15	3	8	2	
A1/203	12	100	41x50	95	44±0.5	—	Small Pre-Focus P35s	M	25	A.B.H.I.	1	11	6	16	11
A1/209	12	100	11	45	24 ⁺⁰ _{-0.5}	2900	2 Pin Ceramic G6.35	M	50	E.J.	1	4	0	13	3
A1/215	12	100	11	44	30±0.25	2900	2 Pin G6.35	M	50	E.J.	1	1	6	11	6
A1/231	12	100	50	42	—	—	2 Pin G6.35	M	50	E.I.J.M.N.	2	13	9	1	8

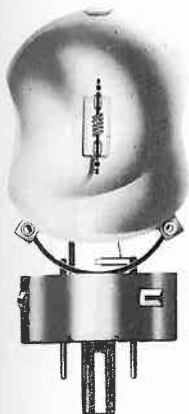
A Obscured top
B Forced cooling necessary. Maximum bulb wall temperature 500°C
C Voltage range in 10 volt steps
D Offset filament
E Operates on Tungsten Halogen principle
F Internal integral aluminised mirror
G Internal Integral dichroic mirror
H Silvered bulb
I Due to integral mirror nominal lumens 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, Mirror rim to film gate 32 mm
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
A1/45 — base down to horizontal
A1/209 — base down to horizontal
A1/230 — horizontal
A1/215 — base down to horizontal



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.



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

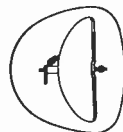
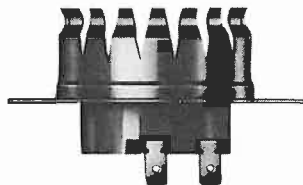


Diagram of A1 24 showing flattened front face of bulb.



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.

CLASS A1 150 WATT

Lamp Ref.	Volts	Watts	Dimensions mm			Nominal Lumens	Base	Filament Formation	Average Life (Hours)	Special Features	Trade Price			P.T. £ s d
			Maximum Diameter	Maximum Overall Length	Light Centre Length						£	s	d	
A1/18	21.5	150	39	81	39.7±0.1	—	Tru-Focus G17q	K	25	B.F.I.	1 16	0	19	9
A1/24	125	150	39×42.5	81	39.7±0.1	—	Tru-Focus G17q	K	25	B.D.F.I.	1 17	3	1	0
A1/167	240, 250	150	26	90	35±1	2700	S.C.C. BA15s	J4	25	A.C.	11	9	6	4
A1/176	240, 250	150	26	135	55.5±0.5	2700	Med. Pre-Focus P28s	J4	25	A.C.	1	0	9	11
A1/182	240, 250	150	30	76	35.5±1	2700	Tru-Focus G17q	J4	25	A.C.	16	6	8	10
A1/184	21.5	150	39	91	39.7±0.1	—	Tru-Focus G17q	K	25	A.B.F.I.	1 12	9	17	7
A1/194	21.5	150	48	86	39.7±0.1	—	Tru-Focus G17q	K	25	B.F.I.	1 16	0	19	9
A1/210	21.5	150	39	91	39.7±0.1	—	Tru-Focus G17q	K	25	B.D.F.I.	1 12	9	17	7
A1/211	21.5	150	39	91	39.7±0.1	—	Tru-Focus G17q	K	25	A.B.G.I.	2	1	3	1
A1/212	24	150	33	103	39.7 ⁺⁰ _{-1.5}	4100	Tru-Focus G17q	M	25	A.B.D.	18	3	9	9
A1/216	24	150	13.5	47	32 ⁺⁰ _{-0.25}	4700	2 Pin G6.35	M	50	E.J.	1	4	9	13
A1/232	15	150	50	42	—	—	2 Pin G6.35	M	50	E.I.J.M.N.	3	4	6	11
A1/234	15	150	11.5	45	30±0.25	4650	2 Pin G6.35	M	50	E.J.	1	4	9	13

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. Mirror rim to film gate 32 mm
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 8 or 7 amp H.B.C. fuse necessary

Operating position base down with the following exceptions:
A1/211 — base down to horizontal
A1/216 — base down to horizontal
A1/234 — base down to horizontal
A1/194 — horizontal
A1/232 — horizontal

atlas Projector lamps

A1/223 Tungsten Halogen Lamp
The A1/223 is intended for use in 35mm slide and 16mm cine 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 The 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 WATTS

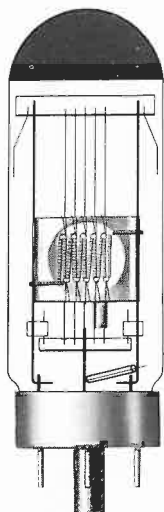
Lamp Ref.	Volts	Watts	Dimensions mm			Nominal Lumens	Base	Filament Formation	Average Life (Hours)	Special Features	Trade Price			P.T.		
			Maximum Diameter	Maximum Overall Length	Light Centre Length						£	s	d	£	s	d
A1/25	115	200	26	90	35±1	4400	S.B.C. BA15d	J2	25	A.B.	1	4	9	13	3	
A1/26	115	200	26	90	35±1	4400	S.C.C. BA15s	J3	25	A	1	2	9	12	2	
A1/26	240, 250	200	26	90	35±1	4000	S.C.C. BA15s	J5	25	A.C.	1	2	9	12	2	
A1/5	50	250	33	135	55.6±0.5	6000	Med Pre-Focus P28s	A4	50	A	1	9	0	15	7	
A1/5	115	250	33	135	55.5±0.5	5600	Med Pre-Focus P28s	J3	50	A	1	9	0	15	7	
A1/5	240, 250	250	33	135	55.5±0.5	5200	Med Pre-Focus P28s	J5	50	A.C.	1	9	0	15	7	
A1/223	24	250	13.5	55	33±0.25	8250	2 Pin G6.35	M	50	E.J.	1	11	9	17	0	
A1/235	24	250	13.5	56	23±0.2	8700	2 Pin Pre-Focus PG22	M	50	E.J.	1	17	9	—		
A1/6	115	300	33	135	55.5±0.5	7400	Med Pre-Focus P28s	J3	25	A.B.	1	9	0	15	7	
A1/6	240, 250	300	33	135	55.5±0.5	6900	Med Pre-Focus P28s	J5	25	A.B.C.	1	9	0	14	1	
A1/37	115	300	28	105	35±1	7400	S.C.C. BA15s	J3	25	A.B.	18	3		9	9	
A1/37	240, 250	300	28	105	35±1	6900	S.C.C. BA15s	J5	25	A.B.C.	18	3		9	9	
A1/178	240, 250	300	33	103	39.7±1	6900	Tru-Focus G17q	J5	25	A.B.C.	1	1	6	11	6	
A1/183	240, 250	300	31	81	35±1	6900	S.C.C. BA15s	J5	25	A.B.C.	18	3		9	9	
A1/201	240, 250	300	33	103	39.7±1	—	Tru-Focus G17q	J5	25	A.B.C.O.P.	1	1	6	11	6	

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

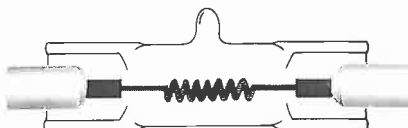
J Minimum bulb wall temperature 350°C
K Dual Voltage
L External integral aluminised mirror
M External integral dichroic mirror
N Light centre length not specified
O Mirror rim to film gate 32 mm
P Internal proximity reflector
Q Due to internal reflector nominal lumens not shown
Q Linear overhead projector 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:
A1/233 - Base down to horizontal
A1/235 - Base down to horizontal



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 & 500 WATTS

Lamp Ref.	Volts	Watts	Dimensions mm			Nominal Lumens	Base	Filament Formation	Average Life (Hours)	Special Features	Trade Price			P.T.		
			Maximum Diameter	Overall Length	Light Centre Length						£	s	d	£	s	d
A1/227	120	420	13.5	65.5	—	11000	Double Ended R7s	K	75	E.J.Q.	2	8	9	—	—	—
A1/7	115	500	33	135	55.5±0.5	12500	Med Pre-Focus P28s	E8	25	A.B.	1	18	0	1	0	5
A1/7	240, 250	500	33	135	55.5±0.5	11400	Med Pre-Focus P28s	E11	25	A.B.C.	1	18	0	1	0	5
A1/8	115	500	66	135	55.5±0.5	11500	Med Pre-Focus P28s	A6	50	—	1	13	0	—	—	—
A1/8	240, 250	500	66	135	55.5±0.5	11000	Med Pre-Focus P28s	A8	50	C	1	13	0	—	—	—
A1/42	240, 250	500	66	130	75±5	11000	E.S. E27s	A8	50	C	1	13	0	—	—	—
A1/46	115	500	38	142	95±0.5	12500	3 Pin B22d-3	E8	25	B.D.	2	3	6	—	—	—
A1/47	240, 250	500	33	130	59±0.5	11400	B.H. P38s	E11	25	A.B.C.	2	1	3	1	2	1
A1/180	240, 250	500	33	103	39.7±1	11400	Tru-Focus G17q	E11	25	A.B.C.	1	10	3	16	3	3
A1/205	240, 250	500	33	103	39.7±1	—	Tru-Focus G17q	E11	25	A.B.C.O.P.	1	10	3	16	3	3
A1/237	240	500	13.6	76.0	—	12500	Special 2 Pin Polarised	H2	50	B.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

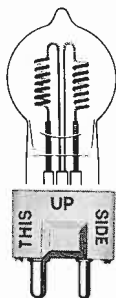
J Minimum bulb wall temperature 350°C
K Dual Voltage
L External integral aluminised mirror
M External integral dichroic mirror
N Light centre length not specified
Mirror rim to film gate 32 mm
O Internal proximity reflector
P Due to internal reflector nominal lumens not shown
Q Linear overhead projector 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:
A1/227 — Horizontal
A1/46 — Base up

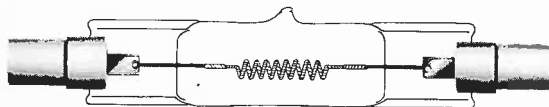
atlas

Projector lamps



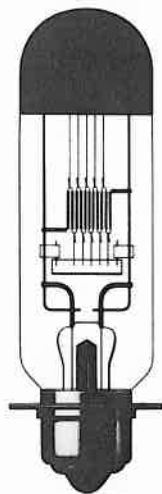
A1/233 240v 650w Tungsten Halogen Overhead Projector Lamp

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 DYR.



A1/228 240v 600w Tungsten Halogen Overhead Projector Lamp

A mains 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

CLASS A1 600, 650 & 750 WATTS

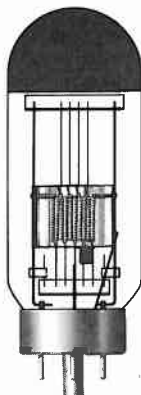
Lamp Ref.	Volts	Watts	Dimensions mm			Nominal Lumens	Base	Filament Formation	Average Life (Hours)	Special Features	Trade Price £ s d	P.T. £ s d
			Maximum Diameter	Maximum Overall Length	Light Centre Length							
A1/228	120	600	13.5	93.5	—	16500	Double Ended R7s	K	75	E.J.Q.	3 10 9	—
A1/228	240/250	600	13.5	93.5	—	15000	Double Ended R7s	K	75	E.J.K.Q.R.	3 10 9	—
A1/233	240/250	650	22.5	63	36.5 ± 1	16500	Polarised 2 Pin GX9.53	J2	50	E.J.K.R.	3 10 9	—
A1/9	115	750	39	140	55.5 ± 0.5	19500	Med Pre-Focus P28s	E8	25	A.B.	2 3 9 1	3 6
A1/9	240, 250	750	39	140	55.5 ± 0.5	18000	Med Pre-Focus P28s	E10	25	A.B.C.	2 3 9 1	3 6
A1/52	115	750	37	135	81 ± 0.5	19500	3 Pin Ring P39s	E8	25	B.D.	2 9 6	—
A1/53	115	750	39	135	59 ± 0.5	19500	Large B.H. P46s	E8	25	A.B.	1 11 3	—
A1/53	240, 250	750	39	135	59 ± 0.5	18000	Large B.H. P46s	E10	25	A.B.C.	1 11 3	—
A1/206	115	750	39	118	39.7 ± 1	—	Tru-Focus G17q	E10	25	A.B.O.P.	2 9 6 1	6 3
A1/206	240, 250	750	39	118	39.7 ± 1	—	Tru-Focus G17q	E10	25	A.B.C.O.P.	2 9 6 1	6 3

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

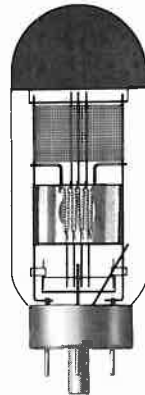
J Minimum bulb wall temperature 350°C
K Dual Voltage
L External integral aluminised mirror
M External integral dichroic mirror
N Light centre length not specified.
Mirror rim to film gate 32mm
O Internal proximity reflector
P Due to internal reflector nominal lumens not shown
Q Linear overhead projector 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:
A1/228 - Horizontal
A1/52 - Base up
A1/233 - Base down to horizontal



A1/207



A1/208

CLASS A1 1000 & 1200 WATTS

Lamp Ref.	Volts	Watts	Dimensions mm			Nominal Lumens	Base	Filament Formation	Average Life (Hours)	Special Features	Trade Price			P.T.		
			Maximum Diameter	Maximum Overall Length	Light Centre Length						£	s	d	£	s	d
A1/11	115	1000	66	245	84±0.5	25000	Large Pre-Focus P40s	E6	100	—	2	9	6	—	—	—
A1/11	240, 250	1000	66	245	84±0.5	23000	Large Pre-Focus P40s	E8	100	C.	2	9	6	—	—	—
A1/57	115	1000	66	240	120±5	25000	G.E.S. E40s	E6	100	—	2	5	6	—	—	—
A1/57	240, 250	1000	66	240	120±5	23000	G.E.S. E40s	E8	100	—	2	5	6	—	—	—
A1/58	240, 250	1000	66	140	55.5±0.5	25500	Med Pre-Focus P28s	E10	25	A.C.	2	13	9	—	—	—
A1/59	115	1000	39	140	55.5±0.5	27500	Med Pre-Focus P28s	E8	25	A.B.	2	11	3	1	7	6
A1/59	240, 250	1000	39	140	55.5±0.5	25500	Med Pre-Focus P28s	E10	25	A.B.C.	2	11	3	1	7	6
A1/91	115	1000	39	135	59±0.5	27500	Large B.H. P46s	E8	25	A.B.	2	11	3	—	—	—
A1/91	240, 250	1000	39	135	59±0.5	25500	Large B.H. P46s	E10	25	A.B.C.	2	11	3	—	—	—
A1/188	240, 250	1000	66	245	87±0.5	23000	Large Pre-Focus P40s	E10	50	C.	2	5	6	—	—	—
A1/207	115	1000	39	118	39.7±1	—	Tru-Focus G17q	E8	25	A.B.O.P.	1	16	3	—	—	—
A1/207	240, 250	1000	39	118	39.7±1	—	Tru-Focus G17q	E10	25	A.B.C.O.P.	1	16	3	—	—	—
A1/191	110	1200	39	140	55.5±0.5	36000	Med Pre-Focus P28s	E8	10	A.B.	2	11	3	—	—	—
A1/197	115	1200	39	135	59±0.5	36000	Large B.H. P46s	E8	10	A.B.	2	11	3	—	—	—
A1/208	115	1200	39	118	39.7±1	—	Tru-Focus G17q	E8	10	A.B.O.P.	2	14	6	—	—	—

- 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 Due to internal reflector nominal lumens not shown
R 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



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

CLASS G EXCITER LAMPS

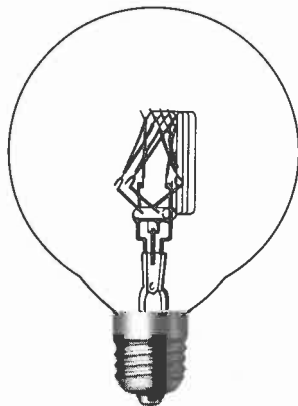
Lamp Ref.	Volts	Amps	Dimensions mm			Nominal Lumens	Base	Filament Formation	Average Life (Hours)	Special Features	Trade Price s	P.T. s
			Maximum Diameter	Maximum Overall Length	Light Centre Length							
G/19	4	0.75	16.5	50	31.8±0.8	30	S.C.C. BA15s	G	50	A	9 9	
G/27	4	0.75	16.5	50	28.5±0.5	30	Small Pre-Focus P30s	L	50	A	9 9	
G/29	4	0.75	16.5	50	28.5±0.5	30	Small Pre-Focus P30s	G	50	A	9 9	
G/31	4	0.75	25.5	51	28.5±0.5	30	Small Pre-Focus P30d	G	50	F	11 6	
G/4	6	1.0	16.5	42	21.5±0.5	80	S.C.C. BA15s	L	100	A	10 9	
G/5	6	1.0	16.5	50	28.5±0.5	80	Small Pre-Focus P30s	L	100	C	10 9	
G/40	6	1.0	16.5	57	28.5±0.5	80	Small Pre-Focus P30s	G	100	B	9 0	
G/8	8	4.0	26	78	44.5±0.5	650	S.C.C. BA15s	G	100	D	10 9	
G/30	6	5.0	18.5	54	28±1	525	S.C.C. BA15s	G	100	B	12 6	
G/45	6	5.0	19	54	23±0.5	450	Small Pre-Focus P30s	G	100	B	13 0	
G/11	10	5.0	26	78	40.5±0.5	1050	S.C.C. BA15s	G	100	B	12 3	
G/10	10	5.0	26	78	37.3±0.5	1050	Small Pre-Focus P30s	G	100	B	13 0	
G/22	4	6.0	26	52	31.5±1	400	S.C.C. BA15s	L	100	E	9 9	
G/23	5	6.5	26	78	41±0.5	700	Small Pre-Focus P30s	L	50	D	12 3	

Operating positions

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

atlas

Projector lamps



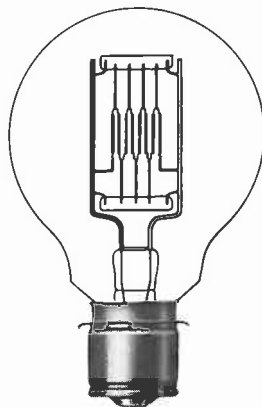
E/3 Class E Epidiascope Lamps

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.



T/3 Class T Theatre Spotlights

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 E EPIDIASCOPE LAMPS

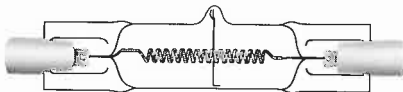
Lamp Ref.	Volts	Watts	Dimensions mm			Nominal Lumens	Base	Filament Formation	Average Life (Hours)	Special Features	Trade Price			P.T.
			Maximum Diameter	Maximum Overall Length	Light Centre Length						£	s	d	£ s d
E/1	240, 250	500	102	145	60 ± 0.5	10300	Med Pre-Focus P28s	C8	100	A.E.	1	11	0	—
E/3	240, 250	500	102	145	85 ± 5	10300	E.S. E27s	C8	100	A.E.	1	10	3	—

CLASS T THEATRE SPOTLIGHT LAMPS

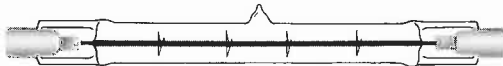
Lamp Ref.	Volts	Watts	Dimensions mm			Base	Average Life (Hours)	Special Features	Trade Price			P.T.
			Maximum Diameter	Maximum Overall Length	Light Centre Length				£	s	d	£ s d
T/3	240, 250	250	78	124	55.5 ± 0.5	Med Pre-Focus P28s	200	C.E.	1	0	9	7 5
T/1	240, 250	500	100	140	55.5 ± 0.5	Med Pre-Focus P28s	200	C.E.	1	9	0	—
T/2	240, 250	1000	132	200	87 ± 0.5	Large Pre-Focus P40s	200	C.E.	1	17	3	—
T/4	240, 250	1000	39	155	89 ± 0.5	Med Pre-Focus P28s	200	D.E.	2	17	9	—
T/6	240, 250	1000	102	140	55.5 ± 0.5	Med Pre-Focus P28s	200	B.E.	3	6	0	—

Operating positions

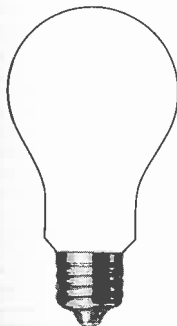
- A Vertical base down ±45°
- B Vertical base down ±75°
- C Vertical base down ±90°
- D Vertical base up ±15°
- E Voltage range in 10 volt steps



P1/11 240v 800w Tungsten Halogen Photographic Lamp



P1/12 240v 1000w Tungsten Halogen Photographic Lamp

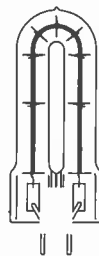


P1/1

Especially suitable for indoor photography. The P1/1 will enable approximately 200 feet 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 3,400 K



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



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 15 hours.

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

Lamp Ref.	Volts	Watts	Max. Dia.	Dimensions mm		Max. Overall Length	Nominal Lumens	Base	Average Life (Hours)	Special Features	Trade Price		P.T.
				Max. pin protuberance from bulb axis	Nominal Contact Length						£	s	
P1/8	30	250	12	10.2	74.9 ± 1.6	78.3	80	8000 Double ended R7s	12	A	2	7	17
*P1/1 (PP.1)	240/250	275	61	—	—	—	108.5	8300 B.C. B22d	3	B.C.	2	6	—
*P1/1 (PP.1)	240/250	275	61	—	—	—	110	8300 E.S. E27s	3	B.C.	2	6	—
*P1/6 (PP.3R)	240/250	375	97	—	—	—	133.5	13000 B.C. B22d	4	B.E.F.H.	11	9	—
*P1/6 (PP.3R)	240/250	375	97	—	—	—	135	13000 E.S. E27s	4	B.E.F.H.	11	9	—
*P1/2 (PP.2)	240/250	500	82	—	—	—	164.5	15000 B.C. B22d	6	B.C.	6	3	—
*P1/2 (PP.3)	240/250	500	82	—	—	—	166	15000 E.S. E27s	6	B.C.	6	3	—
P1/9	120	650	15	11.4	74.9 ± 1.6	78.3	80	21000 Double ended R7s	12	A	2	8	6
P1/13	240/250	650	23	—	—	—	65	20000 2 Pin Ceramic G6.35	15	A.B.I.	2	1	9
P1/11	240/250	800	15	11.4	74.9 ± 1.6	78.3	80	24500 Double ended R7s	12	A.B.K.	3	14	9
P1/12	240/250	1000	12	10.2	121.7 ± 1.6	125.1	127	33000 Double ended R7s	15	A.B.K.	2	18	0
P1/15	240/250	1000	23	—	—	—	65	32000 2 Pin Ceramic G6.35	12	A.B.K.	3	6	0
P1/16	115	850	23	—	—	—	65	28000 2 Pin Ceramic G6.35	15	A.K.			

- A Operates on Tungsten Halogen principle
- B Dual Voltage
- C Voltage range in 10 volt steps
- D Pearl bulb
- E Satin etched bulb
- F Reflector Photoflood
- G Reflector Photo Spot
- H Light output measured in Centre Beam Candles

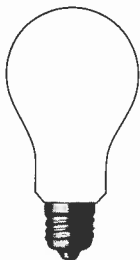
- I 3 or 4 amp H.B.C. fuse necessary
- K 5 or 6 amp H.B.C. fuse necessary
- L 6 or 7 amp H.B.C. fuse necessary

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.

*These new catalogue numbers should now be used, since they replace the previous series numbers as shown in brackets.

atlas

Photographic lamps



P3/3 High Intensity Enlarging Lamps (Optical)
These lamps have opalised bulbs and give a brilliant white light evenly diffused.



P4/1 Photographic Lamp

The P4/1 tungsten halogen photographic lamp is produced with the exacting requirements of the professional photographer in mind.

The design allows the lamp to be operated at various applied voltages, so permitting a selection of colour temperatures.

The P4/1 may be used with all types of sensitized materials, monochrome or colour film stock, and is particularly suitable for graphic arts, studio and industrial photographic applications.

CLASS P2 PHOTOGRAPHIC LAMPS FOR USE WITH MONOCHROME AND COLOUR FILM BALANCED FOR 3400°K

Lamp Ref.	Volts	Watts	Dimensions mm				Nominal Lumens	Base	Average Life (Hours)	Special Features	Trade Price		P.T.
			Max. Dia.	Max. pip protuberance from bulb axis	Nominal Contact Length	Max. Clearance Length	Max. Overall Length				£	s d	
*P2/1 (PPB.1)	115	500	89	—	—	—	183-5	12500 E.S. E27s	100	D	18	3	—
*P2/1 (PPB.1)	240, 250	500	89	—	—	—	183-5	11000 E.S. E27s	100	C.D.	18	3	—
*P2/4 (RF.2)	115	500	127-5	—	—	—	182	7200 E.S. E27s	20	E.F.H.	14	6	—
*P2/4 (RF.2)	240, 250	500	127-5	—	—	—	182	7200 E.S. E27s	12	C.E.F.H.	14	6	—
*P2/5 (RS.2)	115	500	127-5	—	—	—	182	12000 E.S. E27s	20	E.G.H.	14	6	—
*P2/5 (RS.2)	240, 250	500	127-5	—	—	—	182	12000 E.S. E27s	12	C.E.G.H.	14	6	—
P2/10	240, 250	625	12	10-2	185-7 ± 1-6	189-1	190	15500 Double ended R7s	200	A.B.I.	4	1	6
P2/6	120	650	15	11-4	74-9 ± 1-6	78-3	80	17000 Double ended R7s	100	A	2	9	6
P2/7	240, 250	1000	12	10-2	185-7 ± 1-6	189-1	190	26000 Double ended R7s	200	A.B.K.	4	2	6
P2/8	120	1000	16-5	12-25	—	—	112-5	29000 Special double ended	100	A	3	14	9
P2/12	240, 250	1250	12	10-2	185-7 ± 1-6	189-1	190	33500 Double ended R7s	200	A.B.L.	4	2	6
P2/13	240, 250	800	15-0	11-4	74-9 ± 1-6	78-3	80-0	24000 Double ended R7s	50	A.B.K.	—	—	—

A Operates on Tungsten Halogen principle

B Dual Voltage

C Voltage range in 10 volt steps

D Pearl bulb

E Satin etched bulb

F Reflector Photofool

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

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.

*These new catalogue numbers should now be used, since they replace the previous series numbers as shown in brackets.

CLASS P3 PHOTOGRAPHIC ENLARGER LAMPS HIGH INTENSITY

Lamp Ref.	Volts	Watts	Dimensions mm				Base	Average Life (Hours)	Special Features	Trade Price		P.T.
			Maximum Overall Length	Maximum Diameter	Maximum Diameter	Maximum Diameter				£	s d	
P3/3	240, 250	75	108-5	61	61	61	B.C. B22d	100	A.B.	2	9	1 6
P3/3	240, 250	75	110	61	61	61	E.S. E27s	100	A.B.	2	9	1 6
P3/4	240, 250	150	108-5	61	61	61	B.C. B22d	100	A.B.	3	9	2 0
P3/4	240, 250	150	110	61	61	61	E.S. E27s	100	A.B.	3	9	2 0

A Internally opalised bulb

B Voltage range in 10 volt steps

CLASS P4 PHOTOGRAPHIC FLOOD LAMP

P4/1	120	500	15-0	11-4	114-2 ± 1-6	117-0	117-6	8900	R7s	2000	A.B.N.	4	10	9	—
P4/1	185	1000	—	—	—	—	—	33000	—	12	A.B.L.N.	4	10	9	—

A Operates on Tungsten Halogen principle

B Dual Voltage

C Voltage range in 10 volt steps

D Pearl bulb

E Satin etched bulb

F Reflector Photofool

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

N Normal operation is at 120v to give 2850°K when required lamp may be operated at 185v to give 3400°K.

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.

*These new catalogue numbers should now be used, since they replace the previous series numbers as shown in brackets.

Full exposure data is printed on every flash carton.

Some features of Photo-Flashbulbs.

Blue Dot. The famous blue dot is a sensitive chemical on the inside of each Thorn flashbulb to tell you it's in perfect condition. Any defect turns the dot pink.

Zirconium Filling. The use of zirconium foil enables Thorn to pack more light into less space thus giving greater economy, greater efficiency and flexibility.

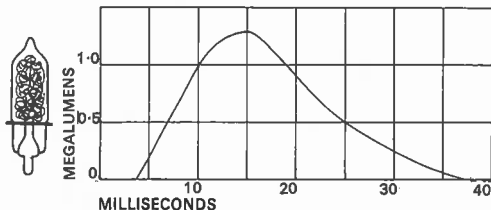
Precision Manufacture. Dependability is of prime importance in flash photography. With Thorn you can be sure of consistent high quality, thanks to precision manufacture and rigorous test standards.

Super AG1B Flashbulbs will work to perfection with a reflector only 2 inches in diameter. A must for the 'miniature' enthusiast. Many cartons can easily be carried in the pocket – so much more convenient.

Atlas Tru-Flash Type 1B/Mazdaflash MF1B

Specification

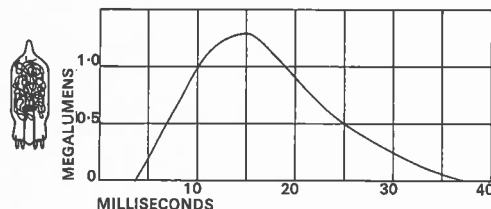
Class	MF
Colour of bulb	Blue
Total light output (lumen secs)	7500
Peak light output (megalumens)	0.45
Time to peak (m. secs)	13
Duration above $\frac{1}{2}$ peak (m. secs)	15
Voltage range	3-45
Max. bulb diameter (mm)	11.9
Max. overall length (mm)	40.5
Bulbs per pack	5
Bulbs per outer container	200
Price each	9d.
Colour code	Blue



Atlas Mini-Flash Super AG1B/Mazdaflash Super AG1B

Specification

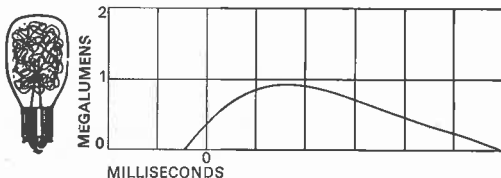
Class	MF
Colour of bulb	Blue
Total light output (lumen secs)	7500
Peak light output (megalumens)	0.45
Time to peak (m. secs)	13
Duration above $\frac{1}{2}$ peak (m. secs)	15
Voltage range	3-45
Max. bulb diameter (mm)	11.9
Max. overall length (mm)	33.3
Bulbs per pack	5
Bulbs per outer container	200
Price each	9d.
Colour code	Blue



Atlas Photo-Flash M3 and Mazdaflash M3

Specification

Class	M
Colour of bulb	Clear
Total light output (lumen secs)	16000
Peak light output (megalumens)	1.0
Time to peak (m. secs)	17
Duration above $\frac{1}{2}$ peak (m. secs)	15
Voltage range	3-45
Max. bulb diameter (mm)	22
Max. overall length (mm)	45
Bulbs per pack	6
Bulbs per outer container	180
Price each	1s. 8d.
Colour code	Red



atlas mazda

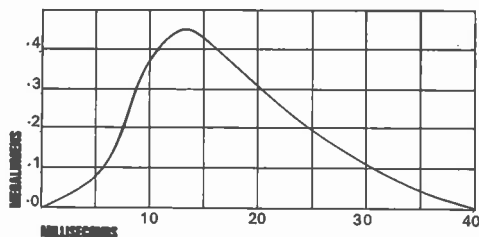
Flashcubes

Simple to fit on the camera – simple to remove, either manually or by automatic ejection, and 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 on the new Kodak Instamatic cameras. Four miniature blue bulbs, smaller in size than an AG1B, are enclosed in a plastic cube complete with a precision reflector for each individual bulb.

Flashcubes may be used with suitably designed cameras and adaptors, with X synchronization at shutter speeds up to 1/30 second and at all shutter speeds with M synchronization.



Exposure Data

ASA	12	25	40	100	160	320
Film Speed	to	to	to	to	to	to
	13	32	64	125	200	500

DIN	10	15	17	21	23	26
	to	to	to	to	to	to
	12	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 (m. secs)	13
Duration above half peak (m. secs)	15
Voltage range	3-45
Width (mm)	28.5
Overall length (mm)	35.5
Cubes per pack	3
Cubes per outer pack	36
Price per cube	3s. 9d.