



PHILIPS
LIGHTING

**Comprehensive
Handbook
1980**

**Including
Technical Section**

PHILIPS

Europe's No.1 Lightmaker



Europe's No 1 Lightmaker

PHILIPS LIGHTING



100 YEARS OF
ELECTRIC LIGHT
OCTOBER 1979

"The Lampmaker"
by the Dutch sculptress
Mrs. J de Wit-van Riemsdijk
stands in Eindhoven town
centre, Netherlands.

General Introduction

This catalogue lists and describes the fittings, lamps, equipment and accessories manufactured by the Lighting Division of Philips Electrical Limited.

It has been prepared to provide an easy to use ordering guide containing relevant information on each product. Products offered for sale may differ from those described or illustrated in this catalogue due to later production changes in specifications, components or place of manufacture. The contents of this catalogue are therefore not to be treated as representations as to the current availability of products as described or as to products actually offered for sale.

Product grouping

The products within this catalogue have been grouped into two main sections – Fittings and Lamps. Each section has then been divided into product application sections and finally into product ranges and individual types.

Indexes

An alphabetical index of fittings by catalogue numbers is to be found on pages (vii) to (ix) and a product applications index appears on pages (xi) to (xii).

Prices

The catalogue has been designed for use with the General Price List which contains a two-way index allowing the user to cross-refer from catalogue to price list and vice versa.

Further information

Further information is obtainable by contacting your local Philips sales office and quoting the literature reference number, where applicable, found at the bottom of the page in question.

All measurements are in millimetres unless otherwise stated.

Customer Service



Philips' efficient ordering and delivery service is available at the cost of a local telephone call. The main Sales Desks at Manchester and Croydon can be reached by 'out of area' telephone lines from all major conurbations. Telex is also installed on the sales desks – a telex is often cheaper than a telephone call.

Instant Sales information . . .



Large vehicle fleet for consistent delivery schedules.

Advanced computer system for quick reference to customers' needs.

Out of area telephone lines for good communication.

Box quantity orders to reduce stores and transit damage.

Local transport depots for personalised delivery service.

for the price of a local phone call



Philips Lighting have installed 'out of area' telephone lines allowing the Sales Desks to be contacted at the cost of a local call. A telex message is cheaper than a telephone call. Our telex machines are located on the Sales Desks.

Manchester Sales Desk
 Telex: 635276 Tel: 061-761-2321

Croydon Sales Desk
 Telex: 946443 Tel: 01-689-2166



Pallet modules for an efficiency bonus.
 Large central stores for good stock availability.

From a central stockpoint near Manchester, goods are moved along the motorways through 13 local London Carriers depots.

Post orders to
Manchester Sales Desk Whittle Lane
 Heywood Lancashire OL10 2SA
Croydon Sales Desk P.O. Box 298
 City House 420 London Road
 Croydon CR9 3QR

- | | |
|----------------------|---------------------|
| 1 Avonmouth | 8 Birch |
| 2 Cambridge | 9 Potters Bar |
| 3 St Leonards-on-sea | 10 Sywell |
| 4 Nottingham | 11 Sutton Coldfield |
| 5 Eastleigh | 12 Hamilton |
| 6 Belfast | 13 Washington |
| 7 Croydon | |

Demonstration Vehicle



Philips' giant lighting demonstration vehicle is equipped with working demonstrations of the very latest energy-saving lighting equipment. The vehicle can be seen during frequent tours of the United Kingdom, and is of interest to all sections of the lighting industry.

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COMMERCIAL INCANDESCENT FITTINGS

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*Royal Doulton Exhibition at the
Victoria & Albert Museum using
RCS 655 Two Circuit Track and
DRN 554 Spotlights.*

CI/SIB	(63.2)
UDC	696.6:628.976

MINISPOT DGN 490

40 Watt Adjustable Mini Spotlight

Small spotlight fitting which takes the new R16 lamp giving a well controlled spotlight beam of 40 Watts.

APPLICATIONS

Suitable applications include:

Domestic

- Bedhead lighting
- Pictures
- Work surface lighting
- Mirror lighting
- Localised lighting for reading or sewing

Commercial

- Hotel bedrooms – bedhead console, dressing table
- Reception display areas
- Atmosphere lighting for restaurants
- Jewellers display cabinets
- Local effects in museums and art galleries



INCANDESCENT FITTING

Handbook Ref.	1.1.1
To reorder this Data Sheet quote	9.79 PL 1295/2
Replaces	PL 1295/1

FEATURES

- Modern clean line styling ideally suited to contemporary decor.
- Compact and economic light source using the Philips new miniature 40 Watt reflector lamp R16.
- Suitable for wall and ceiling mounting, easily angled having 180° lateral and 90° vertical movement.
- The R16 Reflector lamp provides an excellent spot beam, ideal for domestic and semi display applications.
- A double insulated fitting, requiring only two core cable, no earthing necessary. Fewer connections means easier and cheaper installation.
- The smallness of the R16 lamp enables the fitting to be compact, neat and unobtrusive.
- Polycarbonate used for the base with aluminium lamp shield, finished white or brown. Robust in use.
- Black diaphragm inset to minimise reflected glare.
- Will fit to B.S. wiring box.
- Packed for Retail Trade in blister pack for easy display.
- The KombiPak includes a R16 40W reflector lamp, fixing screws and wall plugs.

MATERIALS & FINISH

- Lamp housing and base:** white or brown matt finish polycarbonate
- Lamp shield:** white or brown matt painted aluminium
- Baffle:** black polyamide
- Lampholder:** ceramic
- Lamp & Fitting:** Made in Holland

SPECIFICATION

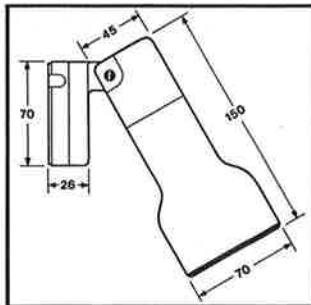
- Type complies with BS4533 and C.E.E. 25
- Class II electrical protection (double insulated)
- VDE Test House approval mark (West Germany)

To specify state:

Miniature double insulated spotlight fitting designed to incorporate a Philips 40W reflector lamp R16. Philips DGN490 Kombi.

RANGE OF OPERATION

For indoor use on 240V nominal supply.



All dimensions in mm



KombiPak for retail trade

ORDERING DATA

Catalogue No.	Description	Watts	Suitable for lamp types	Outer box qty.
DGN490/20 Kombi	White Minispot KombiPak complete with lamp and fixings	40W	R16	8
DGN490/42 Kombi	Brown Minispot KombiPak complete with lamp and fixings	40W	R16	8
Replacement lamps				
R16	240V 40W SES cap reflector lamp	—	—	25

CI/SIB
(63.2)UDC
696.6:628.976

DGN 491 MINISPOT

40W adjustable mini spotlight

Small indoor spotlight fitting in white or brown to take the new 40W bowl reflector lamp, complementing the DGN 490 Minispot fitting.

APPLICATIONS

Suitable applications include:

Domestic

- Stereo console lighting
- Bedhead lighting
- Pictures
- Work surface lighting
- Localised lighting for reading, sewing, etc.

Commercial

- Shop window or cabinet display
- Hotel bedrooms – bedroom console and dressing table
- Hotel reception display areas
- Localised spot lighting in museums, art galleries, restaurants and discotheques



Handbook Ref

1.1.2

To reorder this data sheet quote

9.79 PL1832/3

Replaces

PL1832/2

INCANDESCENT FITTING

FEATURES

- Miniature, clean styling, in conjunction with the new 40W bowl reflector lamp, make the fitting particularly suitable for complementing contemporary decor.
- Excellent field of display, with 180° lateral and 90° vertical adjustment.
- Class II electrical protection (double insulated – no earth required).
- Will fit to B.S. wiring box.
- Controlled narrow beam giving a well defined spot.
- Focussing adjustment gives the user control over the beam angle.
- Blister pack includes 40W bowl reflector lamp, fixing screws and wall plugs.

SPECIFICATION

- Type complies with BS 4533 and CEE 25
- Class II electrical insulation (double insulated)
- VDE Test House approval mark (W. Germany)

To specify state:

Miniature, adjustable, narrow beam spotlight fitting in white or brown polycarbonate taking 40W bowl mirrored lamp. Double insulated. Philips DGN 491 Kombi.

MATERIALS & FINISH

Body and base: White or brown matt-finished polycarbonate

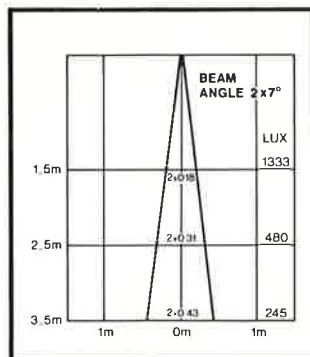
Reflector: Spun aluminium, brightened and anodised inside, white or brown satin finish outside.

Lampholder: Ceramic.

RANGE OF OPERATION

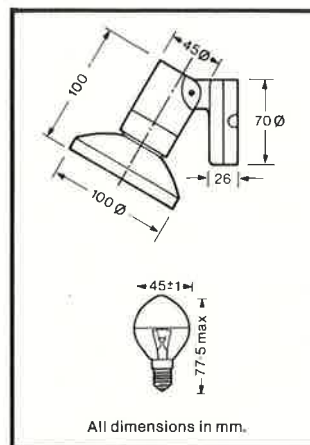
For indoor use on 240V nominal supplies.

BEAM ANGLE* DATA



*Nominal minimum beam angle measured between 50% intensity values.
Peak beam intensity 3000 cd.

DIMENSIONS



ORDERING DATA

Catalogue No.	Description	Watts	Suitable for lamp types	Outer Box qty.
DGN 491/20 Kombi	White Minislot KombiPak complete with lamp and fixings	40W	240/250V 40W SES Bowl Reflector Lamp	8
DGN 491/42 Kombi	Brown Minislot KombiPak complete with lamp and fixings	40W	240/250V 40W SES Bowl Reflector Lamp	8
Replacement Lamps				
240/250V 40W SES	Bowl Reflector Lamp	—	—	25

Please order in multiples of the box quantity.



KombiPak for Retail Trade

Made in Holland.

CI/SIB
(63.2)UDC
696.6: 628.976

W9600 ADJUSTABLE SPOTLIGHT

Indoor display fitting for reflector, pressed glass and bowl reflector lamps

The W 9600 together with its many attachments and forms provides a versatile range of display lighting in the traditional turned aluminium finish.

RANGE

The basic fitting is available in surface mounted (W 9600) or clamp version (W 9605) with the following attachments:

W 9601 Clear parabolic reflector for 100 Watt Bowl Reflector lamps.

W 9602/3/4 as above with Red, Yellow and Blue finish.

W9622 Screening ring. Use for eliminating sideways glare. Clips onto PAR 38 lamp.

APPLICATIONS

Applications include:

- Shop window display
- Bars, Pubs and Clubs
- Discotheques
- Boutiques
- Exhibitions
- Museums
- Churches



Handbook Ref.

1.1.3

To reorder this data sheet quote 9.79 PL 1708/2

Replaces PL 1708/1

FEATURES

- Philips focussing ring enables bowl reflector lamps in their parabolic reflectors to be focussed easily with one hand, allowing the size of the light-patch to be varied.
- The fitting can be rotated through 350° in the horizontal and 90° in the vertical giving a wide field of display.
- Robust design, with the long life knuckle joint which does not require locking.
- Attractive aluminium finish which blends with most decors.
- Will fit to B.S. wiring box.
- W9600 wired with two heat resistant leads with earth point on base plate.
- W9605 supplied with 2m flexible cable.

SPECIFICATION

- Type complies with BS 4533
- Class I Insulation (earth required).
- Easily adjustable spotlight fitting with alternate G-clamp version.
- Sturdy all aluminium construction with extruded barrel housing a ceramic E.S. lampholder pre-wired with silicone rubber insulated 0.75mm² conductors.

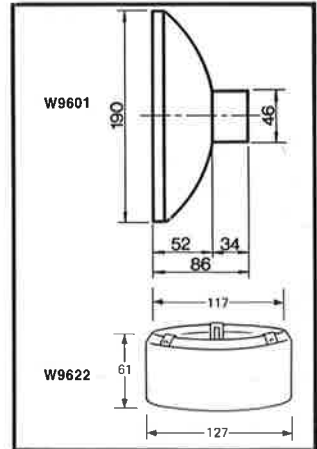
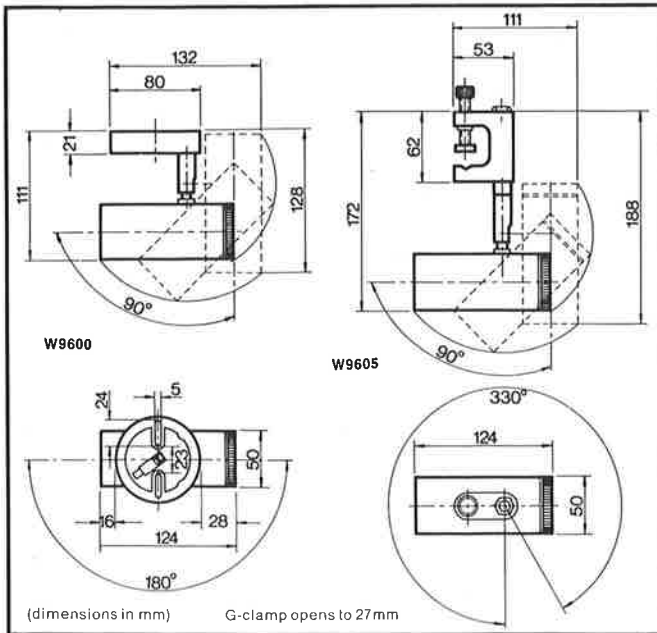
To specify state:

Fully adjustable aluminium display fitting with a range of clip-on accessories. The lampholder position within the barrel to be adjustable by means of a rear focussing ring, Philips W 9600 series.

DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Weight of basic unit (less lamp) = 0.305 kg approx.

W 9600 fixing slots suit B.S. Boxes. The base will cover a B.S. Box. Accepts E.S. capped reflector lamps up to 150 Watts (excluding dichroic "Cool-Beam" types) and takes the E.S. 100 Watt Bowl reflector lamp used with reflector attachment. The fitting must be earthed.



MATERIALS & FINISH

Basic unit and reflectors: turned aluminium
Lampholder: ceramic
Screening ring: black aluminium

RANGE OF OPERATION

For indoor use only on 240V nominal supplies.

Lamp: PAR 38 (Holland), R20, R30, R40, Bowl Reflector (U.K.).

Fitting: Holland.

ORDERING DATA

Type No:	Description	Max. Watts	Suitable for Lamp types	Box Qty.	To order please quote:
W 9600	Basic Unit	150*	PAR 38, R20, R30, R40	4	021307
W 9601	Clear Reflector	100	Bowl Reflector	4	021404
W 9602	Red Reflector	100	Bowl Reflector	4	021417
W 9603	Yellow Reflector	100	Bowl Reflector	4	022762
W 9604	Blue Reflector	100	Bowl Reflector	4	022775
W 9605	Clamp Fitting	150*	PAR 38, R20, R30, R40	4	022555
W 9622	Screening Ring	100	PAR 38	4	022652
W 9623	Red Filter	100	PAR 38	4	022665
W 9624	Blue Filter	100	PAR 38	4	022678
W 9626	Green Filter	100	PAR 38	4	022681
W 9627	Yellow Filter	100	PAR 38	4	022694

*excluding "Cool-Beam".

CI/SIB	(63.2)
UDC	696.6:628.976

AGS SPOTLIGHT SYSTEM

A system of indoor spotlight fittings designed to be used with a wide range of blown bulb and pressed glass reflector lamps

A comprehensive system of matching units which provides a wide variety of lighting effects combined into one family image. Flexibility of application and strong design combine to make this a formidable range.

RANGE

AGS 20 — White basic unit with detachable collar for use with 100/150W PAR 38 pressed glass lamps.

AGS 42 — Brown basic unit as above.

GGG 01 — Screening shield for R20 lamps (60W reflector lamps).

GGG 02 — Screening shield for R30 lamps (100W reflector lamps).

GGG 04 — Parabolic reflectors for 100W bowl reflector lamps.

W9622 — Black screening ring attachment to PAR 38 lamps.

APPLICATIONS

Applications are:

- Shop window display
- Hotel reception areas — picture lighting, highlighting island display areas and plant groupings
- Museums and Art Galleries
- Entrance halls and foyers of offices, flats, public buildings, concert halls
- Domestic spotlighting in the R20 version
- Prestige areas e.g. Boardrooms, Directors dining rooms, visitors exhibition areas



Handbook Ref.

1.1.4

To reorder this data sheet quote

9.79 PL 1711/3

Replaces

PL 1711/2

FEATURES

Smart modern styling is ideally suited to contemporary decors.

■ A knurled ring on the body enables one handed fine focussing of the GGS 04 reflector, allowing any spot beam angle between 16° and 24° (50% intensity values) to be chosen.

■ The screening shields incorporate a grooved diaphragm to reduce sideways glare from the inside of the shield.

■ Suitable for wall or ceiling mounting. The fitting can rotate through 325° horizontally and 90° vertically giving an excellent field of display.

■ Body of fitting is made from polycarbonate which is very robust (as used in vandal-proof fittings).

■ Double insulated. Does not require earthing.

■ Will fit to B.S. wiring box.

■ Basic unit is supplied in a blister pack, as an aid to retail selling.

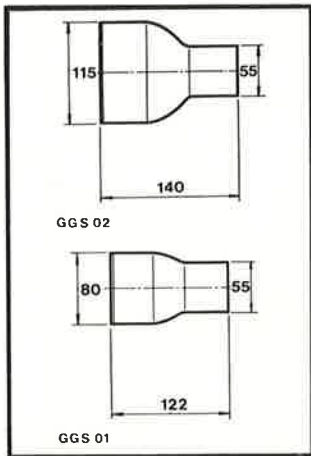
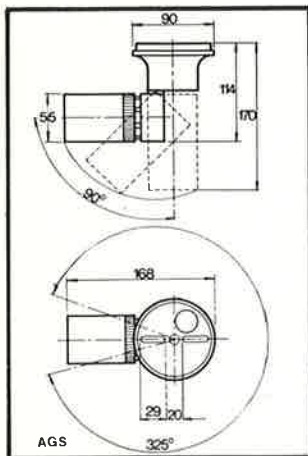
■ Screening ring.

SPECIFICATION

■ Type complies with BS 4533 Class II electrical protection. (Double insulated.)

To specify state:

Double insulated, adjustable fitting to BS 4533 standard, suitable for reflector lamps up to 150W with provision for focussing 100W bowl reflector lamps, or enclosing reflector lamps up to 100W by means of accessories, Philips AGS.



MATERIALS & FINISH

Basic unit: Makrolon (polycarbonate)

PAR 38 collar: Aluminium

R20 & R30 shields: Aluminium with black polyamide anti-glare diaphragm

Parabolic reflector: Brightened hammer-finish aluminium with black internal rim; smooth, white or brown finish to rear.

Lampholder: Ceramic ES type.

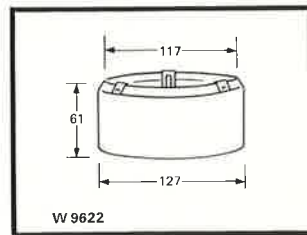
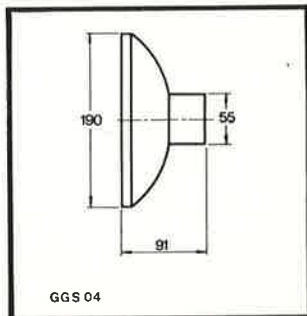
RANGE OF OPERATION

For indoor use.
Not suitable for 'Cool spot' PAR 38 lamps.

WEIGHT & ELECTRICAL DATA

For 100-240V nominal supply.
Maximum 150 watts - 2 amps.

Weight: 0.22 kg.



ORDERING DATA

Catalogue number	Description	Watts	Suitable for lamp types	Box Qty.
AGS 20	Basic Unit White (ES Lampholder)	150	PAR 38*	8
AGS 42	Basic Unit Brown (ES Lampholder)	150	R20, R30	8
GGS 01/20	R20 Shield White	60	R20	4
GGS 01/42	R20 Shield Brown	60	R20	4
GGS 02/20	R30 Shield White	100	R30	4
GGS 02/42	R30 Shield Brown	100	R30	4
GGS 04/301	100W Reflector White/Clear	100	Bowl Reflector	4
GGS 04/304	100W Reflector White/Yellow	100	Bowl Reflector	4
GGS 04/501	100W Reflector Brown/Clear	100	Bowl Reflector	4
W9622	PAR 38 Screening Ring Black	150	Par 38*	4

*excluding 'Cool spot'.

Note: Lamps should be ordered separately

Lamp: R20, R30, Bowl reflector (U.K.).
PAR 38 (Holland).

Fitting: Holland.

CI/SIB	(63.2)
UDC	696.6 : 628.976

DGN350

Basic adjustable spotlight

Indoor display fitting for use with PAR 38 reflector lamps and 60 watt bowl reflector lamps

A simple modern spotlight fitting designed for use with PAR 38 lamps and with the addition of a reflector for 60 watt bowl reflector lamps.

RANGE

DGN 350/20 White basic unit.
 DGN 350/40 Black basic unit.
 DHN 350/40/W Black clamp unit.
 DHN 350/20/W White clamp unit.
 ZZZ 350/00 Aluminium reflector for 60 watt bowl reflector lamps.
 W9622 Black screening ring (for use with PAR 38 lamps).

APPLICATIONS

Main application as a simple, economical and functional spotlight for use in:

- exhibitions
- displays
- public buildings and halls
- shops.
- home workshops
- domestic spotlighting



DGN350/20 with aluminium reflector and 60 watt bowl reflector lamp

Handbook Ref.

1.1.5

To reorder this Data Sheet quote 9.79 PL 1707/3

Replaces PL 1707/2

FEATURES

■ A clean, simply styled fitting with compact lines providing effective lighting at low cost. Modern functional design moulded in polycarbonate.

■ Double insulated, needing no earthing connections. Simple two core wiring means less connections, saving time and making installation easier. Ideally suited for use with existing wiring, where no earth wiring is present.

■ Will fit to B.S. wiring box.

■ Fully adjustable, giving excellent field of movement for display lighting. 260° rotation on the horizontal plane and 85° on the vertical.

■ ES lampholder will accept most types of display lamps giving great versatility in use, from PAR 38 reflector lamps with screening rings to aluminium reflectors for use with 60 watt bowl reflector lamps.

■ Ribbed collar is detachable and replaced by the aluminium reflector when bowl reflector lamps are used.

■ The basic unit is supplied in neat, clear plastic blister packs, ready for immediate display as an aid to retail selling.

MATERIALS & FINISH

Body and base: polycarbonate.

Reflector: Brightened anodised aluminium. Satin finished back

Lampholder: ceramic E.S.

WEIGHT

180 gms (without lamp or reflector)

SPECIFICATION

■ Type complies with BS 4533

■ Class II electrical protection (double insulated)

■ V.D.E. approved (West Germany)

RANGE OF OPERATION

Supply voltage: 100 to 240 volt nominal, 2 amps max.

For indoor use.

Lamp: PAR 38 (Holland) R 20, R 30, Bowl Reflector (U.K.)

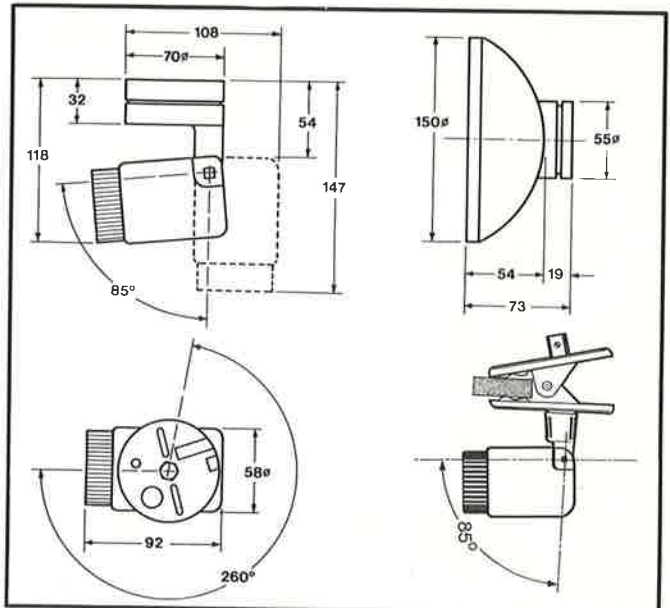
Fitting: Holland



DHN 350 Clamp fitting



Individual Blister pack for retail trade



All dimensions in mm

ORDERING DATA

Catalogue number	Description	Watts	Suitable for Lamp Type	Box Qty.
DGN 350/20	Basic unit white	150	PAR 38* R30, R20	8
DGN 350/40	Basic unit black	150	PAR 38* R30, R20	8
DHN 350/20/W	Clamp unit white	150	PAR 38* R30, R20	8
DHN 350/40/W	Clamp unit black	150	PAR 38* R30, R20	8
ZZZ 350/00	60W reflector alum/clear	60	60W ES Bowl Reflector	4
W9622	Screening ring	150	PAR 38*	4

*excluding "Cool Spot"

N.B. Lamps should be ordered separately

CI/SIB	(63.2)
UDC	696.6 : 628.976

W 4001

Recessed downlight fitting

RANGE

Adjustable for PAR 38, Blown Bulb Reflector Lamps, Cool Beam, PowerRay and the MLR plant lighting lamp.

W4001 can be used with infra-red lamps, to maximum 375 watts, and MLR 160W.

APPLICATIONS

Possible applications include:

- Shop windows for display lighting
- Over counters
- Show cases, lighting from above
- Corridors
- Hotel halls
- Foyers
- Heat curtains to shop, hall and office entrances
- Plant lighting
- Process heating

FEATURES

- The W4001 is a simple yet very versatile fitting which can easily be removed for access.
- The fitting has an adjustable lampholder enabling various lamps to be used.
- The smart aluminium finish of the visible ring to the fitting is suitable for all ceiling colours.



Handbook Ref.

1.1.6

To reorder this data sheet quote

9.79 PL 1710/1

Replaces

PL 1710

MATERIALS & FINISH

Fitting body: Clear anodised aluminium

Bracket: Zinc plated

Lampholder: Porcelain

FIXING

Three countersunk holes in flange on 166mm P.C.D. Top bracket pre-drilled for two height adjustment positions and for mounting a heat resistant junction box if required.

SPECIFICATION

■ Type compliance with BS 4533

■ Fully recessed fitting for both downlighting and infra-red process applications, suitable for a variety of reflector lamps.

To specify state:

Fully recessed fitting with bright aluminium bezel, having adjustable lampholder height for all reflector lamps up to 375W max. Philips W4001.

Fitting: Made in UK



ELECTRICAL DATA

Class I insulation (earth required) for 100/240V supply 3A max. Fitted with 1 metre heat resisting tails.

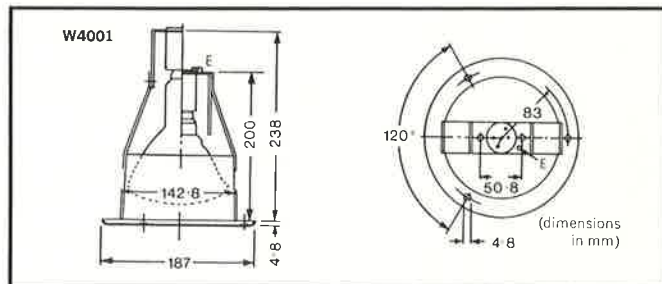
For 24V PAR 38 or R40 lamps replace tails supplied by heat resisting wiring of 6A current rating.

RANGE OF OPERATION

Suitable for indoor use only.

DIMENSIONS & WEIGHT

Height adjustment (mm)	Diameter	Ceiling Cut-out	Flange	Weight	Cap
238 max., 200 min.	142.8 mm	146 mm dia	187 mm	650 gms	ES



ORDERING DATA

Catalogue No.	Description	Packing Quantity
W4001	Fully recessed ceiling fitting	3

LAMP DATA

Lamp Type	Watts	Volts	Finish	Cap	Packing Qty.	Lamp Weight (gm)
R30	75/100	240/250	Diffused/Colour	ES	10	70
PAR 38	100/150	240	Spot/Flood/Colour	ES	15	325
R40	150	240/250	Diffused	ES	10	105
Infra-red, Reflector	250/300/375	230/250	Red/Clear	ES	9	150
*PowerRay MBFR/U	125	—	White	ES	9	128
MLR	160	240	Diffused	ES	12	109
CoolBeam	150	240	Spot	ES	15	325

*Appropriate control gear must be used with this lamp. See data sheet PL 1779.

Note that lamps should be ordered separately.

C/SIB
(63.2)

UDC
696.6 : 628.976

DGN 550 Knuckle Spot System

Indoor display fittings for use with a wide range of reflector lamps

A range of spotlight fittings and attachments in a choice of two modern colours, brown and white. The sophisticated design of the rotatable knuckle joint gives the fitting a unique design image and allows an extensive capacity for adjustment in all directions and for many types of lamps.

RANGE

	<i>Brown</i>	<i>White</i>
Basic Fitting	DGN 550/42	DGN 550/20
R20 Shield	GGG 01/42	GGG 01/20
R30 Shield	GGG 02/42	GGG 02/20
Parabolic Reflectors	ZZZ 550/02 ZZZ 150/02 ZZZ 150/12	ZZZ 550/01 ZZZ 150/01 ZZZ 150/11

Plus attachments:

W9622 Black screening ring (for use with Par 38 lamps).

These fittings are available for track mounting see Data Sheet PL 1786.

APPLICATIONS

Applications include:

- Shop window display
- Bars, pubs and clubs
- Discotheques
- Boutiques
- Exhibitions
- Museums
- Churches
- Entrance halls and foyers
- Public buildings

RANGE OF OPERATION

Supply voltage 100 to 240 volt nominal, 2 amps max.

For indoor use

Handbook Ref.

1.1.9

To reorder this data sheet quote

5.79 PL 1747/1

Replaces

PL 1747

INCANDESCENT FITTING

FEATURES

- Moulded in durable synthetic materials which are damage and heat resistant giving a long, trouble-free life.
- Double insulated, needing no earthing connections. Ideally suited for use with existing wiring where no earth wire is present.
- Patented 'click' system attaches the fitting to its baseplate. No screw to get lost while wiring; easily removed with screwdriver.
- The attachments simply clip onto the fitting and the parabolic reflector is focussed by turning the knurled ring on the reflector.
- Fully adjustable, 350° rotation in the horizontal plane and 180° in the vertical gives an excellent field of display.
- The cable is hidden in the knuckle joint so no wires are exposed to get snagged.
- Supply cable can be inserted from the back or side by means of knockouts.
- Ready wired with a terminal block for ease of installation.
- Keyhole fixing slots match BS box.
- Durable, large diameter rotation joints do not require locking with a screwdriver.
- Basic unit supplied in blister pack for ease of display and identification.
- Black screening ring W9622 clips directly onto PAR 38 lamps for glare control.

MATERIALS & FINISH

- Body:** Polysulphon
- Wallplate, click button and anti-glare diaphragm:** Polyamide
- Bracket:** Polycarbonate
- Lampholder:** Porcelain ES
- Reflectors:** } Enamelled aluminium
- Shields:** }

SPECIFICATION

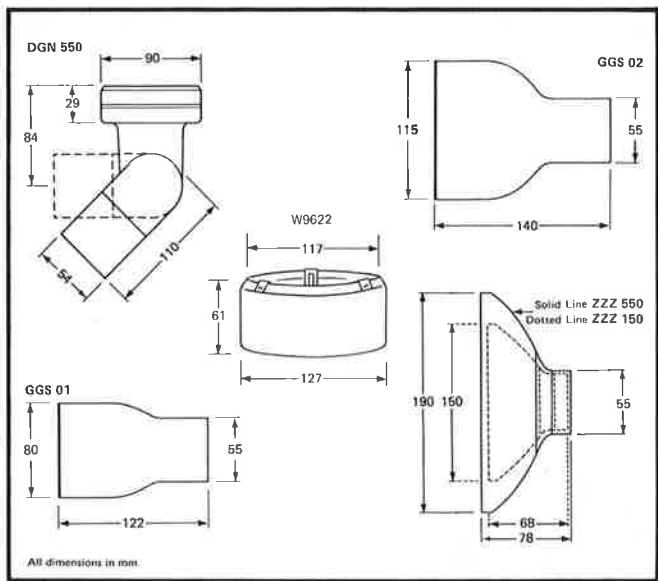
- Type complies with BS 4533.
- Class II electrical protection (double insulated).
- VDE approved (West Germany).

To specify state:

Double insulated spotlight fitting with fully rotatable joints (350° x 180°). Also having push button base fixing and a range of attachments, Philips DGN 550.

DIMENSIONS & WEIGHTS

Weight of basic unit (less lamp): 0.25 kg. See diagrams for dimensions.



DGN 550 Blister Pack

ORDERING DATA

Catalogue No.	Description	Box Qty.	To Order Please Quote	Suitable for Lamp Type
DGN 550/20	Basic Unit White	8†	022571	Par 38*
DGN 550/42	" " Brown	8†	022584	
ZZZ 550/01	100W Reflector White/Alum	4	023282	100W Bowl Reflector
ZZZ 550/02	" " Brown/Alum	4	023266	
ZZZ 150/01	60W Reflector White/Alum	4	023224	60W Bowl Reflector
ZZZ 150/02	" " Brown/Alum	4	023237	
ZZZ 150/11	" " White/Gold	4	023240	
ZZZ 150/12	" " Brown/Gold	4	023253	
GGS 01/20	R20 Shield White	4	023101	60W R20 Max.
GGS 01/42	" " Brown	4	023004	
GGS 02/20	R30 Shield White	4	023114	100W R30 Max.
GGS 02/42	" " Brown	4	023127	
W 9622	Screening Ring	4	022652	Par 38 150W*

*excluding 150W Cool Spot. † individually blister packed in 8-way outer.

Made in Holland.

CI/SIB	(63.2)
UDC	696.6:628.976

RCS 635

Three Circuit Lighting Track System

Four conductor and earth track and accessories, with a versatile range of display fittings.

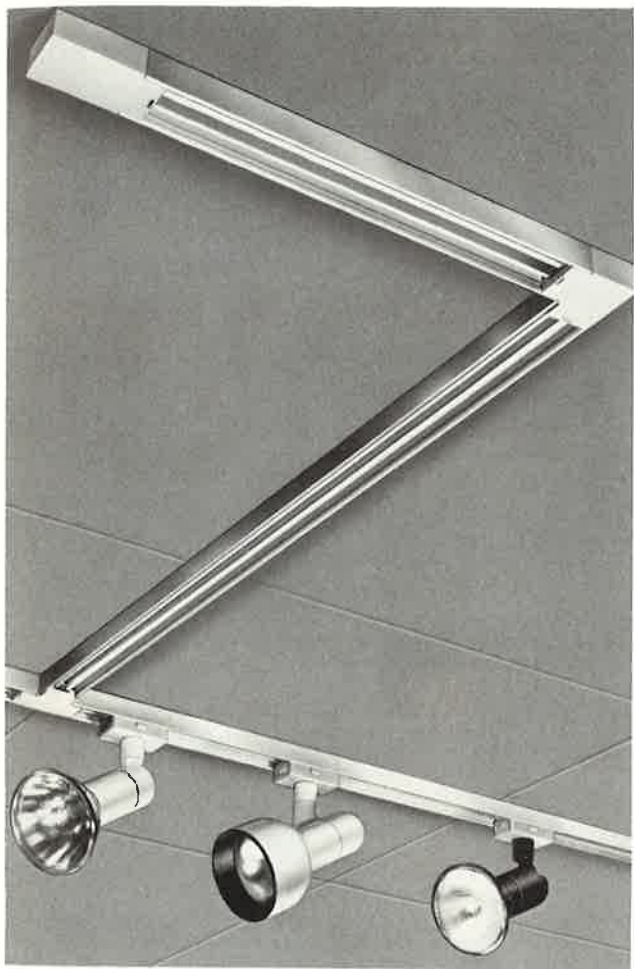
A simply installed surface-mounted system of shallow depth, suitable for use on single or three-phase supplies, at up to 3840W per circuit. The attractive range of fittings is designed and manufactured by Philips to set high standards of durability and versatility at realistic prices. Four independent conductors and earth permit three separately switched circuits.

RANGE

Extruded aluminium track in three module lengths of 1250 mm, 2500 mm and 3750 mm, with straight, L and T couplers, live end connector and dead end. Three basic ranges of spotlight fitting, each with a choice of attachments to give a total of 54 variations: DRN 352 for economy, RGS 03 and the stylish DRN 552.

APPLICATIONS

- Shop window display
- Shop interior display
- Assembly areas and workshops
- Museums and galleries
- Exhibition halls
- Foyers and reception areas
- Conference rooms
- Clubs, public houses and discotheques
- Restaurants



Handbook Ref

1.1.10

To reorder this data sheet quote 9.79 PL 1795/2

Replaces PL 1795/1

FEATURES

- Shallow depth and slim adaptors give increased headroom and neat, unobtrusive appearance.
- Three standard track lengths; easily cut to length without the need for special tools for track preparation. End insulation plugs supplied.
- Simple to install; slotted track screws directly to ceiling.
- Double-U section gives high resistance to bowing, with wide fixing centres.
- Each conductor rated up to 16A; earth continuity ensured by screw clamps to plated rail.
- Simple system with few components to simplify ordering and stock-holding.
- VDE and KEMA approved.
- Three ranges of popular display fittings – matching versions for independent mounting are available.

DIMENSIONS

Track lengths:

RCS 635/125	1205 mm
RCS 635/250	2455 mm
RCS 635/375	3705 mm

Couplers:

All couplers have an effective length of 45 mm.

Live end connector:

RCS 635/00 effective length 70 mm.

Dead end:

RCS 635/04 effective length 2 mm.

Note: The effective length of these components must be added to the track length in order to obtain the overall length of an installation.

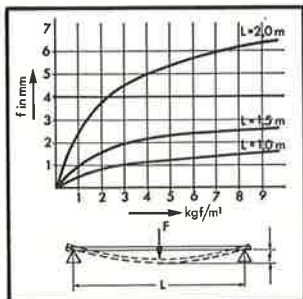
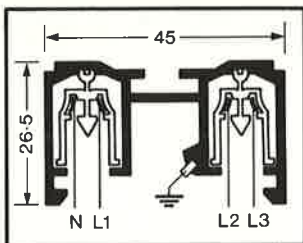
MATERIALS & FINISH

Track: Anodised aluminium extrusion, natural finish, with copper conductors in insulated moulding and plated earth conductor.

Couplers: Plated steel backplates with light grey clip-on covers. Supplied complete with track insulating plugs.

RANGE OF OPERATION

For indoor use only.
Up to 440V between phases, 50Hz.

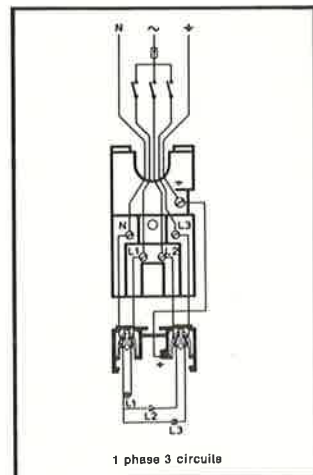


Curve showing deflection against load at various fixing centres. Deflection must not exceed 4mm.

ELECTRICAL DATA

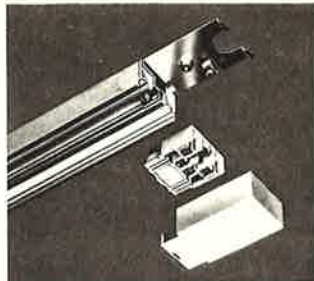
Single phase:

$I(\text{max}) = 16\text{A}$ (see diagram)
Maximum load on 240V = 3840W.

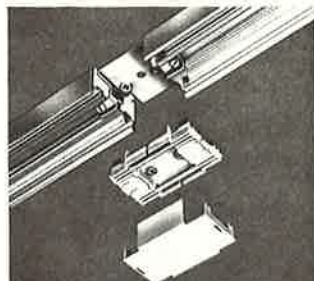


Three-phase (where permitted):

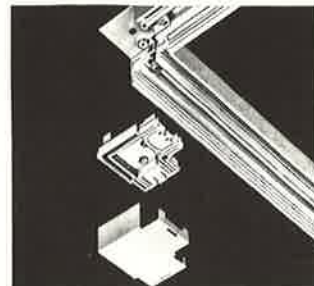
$I(\text{max}) = 3 \times 16\text{A}$
 $W(\text{max}) = 3 \times 3840\text{W}$
16A max in neutral conductor
For lighting purposes only



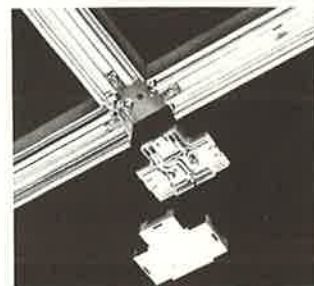
LIVE END CONNECTOR RCS 635/00
Wiring/conduit entry from back and three sides



STRAIGHT COUPLER RCS 635/08
Backplate, electrical bridge, clip-on cover



L-COUPERS RCS 635/06 (earth outside); RCS 635/16 (earth inside)
Backplate, electrical bridge, clip-on cover



T-COUPERS RCS 635/09 (earth outside); RCS 635/19 (earth inside)
Backplate, electrical bridge, clip-on cover



DRN 554/42 with ZZZ 550/02 reflector. (Details on Pages 13 and 41)



DRN 354/20 with PAR 38 lamp. (Details on Pages 9 and 41)



ORGS 06/20 with GGS 01/20 Shield. (Details on Pages 7 and 41)



DGN 120/42
(Details on Page 29)



DRN 124/20
(Details on Page 41)



DRN 494/20
(Details on Page 41)



DGN 490/42
(Details on Page 1)



DRN 495/20
(Details on Page 41)



DGN 491/20
(Details on Page 3)

Right. DHN 350 Clothes Peg Attachment. (See Page 9)

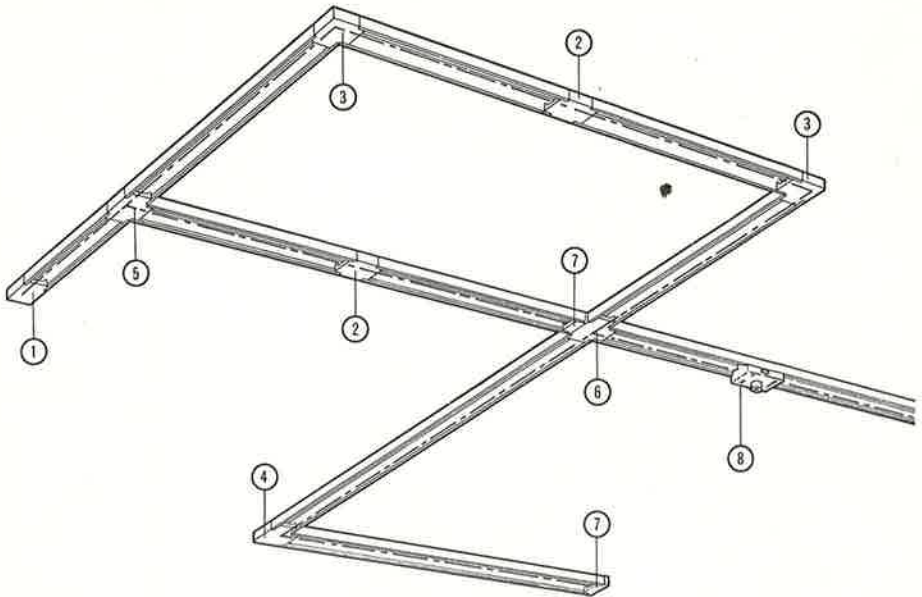


Right. AGS fitting with 190mm reflector. (Details on Page 7)



Far right. W9600 Spotlight with PAR 38 lamp. (Details on Page 5)





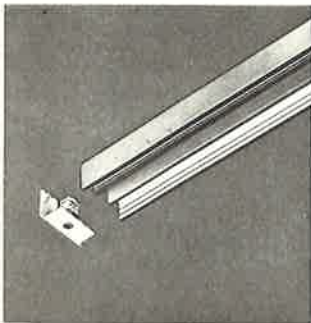
Installation viewed from below

----- represents earth conductor

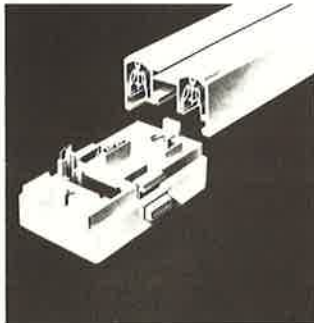
GUIDE TO ORDERING

Since the track system is polarised by an offset earth rail, it is necessary to ensure that the appropriate versions of L-couplers and T-couplers are ordered. The installation should be planned using this diagram as a guide, and starting from the live end connector to ensure track polarity.

Key	Cat. No.	Description
1	RCS 635/00	Live end connector
2	RCS 635/08	Straight coupler
3	RCS 635/06	L-coupler (earth outside)
4	RCS 635/16	L-coupler (earth inside)
5	RCS 635/09	T-coupler (earth outside)
6	RCS 635/19	T-coupler (earth inside)
7	RCS 635/04	Dead end
	RCS 635/125	Lighting track 1205 mm
	RCS 635/250	Lighting track 2455 mm
	RCS 635/375	Lighting track 3705 mm
8	RCS 635/13	Loose adaptor



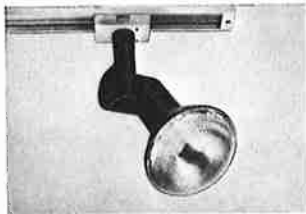
DEAD END RCS 635/04



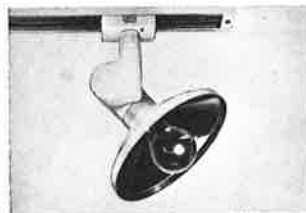
LOOSE ADAPTOR RCS 635/13
Includes cord grip. Adaptors feature a movable contact blade with a red circuit indicator which is visible from below.



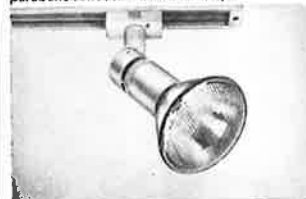
The body simply plugs into the track, and is released by depressing two side catches. The adaptor is unobtrusive and simple, with no switches or fuse.



DRN 552/42 with PAR 38 lamp.



DRN 552/20 fitting with ZZZ 550/01 parabolic reflector for 100W lamp.



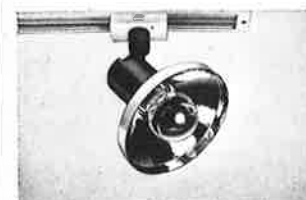
RGS 03/20 fitting with PAR 38 lamp.



RGS 03/20 fitting with GGS 04/301 parabolic reflector for 100W lamp.



DRN 352/40 fitting with PAR 38 lamp.



DRN 352/40 fitting with ZZZ 350 parabolic reflector for 60W lamp.

Display fittings for RCS 635 track

Three ranges of spotlight fittings are detailed in Data Sheet PL 1841. Some examples are illustrated here, and the three ranges together with lamp shields, reflectors and accessories are listed below. These give a total of fifty-four variations around popular reflector lamps ranging from 40W to 150W.

The DGN550, AGS and DGN350 ranges of complementary fittings for independent mounting are detailed in data sheets PL 1747, PL 1711 and PL 1707/1 respectively.

These fittings are all double insulated and constructed from durable, self-coloured synthetic materials with matching metal shields and reflectors, and are designed to comply with BSI and International Standards.

ORDERING DATA (FITTINGS)

Catalogue No.	Description	Suitable lamp types	Packing quantity
DRN 552 system			
DRN 552/20	Knuckle display track fitting (white)	PAR 38*, R20, R30	4
DRN 552/42	Knuckle display track fitting (brown)		
GGG 01/20	Shield for R20 lamp (white)	R20	4
GGG 01/42	Shield for R20 lamp (brown)		
GGG 02/20	Shield for R30 lamp (white)	R30	4
GGG 02/42	Shield for R30 lamp (brown)		
ZZZ 550/01	100W reflector (white/clear)	100W bowl reflector	4
ZZZ 550/02	100W reflector (brown/clear)		
ZZZ 150/01	60W reflector (white/alum)	60W bowl reflector	4
ZZZ 150/02	60W reflector (brown/alum)		
ZZZ 150/11	60W reflector (white/gold)		
ZZZ 150/12	60W reflector (brown/gold)		
RGS 03 system			
RGS 03/20	Display track fitting (white)	PAR 38*	4
RGS 03/42	Display track fitting (brown)		
GGG 01/20	Shield for R20 lamp (white)	R20	4
GGG 01/42	Shield for R20 lamp (brown)		
GGG 02/20	Shield for R30 lamp (white)	R30	4
GGG 02/42	Shield for R30 lamp (brown)		
GGG 04/301	100W reflector (white/clear)	100W bowl reflector	4
GGG 04/304	100W reflector (white/yellow)		
GGG 04/501	100W reflector (brown/clear)		
DRN 352 system			
DRN 352/20	Basic display track fitting (white)	PAR 38*	4
DRN 352/40	Basic display track fitting (black)		
ZZZ 350/00	60W reflector (alum/clear)	60W bowl reflector	4
All systems			
W9622	Black screening ring	PAR 38 150W*	4
W9623	Red filter	PAR 38 100W	4
W9624	Blue filter		
W9626	Green filter		
W9627	Yellow filter		

*Excluding PAR 38 Cool Spot.

Lamps should be ordered separately.

Please order spotlight fittings and accessories in packing quantities only.

ORDERING DATA (TRACK)

Catalogue No.	Description	Diagram code	Packing quantity
RCS 635/125	Lighting track 1205 mm	-	2
RCS 635/250	Lighting track 2455 mm	-	2
RCS 635/375	Lighting track 3705 mm	-	2
RCS 635/00	Live end connector	1	1
RCS 635/08	Straight coupler	2	1
RCS 635/06	L coupler (earth outside)	3	1
RCS 635/16	L coupler (earth inside)	4	1
RCS 635/09	T coupler (earth outside)	5	1
RCS 635/19	T coupler (earth inside)	6	1
RCS 635/04	Dead end	7	1
RCS 635/13	Loose adaptor	8	1

Please order track components in packing quantities only.

Made in Holland.

CI/SIB	(63.2)
UDC	696.6 : 628.976

DRN 552 DRN 352 RGS 03

Display fittings for RCS 635, 3 circuit track

The fittings in three ranges are well designed and manufactured by Philips to set high standards of durability and versatility at realistic prices. They are used in conjunction with the RCS 635 shallow-depth track system, which has four independent conductors plus earth to permit three separately switched circuits, and are supplied complete with slim-line adaptors to fit the track.

RANGE

DRN 552 system:

Knuckle display track fittings in white or brown for PAR 38, R20 or R30 lamps, matching shields for R20 or R30 lamps, and matching parabolic reflectors for 60W or 100W bowl reflector lamps.

RGS 03 system:

Display track fittings in white or brown for PAR 38 lamp, matching shields for R20 or R30 lamps and a choice of three reflectors for 100W bowl reflector lamps.

DRN 352 system:

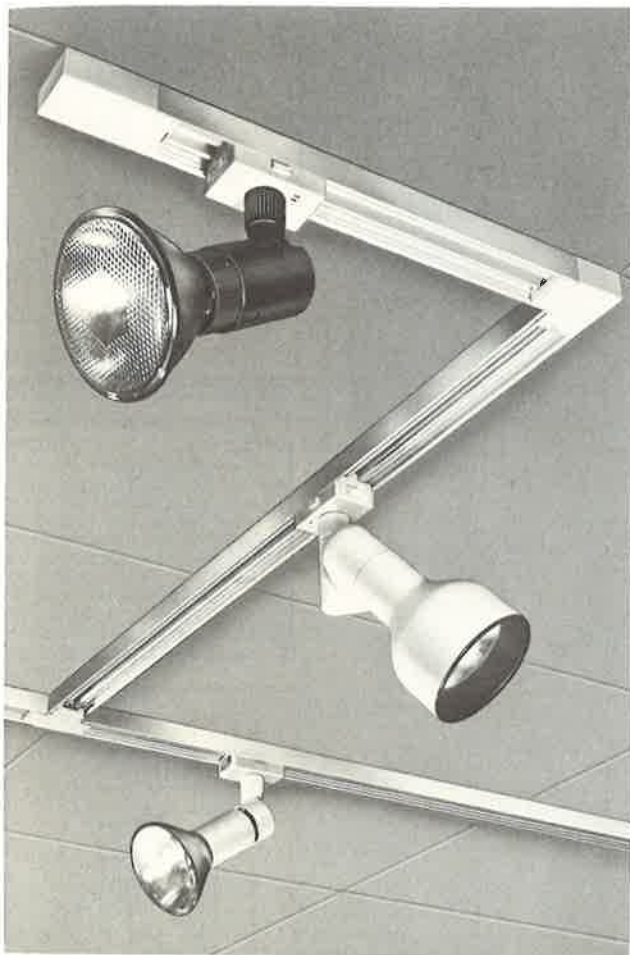
Basic display track fittings in white or black for PAR 38 lamp, and a parabolic reflector for 60W bowl reflector lamps.

All systems:

Also available is a screening ring to PAR 38 lamps.

APPLICATIONS

- Shop window display
- Shop interior display
- Assembly areas and workshops
- Museums and galleries
- Exhibition halls
- Foyers and reception areas
- Conference rooms
- Clubs, public houses and discotheques
- Restaurants



Handbook Ref:

1.1.10/1

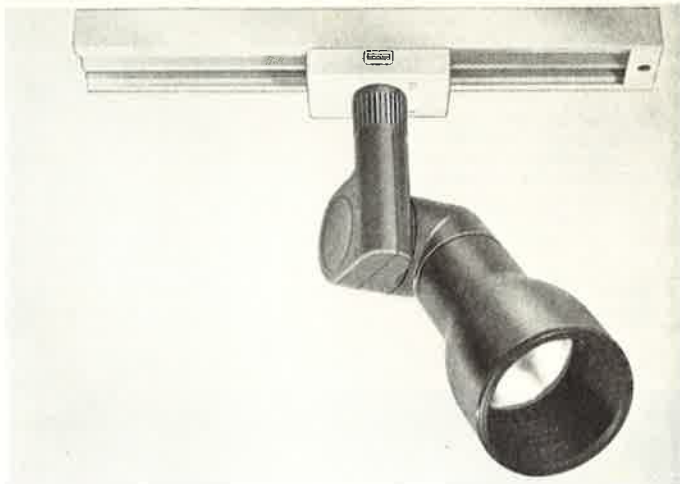
To reorder this data sheet quote 9.79 PL 1841/1

Replaces

PL 1841

FEATURES

- Display fittings are supplied complete with simple adaptors (unswitched and unfused) for mounting on the track; adaptors are easily set to pick up any one of the three track circuits by means of a moveable contact blade.
- A red window on the adaptor indicates from below which circuit is in use.
- Track fittings match other fittings in Philips range to give uniformity in lighting schemes: DRN 352 matches DGN 350; DRN 552 matches DGN 550 knuckle spot system and RGS 03 matches AGS system.
- Easy-clean synthetic materials do not scratch or show fingermarks.
- Double-insulated for safety.
- Adaptors simply plug into the track, and are removed by depressing the side buttons.
- Low-profile adaptors, coupled with slim track, increases headroom.



DRN 552/42 fitting with GGS 01/42 shield for R20 lamp.

MATERIALS & FINISH

Body: Polysulphon (DRN 552), polycarbonate (DRN 352), (RGS 03)

Reflectors: Brightened anodised aluminium, satin finish back

Lampholders: Porcelain ES.

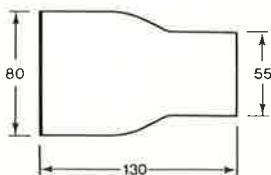
RANGE OF OPERATION

For indoor use only.
100-250V, 2A (max).

DISPLAY FITTING ACCESSORIES

GGS 01

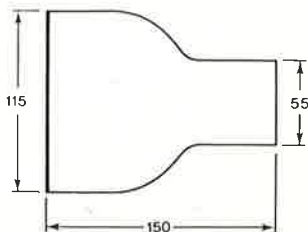
Shield for R20 lamp suitable for RGS 03 and DRN 552 fitting.



Solid Line ZZZ 550
Dotted Line ZZZ 150

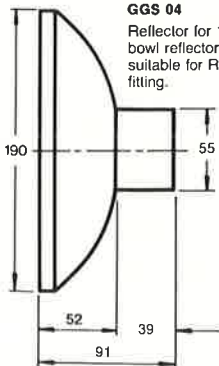
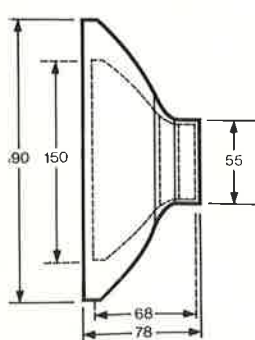
GGS 02

Shield for R30 lamp suitable for RGS 03 and DRN 552 fitting.

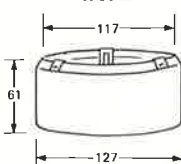


GGS 04

Reflector for 100W bowl reflector lamp suitable for RGS 03 fitting.

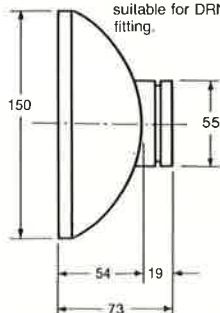


W 9622



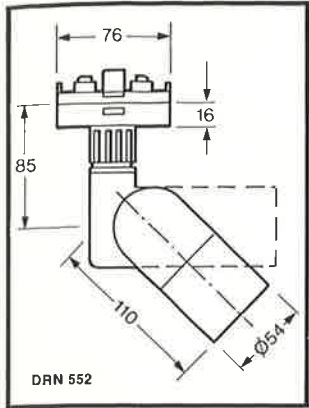
ZZZ 350

Reflector for 60W bowl reflector lamp suitable for DRN 352 fitting.



DRN 552 Display lighting system

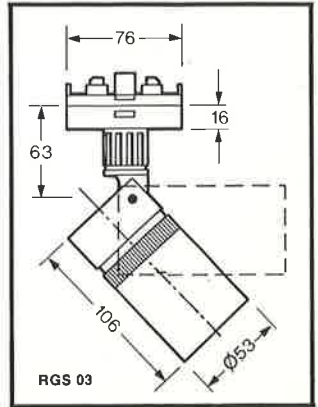
- Attractive, functional styling embodies features built to a high specification.
- Fully adjustable through 330° horizontally, and 170° vertically through an exceptionally large-diameter friction joint that does not require locking with a screwdriver.
- Strong and durable body moulded from polysulphon and polycarbonate, self-coloured white or brown.
- Fine spot size control by reflector adjustment.
- Available as a matching wall mounted DGN 550. Details on Data Sheet PL 1747.



RGS 03/20 fitting with PAR 38 lamp.

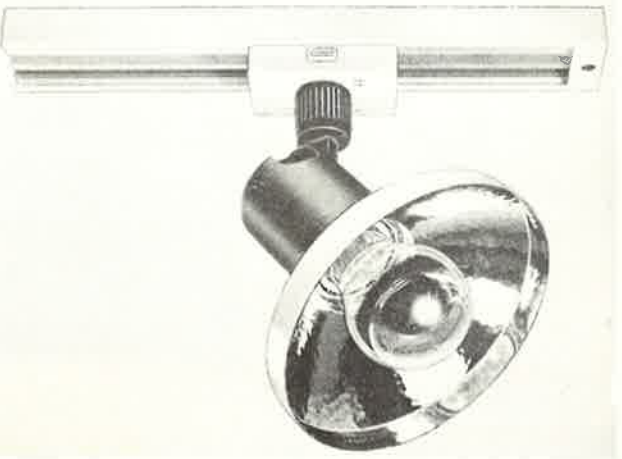
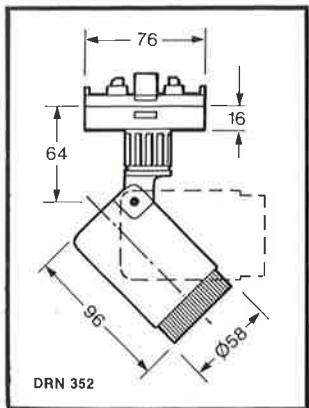
RGS 03 Display lighting system

- A knurled ring on the body enables one-handed fine focussing of the GGS 04 reflector.
- Wide field of adjustment through 325° horizontally and 90° vertically.
- Robust, durable body moulded from white or brown polycarbonate.
- Choice of three reflectors available.
- Available as a matching wall mounted AGS. Details on Data Sheet PL 1711.



DRN 352 Display lighting system

- Clean, simply-styled fitting with compact lines provides effective lighting at low cost. The body is moulded in white or black polycarbonate.
- Wide field of adjustment through 330° horizontally and 85° vertically.
- Detachable ribbed collar is replaced with aluminium reflector when bowl reflector lamps are used.
- Available as a matching wall mounted DGN 350. Details on Data Sheet PL 1707/1.



DRN 352/40 fitting with ZZZ 350/00 and 60W bowl reflector lamp.



RGS 03/20 fitting with GGS 01/20 shield for R20 lamp.



RGS 03/20 fitting with GGS 02/20 shield for R30 lamp.



RGS 03/20 fitting with GGS 04/301 parabolic reflector for 100W lamp.



DRN 352/40 fitting with PAR 38 lamp.



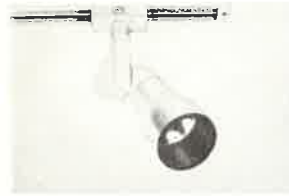
DRN 352/40 fitting with W9622 screening ring on PAR 38 lamp.



DRN 352/40 fitting with ZZZ 350 parabolic reflector for 60W lamp.



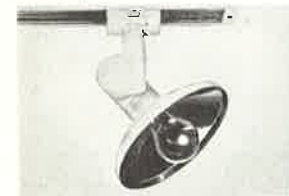
DRN 552/42 with PAR 38 lamp.



DRN 552/20 fitting with GGS 01/20 shield for R 20 lamp.



DRN 552/42 fitting with GGS 02/42 shield for R 30 lamp.



DRN 552/20 fitting with ZZZ 550/01 parabolic reflector for 100W lamp.

ORDERING DATA

Catalogue No.	Description	Suitable lamp types	Packing quantity
DRN 552 system			
DRN 552/20	Knuckle display track fitting (white)	PAR 38*, R20, R30	4
DRN 552/42	Knuckle display track fitting (brown)		
GGG 01/20	Shield for R20 lamp (white)	R20	4
GGG 01/42	Shield for R20 lamp (brown)	R30	4
GGG 02/20	Shield for R30 lamp (white)		
GGG 02/42	Shield for R30 lamp (brown)	100W bowl reflector	4
ZZZ 550/01	100W reflector (white/clear)		
ZZZ 550/02	100W reflector (brown/clear)		
ZZZ 150/01	60W reflector (white/alum)		
ZZZ 150/02	60W reflector (brown/alum)	60W bowl reflector	4
ZZZ 150/11	60W reflector (white/gold)		
ZZZ 150/12	60W reflector (brown/gold)		
RGS 03 system			
RGS 03/20	White display track fitting	PAR 38*, R20, R30	4
RGS 03/42	Brown display track fitting		
GGG 01/20	Shield for R20 lamp (white)	R20	4
GGG 01/42	Shield for R20 lamp (brown)	R30	4
GGG 02/20	Shield for R30 lamp (white)		
GGG 02/42	Shield for R30 lamp (brown)	100W bowl reflector	4
GGG 04/301	100W reflector (white/clear)		
GGG 04/304	100W reflector (white/yellow)		
GGG 04/501	100W reflector (brown/clear)		
DRN 352 system			
DRN 352/20	Basic display track fitting (white)	PAR 38*, R20, R30	4
DRN 352/40	Basic display track fitting (black)		
ZZZ 350/00	60W reflector (alum/clear)	60W bowl reflector	4
All systems			
W9622	Screening ring	PAR 38 150W*	4

*Excluding PAR 38 Cool Spot.

Lamps should be ordered separately.

Made in Holland.

CI/SIB (63.1)

UDC 696.6:628.972

VOGUE

Decorative glass fittings Matching range

A range of five matching fittings with silver or copper cylinder trims, and the option of either clear or amber glasses.

RANGE

All fittings are available with silver or copper finish trims and black base-plates.

Single pendant fitting.

Three-way pendant fitting.

Five-way pendant fitting.

Single wall bracket (switched).

Double wall bracket (unswitched).

Amber glass with 60W clear lamp.

Clear glass with 60W clear lamp.

APPLICATIONS

Each fitting is suitable for use, either on its own or in combination with others from the range, in situations such as:

- Living rooms
- Hallways
- Reception areas and foyers
- Hotel bedrooms
- Boardrooms
- Ballrooms
- Clubs
- Restaurants



Handbook Ref.

1.1.11

To reorder this data sheet quote

1.78 PL1791

Replaces

New

FEATURES

- Moulded crystal glasses of exceptionally high quality to add a dignified appearance to any environment.
- Elegant bodies in a choice of silver or copper finish blend well with modern or traditional decors.
- All fittings are prewired to simplify installation.
- Heat-resistant phenolic lampholders ensure a long and trouble-free life.
- Suspension height of pendant fittings is easily altered by shortening cables.
- Single wall bracket is fitted with pushbutton switch.
- Mounting brackets and ceiling plates are suitable for mounting on 2in BESA box fixing centres; alternatively, the fittings may be fixed with No. 8 woodscrews and suitable wall plugs.
- Each glass is supplied with one 60W clear lamp. (It is recommended that clear lamps be used, since they add sparkle to the fittings).

MATERIALS & FINISH

Glass: High-quality glass mouldings, clear or amber finish.

Body: Aluminium spinning, lacquered, natural or copper finish.

Base (single wall bracket and single pendant): Nylon 66, with self-adhesive aluminium infill trim to match body finish.

Base (double wall bracket): Sheet steel, (passivated), cover plate finished black.

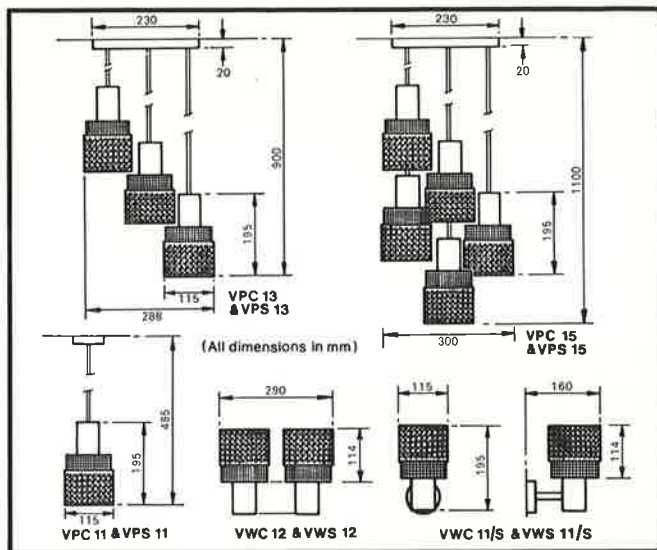
Ceiling plate (3 & 5-way pendants): Steel, black finish.

Lampholder: BC, heat-resistant phenolic.

SPECIFICATION

- Type compliance with BS 4533 2.2.
- Class I electrical protection (earth required).
- Single pendant is double insulated (no earth required).

DIMENSIONS



ORDERING DATA & WEIGHTS

Catalogue No.	Description	Box qty.	Weight (kg/lb)
VPC.11	Single pendant, copper finish	1	0-6/1-3
VPS.11	Single pendant, silver finish	1	0-6/1-3
VWC.11/S	Single wall bracket, copper finish	1	0-6/1-3
VWS.11/S	Single wall bracket, silver finish	1	0-6/1-3
VWC.12	Double wall bracket, copper finish	1	1-5/3-2
VWS.12	Double wall bracket, silver finish	1	1-5/3-2
VPC.13	Three-way pendant, copper finish	1	2-0/4-4
VPS.13	Three-way pendant, silver finish	1	2-0/4-4
VPC.15	Five-way pendant, copper finish	1	3-7/8-2
VPS.15	Five-way pendant, silver finish	1	3-7/8-2
VGA.10	Amber glass with 60W clear lamp	1	0-8/1-8
VGC.10	Clear glass with 60W clear lamp	1	0-8/1-8

Please order in the form given in the following example. Note that it is essential to order fittings and glasses separately, and that each glass is supplied with one 60W clear lamp.

2 Philips Vogue 5-way pendant fittings VPC.15
10 Philips amber glasses VGA.10

RANGE OF OPERATION

Supply voltages up to 250V.
Maximum rating 60W per lamp.
For indoor use only.

Made in Great Britain.
Glassware made in Austria.



CI/SIB	(63.1)
UDC	696.6 : 628.972

VCB41 VCB42

G.L.S. Close Ceiling Fittings

Enclosed circular fittings for close ceiling mounting consisting of a heat resistant black base and snap-on opal diffuser of polycarbonate.

Tough, easy clean construction, ideal for use in damp atmospheres indoors or protected outdoor situations.

RANGE

VCB 41 – Single lamp fitting up to 100 watts

VCB 42 – Twin lamp fitting up to 100 watts per lamp maximum.

APPLICATIONS

Because of the water resistant construction of this fitting it can safely be used in damp atmospheres such as:-

Domestic

- Bathroom
- Toilets
- Porches
- Corridors
- Utility Rooms
- Kitchens

Commercial/Industrial

- Amenity Lighting
- Toilets
- Entrance Halls
- Corridors
- Cloakrooms
- Staircases
- Laundries



Handbook Ref.

1.1.12

To reorder this Data Sheet quote 7.77 PL 1706

Replaces

NEW

INCANDESCENT FITTING

FEATURES

- Clean smooth moulded surfaces – no dust collecting ridges
- The base and diffuser are virtually unbreakable and can be used outdoors with safety in protected positions.
- The snap-on diffuser can be removed easily for relamping by means of a coin slot provided in the lip.
- Close ceiling fittings exclude dust and insects, therefore require infrequent cleaning.
- Fittings can be used with safety in damp steamy atmospheres found in laundries, bathrooms etc. Can also be used outside under canopies, covered walkways etc.
- Lampholder ceramic bayonet type.

RANGE OF OPERATION

For indoor and outdoor use in protected positions on 100 to 250V mains supply.

MATERIALS & FINISH

Base: glass reinforced polypropylene, ABS trim
Diffuser: opal polycarbonate
Lampholder(s): ceramic
Reflector: highly reflective pressed aluminium

PHOTOMETRIC DATA & WEIGHTS

BZ5 Light distribution S/H ratio 1.5.
 Light output ratio: up 7%, down 43%.
 Weight, approx: 567 gms (VCB 41)
 794 gms (VCB 42)

SPECIFICATION

■ Type Complies with BS4533 2.2.

To specify state:

Opal and Black close ceiling drum fitting, resistant to entry of dust and insects, and with a tough polycarbonate diffuser. As Philips type VCB 41/VCB 42 for 100W / 2 x 100W maximum.

Lamp: Made in U.K.

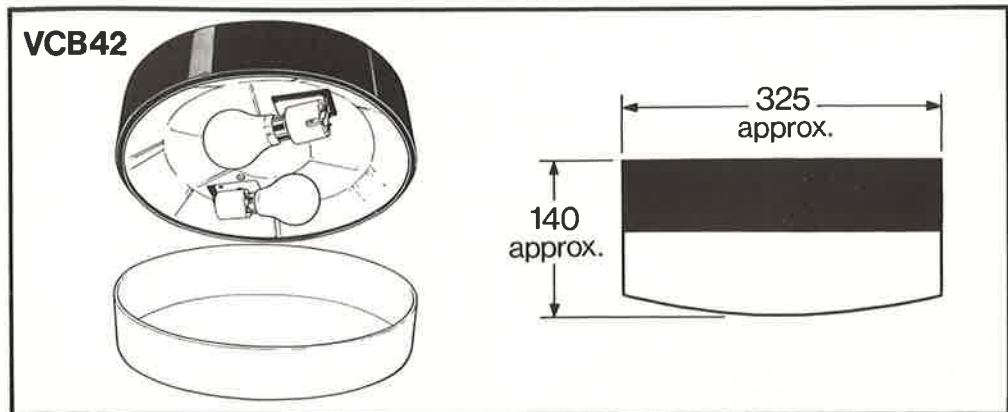
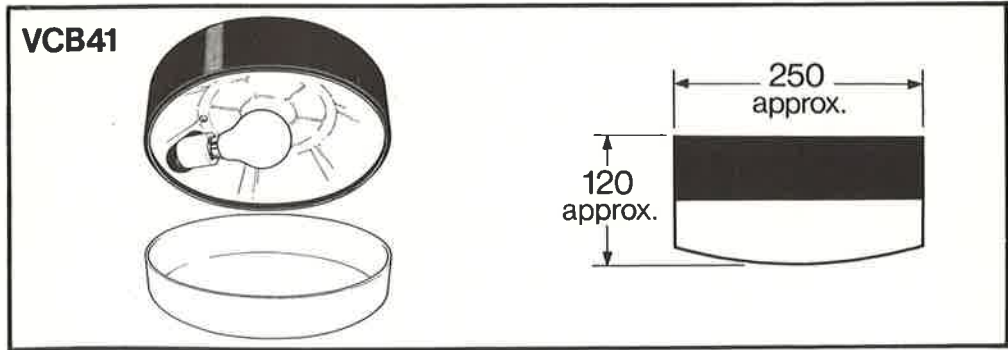
Fitting: Made in U.K.

ORDERING DATA

Catalogue No:	Description	Packing Quantity
VCB 41	100W Opal drum fitting	2
VCB 42	200W Opal drum fitting	2

Lamps should be ordered separately.

Please order in the form given in the following example, in the multiples of the packing quantity:-
 6 Philips Opal drum fittings VCB 41



All dimensions in mm.

CI/SIB	(63.2)
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UDC	696.6 : 628.976
-----	-----------------

VSC21/S VSS21/S VOGUE

Fully-adjustable spotlight fittings for wall or ceiling mounting, finished in copper or natural aluminium lacquers. A push-button switch is incorporated in the base.

RANGE

Wall or ceiling-mounting spotlight fittings:-

VSC21/S simulated copper finish
VSS21/S natural aluminium finish

APPLICATIONS

For use wherever local effect lighting is required, in situations such as:-

- Exhibition stands
- Museums and art galleries
- Hotels
- Bars in public houses and clubs
- Shops and boutiques
- Domestic situations



INCANDESCENT FITTING

Handbook Ref.

1.1.13

To reorder this data sheet quote

9.79 PL 1831/1

Replaces

PL 1831

FEATURES

- Lightweight; inside of lamphousing finished in reflective white enamel.
- Easily fixed on to standard 2in. BS mounting box, or wall or ceiling surface.
- Pushbutton switch for local control of lighting.
- Self-adhesive trim disc for base conceals fixing screws and is finished to match spotlight body.
- Contemporary styling and choice of copper or silver finish to match the Vogue decorative glass series.
- Supplied complete with 60W Superlux lamp, matching base infill trim, insulating disc and sleeves.
- Suitable for use with Philips R20 or Ro80 blown bulb reflector lamps, Superlux and K-mushroom lamps up to 60W.

MATERIALS & FINISH

Body: Aluminium, copper or natural lacquered.

Bracket: Aluminium, black anodised finish.

Base: Nylon 66, black self-coloured.

Lampholder: Brass BC.

Base Infill trim: Aluminium, finished to match body, self-adhesive.

SPECIFICATION

- Type compliance with BS 4533.
- Class I electrical protection (earth required).

ORDERING DATA

Catalogue No.	Description	Cap	Packing quantity
VSC21/S	Vogue spotlight fitting, copper finish, with 60W Superlux lamp	BC	Individually packed
VSS21/S	Vogue spotlight fitting, silver finish, with 60W Superlux lamp	BC	Individually packed

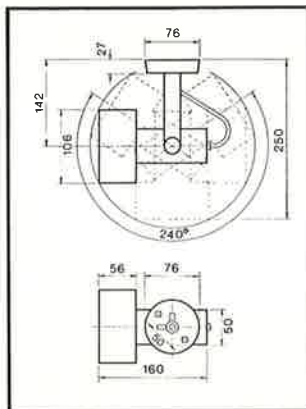
LAMP DATA

Type	Cap	Watts	Volts	Packing Quantity
R20	BC	60	240/250	25
Ro80	BC	60	240/250	25
Superlux	BC	60	240/250	25
K-Mushroom	BC	40, 60	240/250	25

RANGE OF OPERATION

Supply voltages up to 250V.
Maximum lamp rating 60W.
For indoor use only.

DIMENSIONS & WEIGHT



All dimensions in mm

Weight complete with lamp: 200g.



VSC21/S



VSS21/S

Made in Great Britain.

C/S/S/B	(63.2)
UDC	696.6:628.976

DGN 120 MINISPOT

40W square adjustable mini spotlight

A small, attractive spotlight fitting which takes the new 40 Watt R16 lamp, giving a well-controlled spotlight beam.

APPLICATIONS

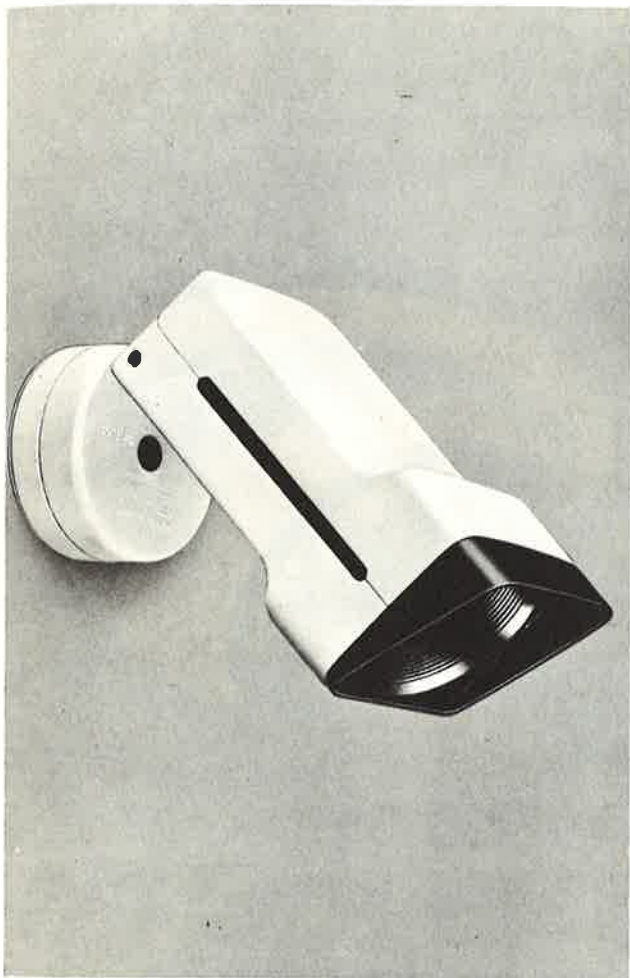
Suitable applications include:-

Domestic

- Bedhead lighting or dressing table lighting
- Pictures
- Work surface lighting
- Localised lighting for reading or sewing

Commercial

- Hotel bedrooms - bedhead console, dressing table, display areas
- Atmosphere lighting for restaurants
- Jewellers' display cabinets
- Local effects in museums and art galleries



Handbook Ref.

1.1.14

To reorder this Data Sheet quote

9.79 PL 1855/1

Replaces

PL 1855

FEATURES

- Exceptionally attractive styling, ideally suited to contemporary decor.
- Choice of three colours – white for general modern schemes, brown for subdued contemporary tones, metallic bronze for dramatic effects.
- Compact and economical, using the new Philips miniature 40W reflector lamp R16.
- Suitable for wall and ceiling mounting; easily angled having 180° lateral and 90° vertical adjustment.
- The R16 reflector lamp provides an excellent spot beam, ideal for domestic and display applications.
- A double-insulated fitting, requiring only two-core cable (no earthing necessary). Fewer connections means easier and cheaper installation.
- The small size of the R16 lamp enables the fitting to be neat, compact and unobtrusive.
- Black heat-resistant polyamide diaphragm reduces reflected glare.
- Fits standard BESA box.
- Packed for retail trade in blister KombiPak for easy display.
- The blister KombiPak includes an R16 40W reflector lamp, fixing screws and wall plugs.

MATERIALS & FINISH

Lamp housing, shield and base:
Polycarbonate.

Diaphragm: Black polyamide.

Lampholder: Ceramic.

SPECIFICATION

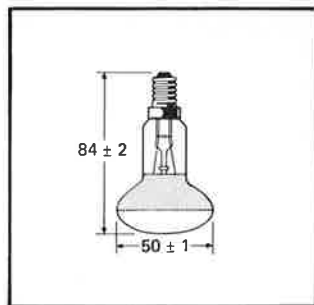
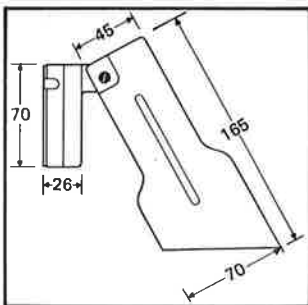
- Type complies with BS 4533 and C.E.E. 25.
- Class II electrical protection (double insulated).
- VDE Test House approval mark (West Germany).

RANGE OF OPERATION

For indoor use on 240V nominal supply.

To specify state:

Miniature double-insulated spotlight fitting of square design, to incorporate a Philips 40W reflector lamp R16. Philips DGN 120 Kombi.



All dimensions in mm

ORDERING DATA

Catalogue No.	Description	Box qty.	Watts	Suitable for lamp types
DGN 120/20	Minispot KombiPak (white, complete with lamp and fixings)	8	40W	R16
DGN 120/42	Minispot KombiPak (brown, complete with lamp and fixings)	8	40W	R16
DGN 120/43	Minispot KombiPak (metallic bronze, complete with lamp and fixings)	8	40W	R16
Replacement lamps				
R16	240V 40W SES cap reflector lamp	25	—	—

Made in Holland.

CI/SIB	(63.2)
UDC	696.6:628.976

SWIVEL SCOOP Downlight Fittings

A fully-recessed downlight fitting of the eyeball type in white or brown that can be rotated to achieve the required lighting effect. For use with R30 blown bulb reflector lamps and PAR 38 pressed glass reflector lamps.

RANGE

Swivel fully-recessed for R30 and PAR 38* lamps -

Swivel FR/20 (white)

Swivel FR/42 (brown).

*Excluding 150W Cool Spot lamp.

APPLICATIONS

Used for effect lighting in many situations, in particular:-

- Hotel reception areas, entrance halls and foyers
- Shops and boutiques
- Ballrooms and discotheques
- Exhibitions and museums
- Bars in public houses and clubs
- Boardrooms and executive offices
- Domestic effect lighting



INCANDESCENT FITTING

Handbook Ref

1.1.15

To reorder this Data Sheet quote 9.79 PL 1860/1

Replaces

PL 1860

FEATURES

- Easily adjusted in vertical and horizontal planes by finger pressure.
 - Easily installed and connected.
 - Heat-resistant black aluminium diaphragm is shaped to accommodate R30 blown bulb or PAR 38 pressed glass lamps.
 - Distinctive cove design to ceiling bezel/plate.
 - Mark-resistant, tough polycarbonate/polyamide materials ensure easy cleaning and a long, trouble-free life.
 - Popular white or brown colour is set off by smooth black diaphragm to reduce reflected glare.
 - Fittings are supplied individually wrapped for protection.
- Scoop fittings are also available in square versions, and in round versions with optional wallwasher attachments.
- Details of Square Scoop fittings are given in Data Sheet PL 1861.
Details of Round Scoop fittings are given in Data Sheet PL 1862.

MATERIALS & FINISH

- Ceiling base:** Polycarbonate, self-coloured white or brown.
Lamphousing: Aluminium, white or brown.
Diaphragm: Black aluminium, removable. Smooth finish.
Lampholder: Porcelain ES.
Connector box: Polyamide.
Weight: 600g.

SPECIFICATION

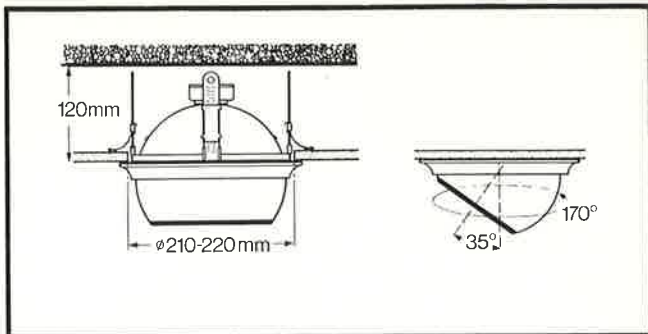
- Type compliance with BS 4533.
- Class II electrical protection (double insulated—no earth required).

RANGE OF OPERATION

For indoor use on 240V nominal supply.

Lamp: R30 made in UK; PAR 38 made in Holland.

Fitting: Made in Holland.



ORDERING DATA

Catalogue No.	Description	Box Qty.	Suitable for lamp type	Maximum Wattage
Swivel FR/20	Swivel fitting (white)	4	R30, PAR 38*	150
Swivel FR/42	Swivel fitting (brown)	4	R30, PAR 38*	150

*Excluding 150W Cool Spot lamp.
Please order fittings in multiples of the packing quantity.
Note that lamps must be ordered separately.



Fully-recessed Round Scoop.



Semi-recessed Round Scoop.



Surface mounted Round Scoop.

Round Scoops are available in white or brown and in three diameters as shown. (Further details are given on Page 35)

"Wallwasher" attachment (for use with either the Semi- or Fully-Recessed Round Scoop Downlight scheme).





*Semi-recessed Square Scoop.
Fully-recessed Square Scoop.*



Surface mounted Square Scoop.

Square Scoops are available in white or brown and in three diameters. (Further details on Page 33)



*Swivel Scoop Downlight.
Fully recessed downlight available
in White or Brown. (Details on
Page 31).*

CI/SIB	(63.2)
UDC	696.6:628.976

SQUARE SCOOP Downlight Fittings

A complementary range of recessed, semi-recessed and surface-mounted downlights for use with reflector lamps and pressed glass lamps.

RANGE

Fully-recessed, semi-recessed and surface-mounted downlights, available in white or brown, and in three sizes to take the following lamps:-

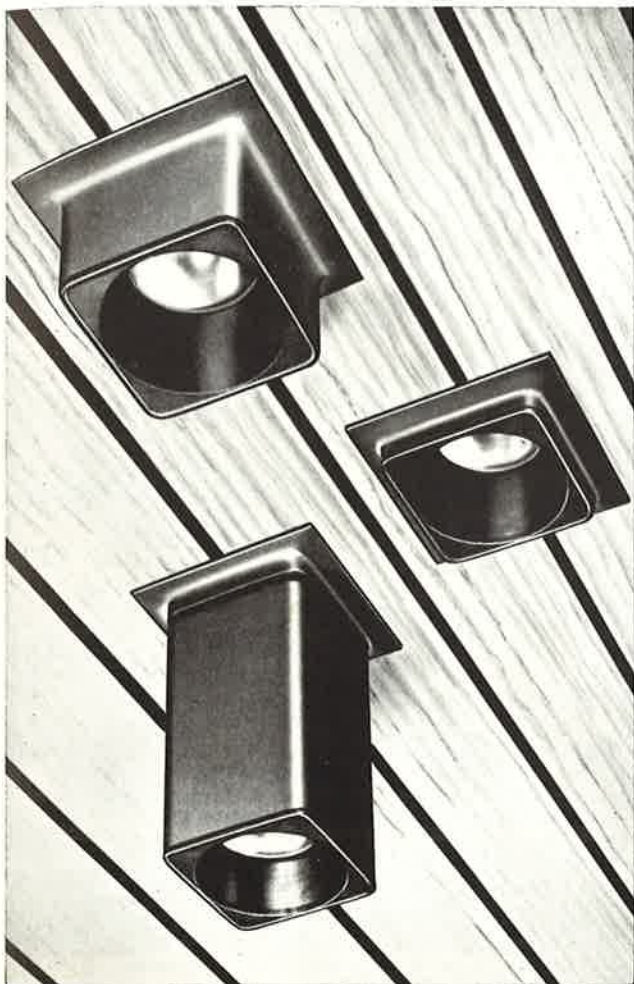
	R20	R30	PAR38*
Fully-recessed	SFR20	SFR30	SFR38
Semi-recessed	SSR20	SSR30	SSR38
Surface-mounted	SSM20	SSM30	SSM38

*Excluding PAR 38 150W Cool Spot lamps.

APPLICATIONS

Used for effect lighting in many situations, in particular:-

- Hotel reception areas, entrance halls and foyers
- Shops and boutiques
- Ballrooms and discotheques
- Exhibitions and museums
- Bars in public houses and clubs
- Boardrooms and executive offices
- Domestic work surface lighting
- Localised lighting for reading and sewing



Handbook Ref.

1.1.16

To reorder this Data Sheet quote 9.79 PL1861/1

Replaces

PL1861

INCANDESCENT FITTING

FEATURES

Recessed and semi-recessed versions:

- Fittings are simply pushed through ceiling apertures and are secured by strong concealed leaf springs which adjust to ceiling thicknesses up to 50mm; no fixing screws are visible.
- Quickly connected to pre-wired terminal block with cable clamps and heat-resistant wiring in covered box.
- Light weight.

Surface-mounted versions:

- Easy installation – once the ceiling plate is secured, the other components are fixed by a patented 'click' system.
- Colour-matched to recessed range, with contrasting black slotted diaphragm.
- No visible fixing screws.
- Quick electrical connection by means of heat-resistant pre-wired terminal block.

General features:

- Matching styling throughout the range.
- Distinctive cove design to ceiling/bezel plate.
- Mark-resistant, tough polycarbonate/polyamide materials ensure easy cleaning and a long, trouble-free life.
- Popular white or brown body colour is set off by black detachable grooved diaphragm which minimises reflected glare.
- Fittings are supplied individually wrapped for protection.

Scoop fittings are also available in round versions with optional wall-washer attachments, and in Swivel versions.

Details of round Scoop fittings are given in Data Sheet PL 1862. Details of Swivel Scoop fittings are given in Data Sheet PL 1860.

MATERIALS & FINISH

Main body: Self-coloured polycarbonate, white or brown.

Diaphragm: Black ultramide, removable.

Connector box: Noryl.

Lampholder: Porcelain ES.

SPECIFICATION

- Type compliance with BS 4533.
- Recessed and semi-recessed version: **Class I** electrical protection (earth required).
- Surface-mounted versions: **Class II** electrical protection (no earth required).

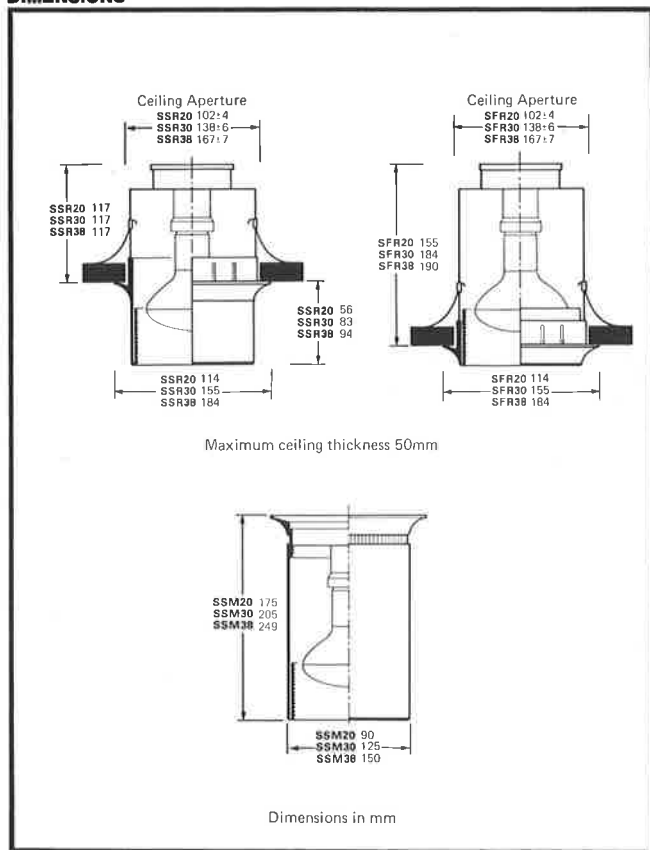
RANGE OF OPERATION

For indoor use on 240V nominal supply.

Lamp: PAR 38 made in Holland; R20 & R30 made in UK.

Fitting: Made in Holland.

DIMENSIONS



ORDERING DATA

Catalogue No.	Description	Box Qty.	Suitable for lamp type	Maximum Wattage
SFR20/20	White square fully-recessed unit	4	R20	60W
SFR30/20	White square fully-recessed unit	4	R30	100W
SFR38/20	White square fully-recessed unit	4	PAR 38*	150W
SFR20/42	Brown square fully-recessed unit	4	R20	60W
SFR30/42	Brown square fully-recessed unit	4	R30	100W
SFR38/42	Brown square fully-recessed unit	4	PAR 38*	150W
SSR20/20	White square semi-recessed unit	4	R20	60W
SSR30/20	White square semi-recessed unit	4	R30	100W
SSR38/20	White square semi-recessed unit	4	PAR 38*	150W
SSR20/42	Brown square semi-recessed unit	4	R20	60W
SSR30/42	Brown square semi-recessed unit	4	R30	100W
SSR38/42	Brown square semi-recessed unit	4	PAR 38*	150W
SSM20/20	White square surface-mounted unit	4	R20	60W
SSM30/20	White square surface-mounted unit	4	R30	100W
SSM38/20	White square surface-mounted unit	4	PAR 38*	150W
SSM20/42	Brown square surface-mounted unit	4	R20	60W
SSM30/42	Brown square surface-mounted unit	4	R30	100W
SSM38/42	Brown square surface-mounted unit	4	PAR 38*	150W

*Excluding 150W Cool Spot lamp.

Please order fittings and accessories in multiples of the packing quantity. Note that lamps must be ordered separately.

CI/SIB (63.2)
UDC 696.6:628.976

ROUND SCOOP Downlight Fittings

A complementary range of recessed, semi-recessed and surface-mounted downlights for use with reflector lamps and pressed glass lamps. Clip-on wallwashers are available for the recessed and semi-recessed versions.

RANGE

Fully-recessed, semi-recessed and surface-mounting downlights, available in white or brown, and in three diameters to take the following lamps:-

	R20	R30	PAR38*
Fully-recessed	RFR20	RFR30	RFR38
Semi-recessed	RSR20	RSR30	RSR38
Surface-mounted	RSM20	RSM30	RSM38

*Excluding PAR 38 150W Cool Spot lamps.

Optional wallwashers WW20 WW30 WW38 (fully- and semi-recessed versions).

APPLICATIONS

Used for effect lighting in many situations, in particular:-

- Hotel reception areas, entrance halls and foyers
- Shops and boutiques
- Ballrooms and discotheques
- Exhibitions and museums
- Bars in public houses and clubs
- Boardrooms and executive offices
- Domestic work surface lighting
- Localised lighting for reading, sewing, etc.



Handbook Ref

1.117

To reorder this Data Sheet quote 9.79 PL 1862/1

Replaces

PL 1862

FEATURES

Recessed and semi-recessed versions:

■ Simple fixing by strong concealed leaf springs which will adjust to ceiling thicknesses up to 50mm; no visible fixing screws.

■ Quickly connected to pre-wired terminal block with cable clamp and heat-resistant wiring in covered box.

■ Wallwasher attachments simply clip into position, and can be rotated through full 360°.

■ Light weight.

Surface-mounted versions:

■ Quick electrical connections by means of heat-resistant pre-wired terminal block.

■ Colour-matched to recessed range, with contrasting black slotted gallery.

■ No visible fixing screws.

General features:

■ Matching styling through the range, which includes the useful miniature R20 size.

■ Distinctive cove design to ceiling bezel/plate.

■ Interesting wallwasher attachment gives excellent glare cut-off and is ideal for shelf or counter display, or general wallwashing.

■ Mark-resistant tough polycarbonate/polyamide materials ensure easy cleaning and a long, trouble free life.

■ Popular white or brown colour is set off by black detachable grooved diaphragm which minimises reflected glare.

■ Fittings are supplied individually wrapped for protection.

Scoop fittings are also available in Square and Swivel versions.

Details of Square Scoop fittings are given in Data Sheet PL 1861.

Details of Swivel Scoop fittings are given in Data Sheet PL 1860.

MATERIALS & FINISH

Surface-mounted fitting: Aluminium body, white or brown lacquered finish, polycarbonate base.

Recessed fittings: White or brown polycarbonate body.

Diaphragm: Black polyamide, removable.

Wallwasher attachment: White or brown polycarbonate.

Connector box: Noryl.

Lampholder: Porcelain ES.

SPECIFICATION

■ Type compliance with BS 4533.

■ Class I electrical protection (earth required).

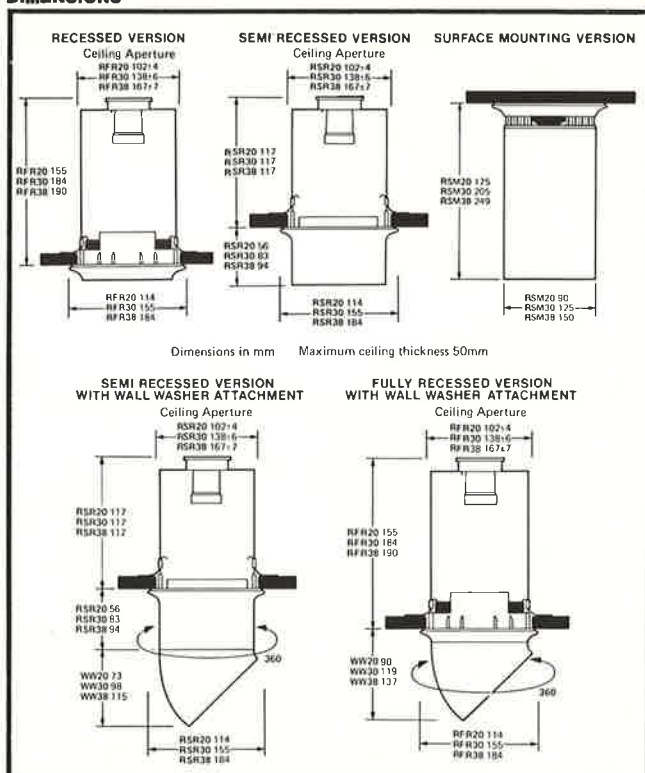
RANGE OF OPERATION

For indoor use on 240V nominal supply.

Lamp: PAR 38 made in Holland; R20 & R30 made in UK.

Fitting: Made in Holland.

DIMENSIONS



ORDERING DATA

Catalogue No.	Description	Box Qty.	Suitable for lamp type	Maximum Wattage
RFR20/20	White fully-recessed unit	4	R20	60W
RFR30/20	White fully-recessed unit	4	R30	100W
RFR38/20	White fully-recessed unit	4	PAR 38*	150W
RFR20/42	Brown fully-recessed unit	4	R20	60W
RFR30/42	Brown fully-recessed unit	4	R30	100W
RFR38/42	Brown fully-recessed unit	4	PAR 38*	150W
RSR20/20	White semi-recessed unit	4	R20	60W
RSR30/20	White semi-recessed unit	4	R30	100W
RSR38/20	White semi-recessed unit	4	PAR 38*	150W
RSR20/42	Brown semi-recessed unit	4	R20	60W
RSR30/42	Brown semi-recessed unit	4	R30	100W
RSR38/42	Brown semi-recessed unit	4	PAR 38*	150W
RSM20/20	White surface-mounting unit	4	R20	60W
RSM30/20	White surface-mounting unit	4	R30	100W
RSM38/20	White surface-mounting unit	4	PAR 38*	150W
RSM20/42	Brown surface-mounted unit	4	R20	60W
RSM30/42	Brown surface-mounted unit	4	R30	100W
RSM38/42	Brown surface-mounted unit	4	PAR 38*	150W
Optional wallwasher attachments (RFR and RSR units only)				
WW20/20	White wallwasher	4	R20	60W
WW30/20	White wallwasher	4	R30	100W
WW38/20	White wallwasher	4	PAR 38*	150W
WW20/42	Brown wallwasher	4	R20	60W
WW30/42	Brown wallwasher	4	R30	100W
WW38/42	Brown wallwasher	4	PAR 38*	150W

*Excluding 150W Cool Spot lamp.

Please order fittings and accessories in multiples of the packing quantity. Note that lamps must be ordered separately.

CI/SIB	(63.2)
UDC	696.6 : 628.976

RCS 655 Two Circuit Lighting Track System

Three-conductor and earth track and accessories, with a versatile range of spotlight fittings.

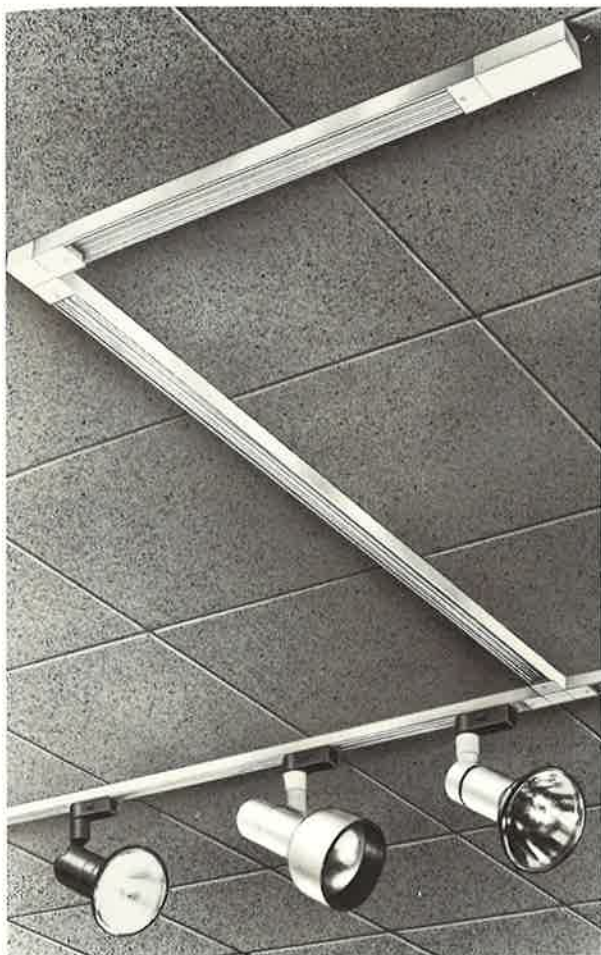
A simply-installed surface-mounted system of small dimensions and shallow depth for use on single-phase supplies at up to 16 Amps. The attractive range of fittings is designed and manufactured by Phillips to set high standards of durability and versatility at realistic prices. Three independent conductors and separate earth permit two separately-switched lighting circuits.

RANGE

Extruded aluminium track in three lengths of 1m, 2m and 3m, with straight, L, T and X couplers, live end connector, ceiling plate and dead end. Six basic ranges of display fittings each with a choice of attachments to give a total of 61 variations: DRN 354 for economy; RGS 06; the stylish DRN 554; DRN 494; DRN 495; and DRN 124 Minispots.

APPLICATIONS

- Shop window display
- Shop interior display
- Assembly areas and workshops
- Museums and art galleries
- Exhibition halls
- Foyers and reception areas
- Conference rooms
- Clubs, public houses and discotheques
- Restaurants
- Domestic effect lighting



Handbook Ref.

1.1.18

To reorder this data sheet quote 11.79, PL 1658/1

Replaces

PL 1658

INCANDESCENT FITTING

FEATURES

- Shallow depth and slim adaptors give increased headroom and neat, decorative appearance.
- Three standard track lengths; easily cut to size without the need for special tools for track preparation.
- Twin circuit permits independent switching of selected lamps.
- Except for straight coupler, track accessories are not polarised, greatly simplifying layout planning and installation.
- Simple to install; slotted track screws directly to ceiling, and conductor strip clips easily yet firmly into position.
- U-section gives resistance to bowing, with wide fixing centres.
- Each conductor rated at up to 16A, permitting loads up to 4000W at 250V.
- Simple system with few components makes ordering and stockholding easy.
- Six ranges of popular spotlight fittings and accessories; matching versions for wall/ceiling mounting are available.

DIMENSIONS

Track lengths:

- RCS 655/100 – 1.0m
- RCS 655/200 – 2.0m
- RCS 655/300 – 3.0m

Couplers:

RCS 655/08 Straight Coupler has an effective length of 2 mm. All other couplers have an effective length of 33 mm.

Live end connector:

RCS 655/01 has an effective length of 86 mm.

Central connector:

RCS 655/00 Ceiling Plate (centre) plus RCS 655/01 Live End Connector has an effective length of 130 mm.

Dead End:

RCS 655/04 has an effective length of 3 mm.

Note: The effective length of these components must be added to the track length in order to obtain the overall length of an installation.

MATERIALS & FINISH

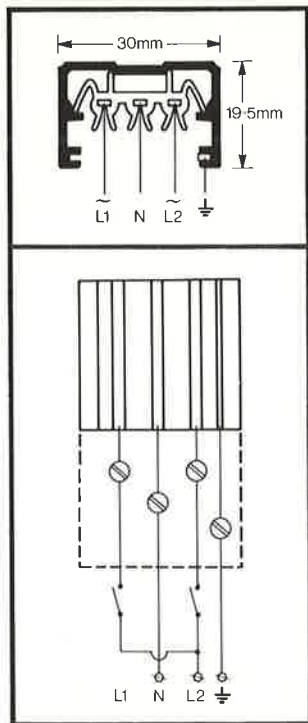
Track: Anodised aluminium extrusion, natural finish, with copper conductors in separate clip-in insulated mouldings; plated earth conductor bonded to the aluminium channel.

Couplers: Self-coloured light grey.

Adaptors: Self-coloured black.

RANGE OF OPERATION

■ For dry indoor use only. Ceiling or wall mounting.



ELECTRICAL DATA

Single-phase two-circuit.

I (max) = 16A (see diagram)

Maximum load on 250V = 4000W

16A max. in neutral conductor.

Must be earthed.

Guide to fixing

Maximum permitted load 10kg (22 lb) per metre run.

Recommended attachment points per track length (4mm screws):

- 1m – 2 screws
- 2m – 3 screws
- 3m – 4 screws

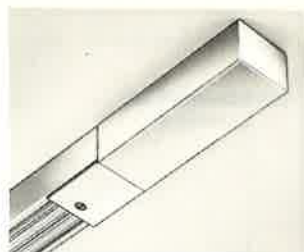
SPECIFICATION

■ Designed to comply with BS.4533 (IEC 570).

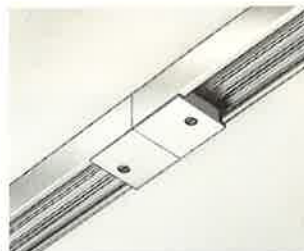
■ VDE and KEMA approved.



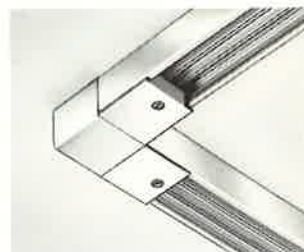
Conductor strip simply clips into channel.



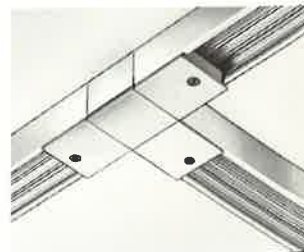
Live End Connector RCS 655/01



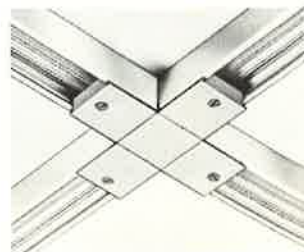
Straight Coupler RCS 655/08



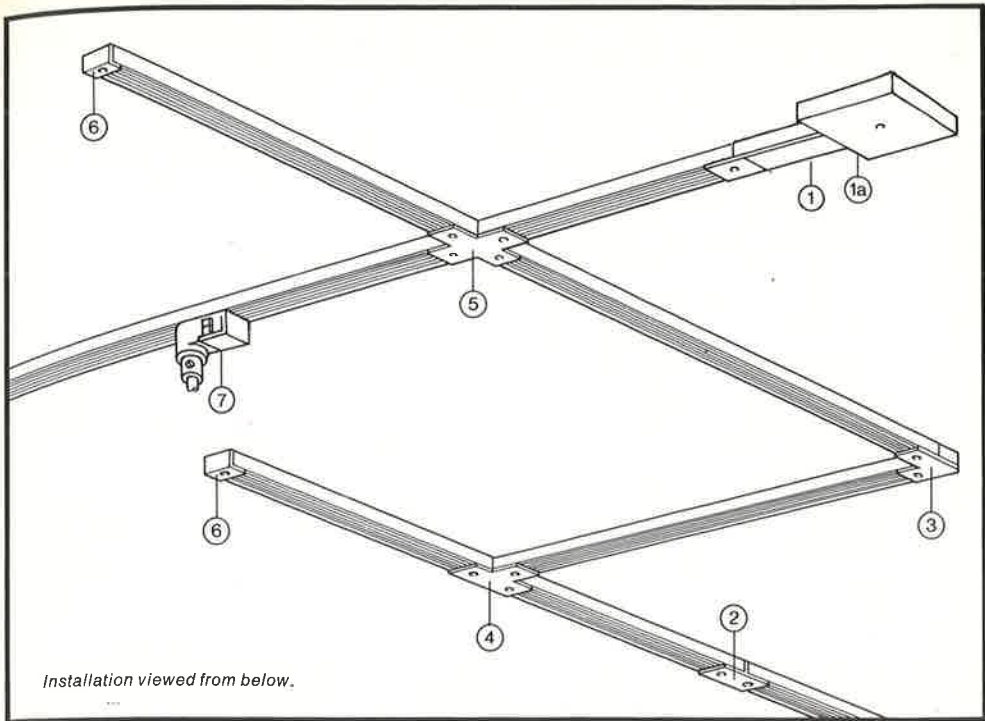
L Coupler RCS 655/06



T Coupler RCS 655/09



X Coupler RCS 655/11



Installation viewed from below.

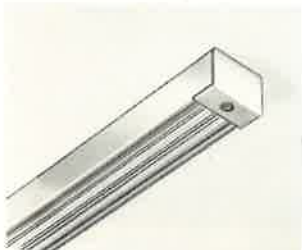
Guide to ordering

It is advisable to start installation from the Live End Connector (RCS 655/01) and ceiling plate/cover (RCS 655/00), if used.

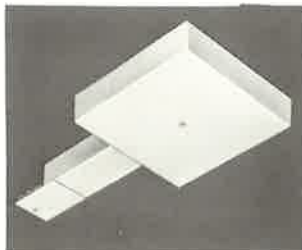
The installation should be planned using this diagram as a guide.

Ceiling Plate RCS 655/00 may be used to terminate the track to cover a large wiring aperture. It has internal locations for up to four Live End Connectors at 90°, and is neatly finished by a square cover. For use only with Live End Connectors RCS 655/01.

Key	Cat. No.	Description
1	RCS 655/01	Live end connector
1a	RCS 655/00	Ceiling plate
2	RCS 655/08	Straight coupler
3	RCS 655/06	L coupler
4	RCS 655/09	T coupler
5	RCS 655/11	X coupler
6	RCS 655/04	Dead end
7	RCS 655/12	Loose adaptor
	RCS 655/100	Lighting track 1·0m
	RCS 655/200	Lighting track 2·0m
	RCS 655/300	Lighting track 3·0m



Dead End RCS 655/04



Ceiling plate RCS 655/00



Loose adaptor RCS 655/12 (including cord grip) is simply fitted by pressing adaptor at right angles onto track and turning it through 90° to left or right (depending on circuit required).

Display fittings for RCS 655 track

Six ranges of display fittings are detailed in Data Sheet PL 1857. The six ranges together with lamp shields, reflectors and accessories are listed below. These give a total of 61 variations around popular reflector lamps ranging from 40W to 150W. Complementary fittings for wall/ceiling mounting are available to match all types of track fittings. Details are contained in the Data Sheets listed in the following Table:-

Track fitting	Complementary wall fitting	Data Sheet
DRN 554	DGN 550	— PL 1747
RGS 06	AGS 20	— PL 1711/3
DRN 354	DGN 350	— PL 1707/3
DRN 494	DGN 490	— PL 1295/2
DRN 495	DGN 491	— PL 1832/3
DRN 124	DGN 120	— PL 1855/1

All fittings are double insulated and constructed from durable, self-coloured synthetic materials with matching shields and reflectors, and are designed to comply with BSI and International Standards.

ORDERING DATA (FITTINGS)

Catalogue No.	Description	Packing quantity	Suitable lamp types
DRN 554 system			
DRN 554/20	Knuckle display track fitting (white)	} 4	PAR 38*, R30, R20
DRN 554/42	Knuckle display track fitting (brown)		
ZZZ 150/01	Reflector for 60W lamp (white/clear)	} 4	60W bowl reflector
ZZZ 150/02	Reflector for 60W lamp (brown/clear)		
ZZZ 150/11	Reflector for 60W lamp (white/gold)		
ZZZ 150/12	Reflector for 60W lamp (brown/gold)		
ZZZ 550/01	Reflector for 100W lamp (white)	} 4	100W bowl reflector
ZZZ 550/02	Reflector for 100W lamp (brown)		
RGS 06 system			
RGS 06/20	Display track fitting (white)	} 4	PAR 38*, R30, R20
RGS 06/42	Display track fitting (brown)		
GGG 04/301	White/clear reflector	} 4	100W bowl reflector
GGG 04/501	Brown/clear reflector		
Both above systems			
GGG 01/20	Shield for R20 lamp (white)	} 4	R20
GGG 01/42	Shield for R20 lamp (brown)		
GGG 02/20	Shield for R30 lamp (white)	} 4	R30
GGG 02/42	Shield for R30 lamp (brown)		
DRN 354 system			
DRN 354/20	Basic display track fitting (white)	} 4	PAR 38*, R30, R20
DRN 354/40	Basic display track fitting (black)		
ZZZ 350/00	Reflector for 60W lamp	4	60W bowl reflector
Accessories for PAR 38 in above systems			
W9622	Screening ring (black)	4	
Mini Spotlights			
DRN 494/20	White mini spot with shield	} 8	R16
DRN 494/42	Brown mini spot with shield		
DRN 495/20	White mini spot with 40W reflector	} 8	40W bowl reflector
DRN 495/42	Brown mini spot with 40W reflector		
DRN 124/20	White mini spot	} 8	R16
DRN 124/42	Brown mini spot		
DRN 124/43	Metallic bronze mini spot		

*Excluding PAR 38 Cool Spot.

Please order display fittings and accessories in multiples of the packing quantities. Note that lamps must be ordered separately.

ORDERING DATA (TRACK)

Catalogue No.	Description	Diagram Code	Packing quantity
RCS 655/100	Lighting track 1m	—	1
RCS 655/200	Lighting track 2m	—	1
RCS 655/300	Lighting track 3m	—	1
RCS 655/01	Live end connector	1	1
RCS 655/00	Ceiling plate	1a	1
RCS 655/08	Straight coupler	2	1
RCS 655/06	L coupler	3	1
RCS 655/09	T coupler	4	1
RCS 655/11	X coupler	5	1
RCS 655/04	Dead end	6	1
RCS 655/12	Loose adaptor	7	1

Track: Made in Holland.
Fitting: Made in Holland.

CI/SIB

(63.2)

UDC

696.6:628.976

DISPLAY FITTINGS

For RCS 655 Two Circuit Track

DRN 554 DRN 354
RGS 06 DRN 494
DRN 495 DRN 124

The fittings in six ranges are well designed and manufactured by Philips to set high standards of durability and versatility at realistic prices. They are used in conjunction with the RCS 655 shallow-depth track system, which has three independent conductors plus earth to permit two separately-switched circuits, and are supplied complete with slim-line adaptors to fit the track.

RANGE

DRN 554 system:

Knuckle spotlight track fittings in white or brown for PAR 38, R30 or R20 lamps, matching shields for R30 or R20 lamps, and matching parabolic reflectors for 60W and 100W bowl reflector lamps.

DRN 354 system:

Basic black or white spotlight track fittings for PAR 38 and R20 or R30 lamps and a parabolic reflector for 60W bowl reflector lamps.

RGS 06 system:

Spotlight track fittings in white or brown for PAR 38 lamps, matching shields for R30 and R20 lamps, and matching parabolic reflectors for 100W bowl reflector lamps.

DRN 494 & DRN 495

Mini spotlights in white or brown, with matching shield for R16 lamp or matching parabolic reflector for 40W bowl reflector lamp.

DRN 124

Stylish square mini spotlight in white, brown and metallic bronze, for R16 lamp.



Handbook Ref.

1.1.19

To reorder this data sheet quote

9.79 PL 1857/1

Replaces

PL 1857

APPLICATIONS

- Shop window display
- Shop interior display
- Assembly areas and workshops
- Museums and galleries
- Exhibition halls
- Foyers and reception areas
- Conference rooms
- Clubs, public houses and discotheques
- Restaurants
- Domestic effect lighting

FEATURES

- Display fittings are supplied complete with simple adaptors (unswitched and unfused) for mounting on the track; adaptors are simply turned through 90° either way to pick up the required circuit.
- Track fittings match wall/ceiling mounted fittings in Phillips range to permit uniformity in lighting schemes.
- Easy-clean synthetic materials do not scratch or show fingermarks.
- Double-insulated for safety.
- Low-profile adaptors, combined with slim track, increase headroom and provide a neat, decorative appearance.

MATERIALS & FINISH

Body: Polysulphon (DRN 554); polycarbonate (DRN 354, RGS 06, DRN 494, DRN 495, DRN 124).

Reflectors: Brightened anodised aluminium, satin finish.

Lampholders: Porcelain ES.

RANGE OF OPERATION

For indoor use only.
100-250V.

SPECIFICATION

- Type compliance with BS 4533.
- All fittings have Class II electrical protection (double-insulated).

DRN 354 display system

- Clean, simply-styled fitting with compact lines provides effective lighting at low cost. The body is moulded in black or white polycarbonate.
- Wide field of adjustment through 330° horizontally and 85° vertically.
- Detachable ribbed collar is replaced with aluminium reflector when bowl reflector lamps are used.

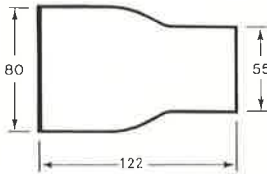


DRN 354/20 with PAR 38 lamp.

DISPLAY FITTING ACCESSORIES

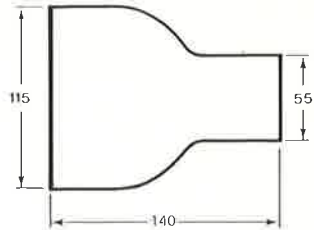
GGS 01

Shield for R20 lamp suitable for RGS 06 and DRN 554 fitting.

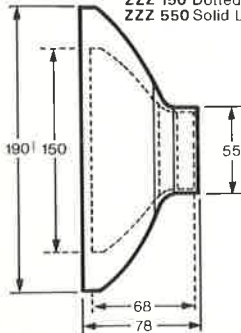


GGS 02

Shield for R30 lamp suitable for RGS 06 and DRN 554 fitting.

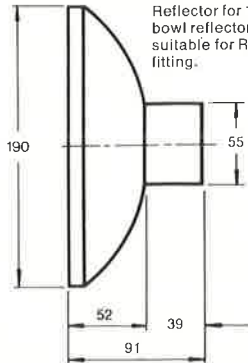


ZZZ 150 Dotted Line ZZZ 550 Solid Line



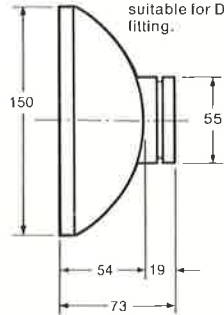
GGS 04

Reflector for 100W bowl reflector lamp suitable for RGS 06 fitting.



ZZZ 350

Reflector for 60W bowl reflector lamp suitable for DRN 354 fitting.



RGS 06 display system

- Knurled ring on body enables one-handed fine focussing of the GGS 04 reflector.
- Wide field of adjustment through 325° horizontally and 90° vertically.
- Robust, durable body moulded from polycarbonate, self-coloured white or brown.



RGS 06/20 with GGS 02/20 shield for R30 lamp. ►

**DRN 554 display system**

- Attractive, functional styling embodies features built to a high specification.
- Fully adjustable through 330° horizontally, and 170° vertically, through an exceptionally large-diameter friction joint that does not require locking with a screwdriver.
- Strong and durable body moulded from polysulphon and polycarbonate self-coloured white or brown.
- Fine spot size control by reflector adjustment.

◄ DRN 554/42 with ZZZ 550/02 parabolic reflector and 100W lamp.

DRN 494 & DRN 495 mini spot system

- Compact, unobtrusive light sources using either the Philips R16 40W reflector lamp with shield, or a 40W bowl reflector lamp with parabolic reflector.
- Easily angled, with 180° horizontal and 90° vertical adjustment.
- Choice of white or brown polycarbonate basis with matching aluminium shields or parabolic reflectors.



DRN 495/20 with 40W bowl reflector lamp. ►

**DRN 124 mini spot system**

- Small, stylish square mini spotlight using the Philips R16 40W reflector lamp.
- Easily angled, with 180° horizontal and 90° vertical adjustment.
- Choice of white, brown, or metallic bronze colours for dramatic effect.

◄ DRN 124/42 with R16 lamp.



DRN 124/42 with R16 lamp.



DRN 494/20 with R16 lamp



DRN 495/20 with 40W bowl reflector lamp.



DRN 554/20 with PAR 38 lamp.



DRN 554/42 with GGS 02/42 shield for R30 lamp.



DRN 554/20 with ZZZ 550/01 parabolic reflector and 100W lamp.



RGS 06/20 with GGS 01/20 shield for R20 lamp.



RGS 06/20 with GGS 04/301 parabolic reflector and 100W lamp.



DRN 354/20 with PAR 38 lamp.



DRN 354/40 with ZZZ 350/00 parabolic reflector and 60W lamp.

ORDERING DATA

Catalogue No.	Description	Packing quantity	Suitable lamp types
DRN 554 system			
DRN 554/20	Knuckle display track fitting (white)	} 4	PAR 38*, R30, R20
DRN 554/42	Knuckle display track fitting (brown)		
ZZZ 150/01	60W reflector (white/alum)	} 4	60W bowl reflector
ZZZ 150/02	60W reflector (brown/alum)		
ZZZ 150/11	60W reflector (white/gold)	} 4	100W bowl reflector
ZZZ 150/12	60W reflector (brown/gold)		
ZZZ 550/01	100W reflector (white/clear)	} 4	100W bowl reflector
ZZZ 550/02	100W reflector (brown/clear)		
RGS 06 system			
RGS 06/20	Display track fitting (white)	} 4	PAR 38*, R30, R20
RGS 06/42	Display track fitting (brown)		
GGS 04/301	100W reflector (white/clear)	} 4	100W bowl reflector
GGS 04/501	100W reflector (brown/clear)		
Both above systems			
GGS 01/20	Shield for R20 lamp (white)	} 4	R20
GGS 01/42	Shield for R20 lamp (brown)		
GGS 02/20	Shield for R30 lamp (white)	} 4	R30
GGS 02/42	Shield for R30 lamp (brown)		
DRN 354 system			
DRN 354/20	Basic display track fitting (white)	} 4	PAR 38*, R30, R20
DRN 354/40	Basic display track fitting (black)		
ZZZ 350/00	60W reflector (alum/alum)	4	60W bowl reflector
Accessories for black PAR 38 in above systems			
W9622	Black screening ring	4	PAR 38 150W*
Mini Spotlights			
DRN 494/20	White mini spot with shield	} 8	R16
DRN 494/42	Brown mini spot with shield		
DRN 495/20	White mini spot with 40W reflector	} 8	40W bowl reflector
DRN 495/42	Brown mini spot with 40W reflector		
DRN 124/20	White mini spot	} 8	R16
DRN 124/42	Brown mini spot		
DRN 124/43	Metallic bronze mini spot		

*Excluding PAR 38 Cool Spot.

Please order display fittings and accessories in multiples of the packing quantities. Note that lamps must be ordered separately.

Made in Holland

COMMERCIAL FLUORESCENT LUMINAIRES

		Page
Streamlite Popular Lamps	PL1713/3	47
Streamlite Opal Diffusers	PL1717/1	51
Streamlite Clear Prismatic Controller	PL1718/2	55
Streamlite Kombipak Feature	PL1887	59
Feature Opal Diffuser	PL1719/2	63
Feature Clear Prismatic Controller	PL1722/1	67
	PL1723/1	71

SURFACE MOUNTED

Finesse with Clear Prismatic Controller	PL1730/1	75
Finesse with De luxe Attachments	PL1731	79
Polyprism Prismatic Controller	PL1745/2	83

RECESSED

FT Planner 300mm	PL1735/2	87
FT Planner 600mm	PL1739	91
LT Planner 600mm	PL1797	95
OT Planner 600mm	PL1737	99
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Widespread Finesse A.7950 TLP	PL1724/1	115
Widespread Finesse A.7925/6 TLP	PL1725	119
Widespread TCS429 Mirror Controller	PL1726/1	123
Widespread FT Planner	PL1727/2	127
Widespread ET Planner	PL1728/1	131
Widespread Zonalux	PL1854/1	135

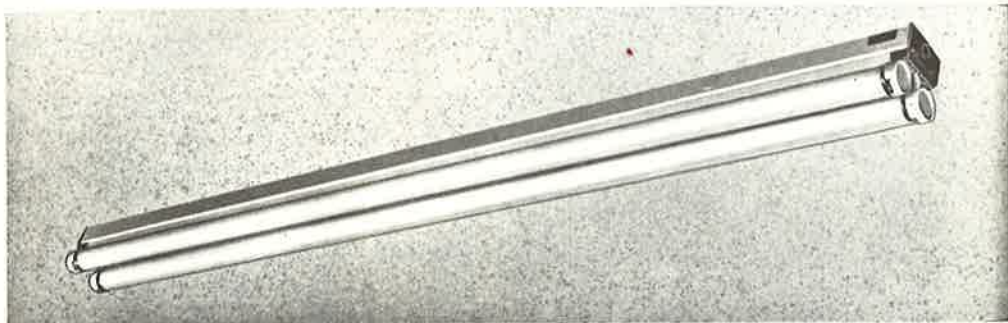
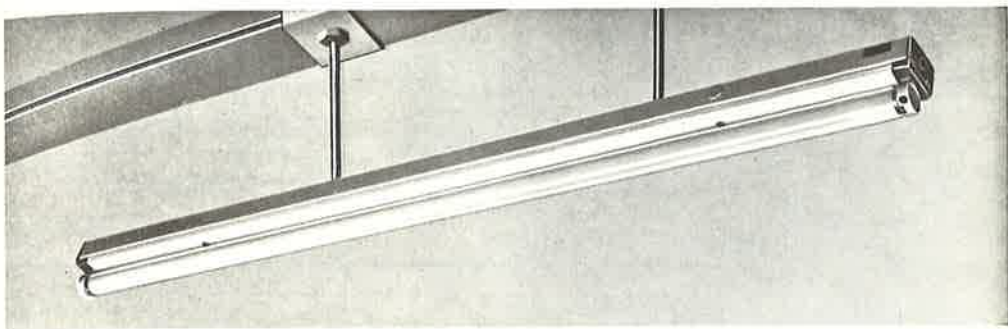
CI/SIB
(63.1)

UDC
696.6:628.972

2

STREAMLITE POPULAR

General-purpose luminaires
for fluorescent lamps



Streamlite luminaires may be used as battens, with trough or angle reflectors for industrial use, or with diffusers or prismatic controllers for commercial applications.

The battens are attractively finished in white metalwork with mid-grey, rebated end caps.

125W 2400mm(8ft) packs are available in switchstart versions, or fitted with Philips E start ES06 electronic starters and low-loss ballasts.

RANGE

All available with one or two lamps.

Battens only:

40W 1200mm (4ft) switchstart
65W 1500mm (5ft) switchstart and starterless
85W 1800mm (6ft) starterless
125W 2400mm (8ft) switchstart

Packs with White 35 lamp(s):

20W 600mm (2ft) switchstart
40W 1200mm (4ft) switchstart
65W 1500mm (5ft) switchstart
85W 1800mm (6ft) starterless
125W 2400mm (8ft) switchstart
125W 2400mm(8ft) electronic start

APPLICATIONS

For use in normal indoor situations such as:-

- Small or large offices
- Shops and departmental stores
- Corridors
- Stock and store rooms
- Canteens
- Workshops

Handbook Ref.

1.21/1

To reorder this Data Sheet quote 9.79 PL 1713/3

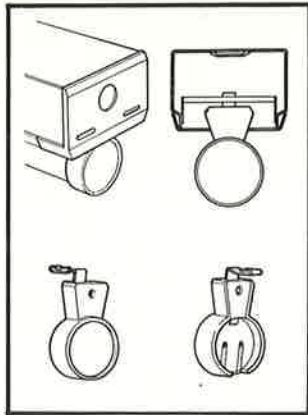
Replaces

PL 1713/2

FLUORESCENT LUMINAIRE

FEATURES

- Easily mounted on to a standard BS box which it covers completely.
- End caps feature 20mm (3/4 in.) knockouts for end conduit terminations and peg-and-socket locations to align luminaires mounted end-to-end.
- Low-loss ballasts are firmly attached with nuts and studs for efficient heat transfer. Terminals provide positive connections, with no screws to come loose.
- The steel channel and cover plate are Durawhite stoved finish for long service and retention of reflective properties.
- Miniature two-contact starter switches have tough insulated canisters and are neatly located in the side of the channel. In two-lamp luminaires, each starter switch is placed on the same side as the lamp it serves.
- PQ8E, PQ28E, SQ8E and SQ28E versions are fitted with Philips E start ES06 electronic starters to improve starting at low temperatures.



- Spring-mounted, injection-moulded lampholders are fixed in seconds, and one person can re-lamp a luminaire from one end. Lampholders of two-lamp luminaires are individually mounted, so that one lamp can be removed without disturbing the other, and are keyed to prevent accidental cross-over.

SPECIFICATION

- Type compliance with BS 4533 2.2 Class I ordinary indoor.

To specify state:

Switchstart/starterless types:-
Batten fluorescent lamp luminaires complying with BS 4533 2.2, with Durawhite finish, for metric and Imperial fixing, covering a BS box similar to Philips Streamlite.

Electronic start types:-

As above, but low-loss ballast and ES06 electronic starter.

MATERIALS & FINISH

Channels and cover plates: Sheet steel, Durawhite stoved finish.

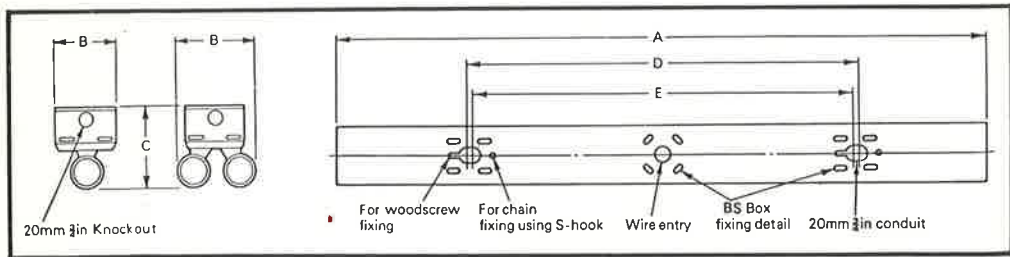
Channel end caps: Grey medium-impact polystyrene.

Sprung bi-pin lampholders: White urea mouldings fitted to plated spring steel supports.

RANGE OF OPERATION

240V 50Hz.

Normal indoor conditions.



DIMENSIONS, WEIGHTS & ELECTRICAL DATA

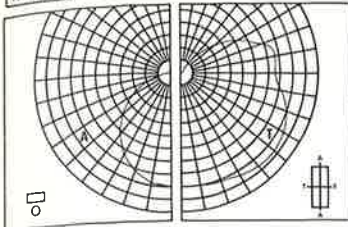
Catalogue numbers		Rating	Overall length (A) mm/in.	Fixing centres (E/D) mm/in.	Weight with Lamp(s) kg/lb.	Electrical characteristics		
Packs (battens with White 35 lamps)	Batten only types					Circuit Watts (running)	Circuit current (Amperes)	Minimum Power Factor
Switchstart types								
P2	—	1-lamp 20W 600mm (2ft)	624/24.6	460/18	2.0/4.4	30.0	0.37	0.33
P22	—	2-lamp 20W 600mm (2ft)	624/24.6	460/18	3.9/7.8	51.5	0.23	0.85
P4	S4	1-lamp 40W 1200mm (4ft)	1234/48.6	600/24	3.0/6.6	51.5	0.23	0.85
P24	S24	2-lamp 40W 1200mm (4ft)	1234/48.6	600/24	4.3/9.5	103	0.46	0.85
P5	S5	1-lamp 65W 1500mm (5ft)	1534/60.5	600/24	4.2/9.4	77	0.34	0.85
P25	S25	2-lamp 65W 1500mm (5ft)	1534/60.5	600/24	6.6/14.5	154	0.68	0.85
P8	S8	1-lamp 125W 2400mm (8ft)	2409/95	1200/48	5.4/11.9	137	0.94	0.66 LDG
P28	S28	2-lamp 125W 2400mm (8ft)	2409/95	1200/48	8.4/18.5	276	1.88	0.66 LDG
Electronic start types								
PQ8E	SQ8E	1-lamp 125W 2400mm (8ft)	2409/95	1200/48	5.4/11.9	137	0.94	0.65 LDG
PQ28E	SQ28E	2-lamp 125W 2400mm (8ft)	2409/95	1200/48	8.4/18.5	276	1.88	0.65 LDG
Starterless types								
—	SQ5	1-lamp 65W 1500mm (5ft)	1534/60.5	600/24	4.4/9.7	77	0.33	0.9
—	SQ25	2-lamp 65W 1500mm (5ft)	1534/60.5	600/24	6.8/15.0	154	0.66	0.9
PQ6	SQ6	1-lamp 85W 1800mm (6ft)	1800/71	600/24	4.6/10.1	96	0.46	0.9
PQ26	SQ26	2-lamp 85W 1800mm (6ft)	1800/71	600/24	7.1/15.6	192	0.92	0.9

Overall width (B): (one lamp) 76mm (3in.)
(two lamps) 98mm (3.8in.)

Overall depth (C): 100mm (4in.)

PHOTOMETRIC DATA STREAMLITE BATTEN 1 LAMP

BATTEN	WITHOUT	ATTACHMENT
Mounting SUSPENDED		



CIE Flux Number 213955

SHR MAX	(Square)	2.00
SHR MAX TR	(Transverse)	2.67

ULORL	24	Multiply by each Service Correction Factor
DLORL	67	
LORL	91	

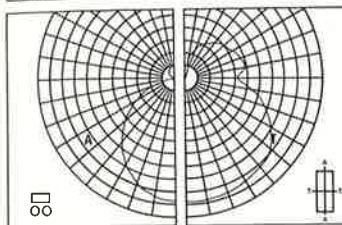
Glare Data (IES)

Flux Fraction Ratio	.36			
ACG Classification	ACG2			
For RI = 2.5 at SHR = NOM	BZ6			
Luminous Area (sq cm)				
20W	40W	65W	85W	125W
450	900	1100	1300	1750

Measured	BS 5225 Part 1 1975
Calculated	I.E.S. TR 2 and TR 10
Test No	A612
Dated:	76.08.26

STREAMLITE BATTEN 2 LAMP

BATTEN	WITHOUT	ATTACHMENT
Mounting SUSPENDED		



CIE Flux Number 234256

SHR MAX	(Square)	1.86
SHR MAX TR	(Transverse)	2.35

ULORL	28	Multiply by each Service Correction Factor
DLORL	65	
LORL	93	

Glare Data (IES)

Flux Fraction Ratio	.43			
ACG Classification	ACG2			
For RI = 2.5 at SHR = NOM	BZ6			
Luminous Area (sq cm)				
20W	40W	65W	85W	125W
600	1150	1450	1750	2300

Measured	BS 5225 Part 1 1975
Calculated	I.E.S. TR 2 and TR 10
Test No	A617
Dated:	76.09.01

Photoset direct from Photometer tape output

Service Correction Factors

	20W 600 mm	40W 1200 mm	65W 1500 mm	85W 1800 mm	125W 2400 mm
Rating Factor	1.00	1.00	1.00	1.00	1.00
Amalgam Factor		1.00	1.00		
Ballast Lumen Factor SS	0.98	1.00	0.99		0.98
Ballast Lumen Factor XS			0.95	0.96	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	42	47	52	56	62	66	69	73	75
	30		35	40	45	49	56	60	64	68	72
	10		31	35	40	44	51	56	59	65	68
50	50	10	38	42	47	51	56	60	63	66	69
	30		33	37	41	45	51	55	58	63	66
	10		29	32	37	41	47	52	55	60	63
30	50	10	35	39	43	46	51	54	57	60	62
	30		31	34	38	42	47	51	53	57	60
	10		27	30	34	38	43	47	50	55	58
0	0	0	23	25	29	32	37	40	43	47	49

Multiply by each Service Correction Factor

Service Correction Factors

	20W 600 mm	40W 1200mm	65W 1500mm	85W 1800mm	125W 2400mm
Rating Factor	1.00	1.00	1.00	1.00	1.00
Amalgam Factor		1.00	1.00		
Ballast Lumen Factor SS	0.98	1.00	0.99		0.98
Ballast Lumen Factor XS			0.95	0.96	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	45	50	55	59	65	69	72	76	78
	30		39	43	49	53	60	64	67	72	75
	10		34	38	44	48	55	60	63	68	72
50	50	10	41	45	50	54	59	62	65	68	71
	30		36	40	45	49	54	58	61	65	68
	10		32	36	40	45	51	55	58	63	66
30	50	10	38	41	45	48	53	56	59	62	64
	30		33	36	41	44	49	53	56	59	62
	10		30	33	37	41	46	50	53	57	60
0	0	0	26	28	31	35	39	42	45	48	51

Multiply by each Service Correction Factor

CIRCUIT COMPONENTS

Catalogue number	Ballast catalogue number	Starter catalogue number	Capacitor
Switchstart			
P2	BCS20	S10	none
P22	BCS40	2 x S2	3.5 mfd 10% 250V
P4, S4	BCS40	S10	3.5 mfd 10% 250V
P24, S24	2 x BCS40	2 x S10	2 x 3.5 mfd 10% 250V
P5, S5	BCS65	S10	5.5 mfd 10% 250V
P25, S25	2 x BCS65	2 x S10	2 x 5.5 mfd 10% 250V
P8, S8	BBS125	S18	7.2 mfd 5% 440V
P28, S28	2 x BBS125	2 x S18	2 x 7.2 mfd 5% 440V
Electronic start			
PQ8E	1 x BBE125	ES06	7.2 mfd 5% 440V
PQ28E	2 x BBE125	ES06	7.2 mfd 5% 440V
SQ8E	1 x BBE125	ES06	7.2 mfd 5% 440V
SQ28E	2 x BBE125	ES06	7.2 mfd 5% 440V
Starterless			
SQ5	BBX65	none	8.4 mfd 5% 250V
SQ25	2 x BBX65	none	2 x 8.4 mfd 5% 250V
PQ6, SQ6	BBXK85	none	8.4 mfd 5% 250V
PQ26, SQ26	2 x BBXK85	none	2 x 8.4 mfd 5% 250V



ORDERING DATA

Rating	Circuit	Catalogue Number	
		Pack (ballasts with White 35 lamps)	Ballasts only
1-lamp 20W 600mm (2ft)	Switch	P2	—
2-lamp 20W 600mm (2ft)	Switch	P22	—
1-lamp 40W 1200mm (4ft)	Switch	P4	S4
2-lamp 40W 1200mm (4ft)	Switch	P24	S24
1-lamp 65W 1500mm (5ft)	Switch	P5	S5
1-lamp 65W 1500mm (5ft)	Starterless	—	SQ5
2-lamp 65W 1500mm (5ft)	Switch	P25	S25
2-lamp 65W 1500mm (5ft)	Starterless	—	SQ25
1-lamp 85W 1800mm (6ft)	Starterless	PQ6	SQ6
2-lamp 85W 1800mm (6ft)	Starterless	PQ26	SQ26
1-lamp 125W 2400mm (8ft)	Switch	P8	S8
2-lamp 125W 2400mm (8ft)	Switch	P28	S28
1-lamp 125W 2400mm (8ft)	E start	PQ8E	SQ8E
2-lamp 125W 2400mm (8ft)	E start	PQ28E	SQ28E

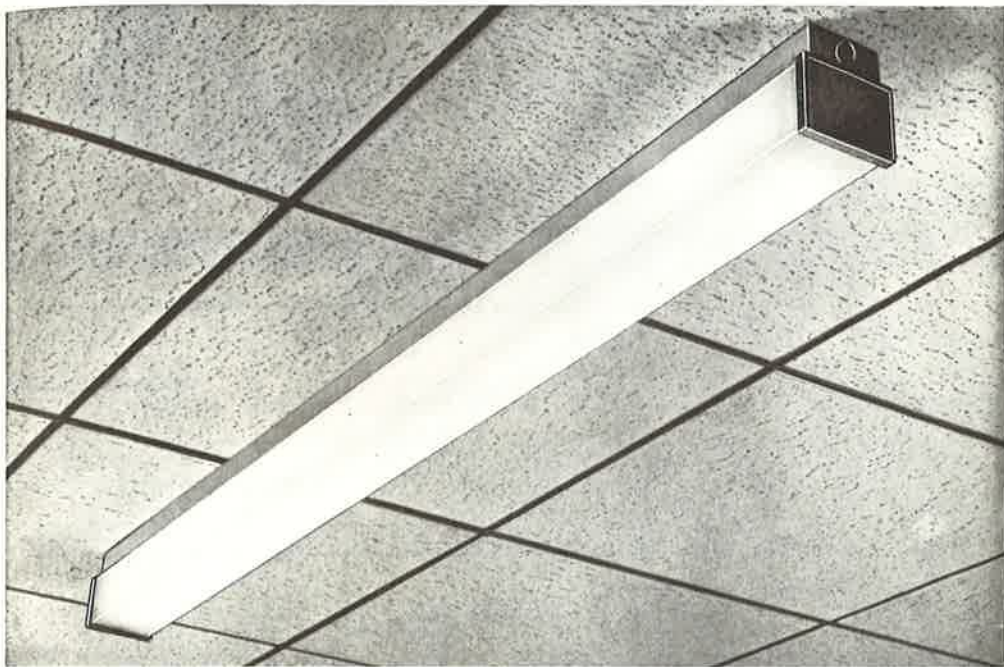
Ballasts and packs are supplied packed individually.

Please order in the form given in the following example:
50 Philips luminaires SQ25.

Made in Great Britain.

STREAMLITE POPULAR

Opal Diffusers



Diffusers mainly for commercial applications, with rectangular-section bodies with linear external reeding. Standard push-fit grey end caps have a textured surface; self-adhesive infill plates are available to give a wood grain effect. Diffusers are available in two widths: for use with a single lamp only, or in a wider version for one or two lamps.

RANGE

Diffusers are available in the narrow version to fit all Streamlite Popular one-lamp battens, and in the wider version to fit one- and two-lamp battens in 1200mm (4ft), 1500mm (5ft), 1800mm (6ft) and 2400mm (8ft) sizes. Diffuser couplers are available to make a neat join between diffusers mounted end-to-end.

APPLICATIONS

- Small and large offices
- Shops and stores
- Travel concourses
- Banks and Building Societies
- Canteens
- Corridors

Handbook Ref

1.21/2

To reorder this Data Sheet quote 9.79 PL 1717/1

Replaces

PL 1717

FEATURES

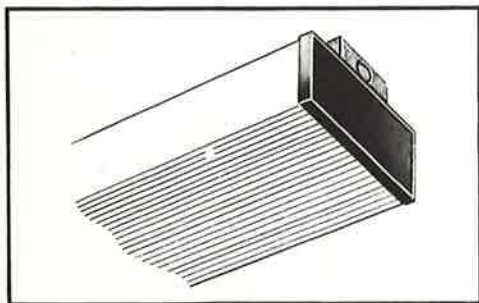
- Opal polystyrene extrusions with external linear reeding maintain an attractive appearance whether lit or unlit.
- Push-fit end caps in grey medium-impact polystyrene have an inset textured surface (see illustrations below).
- Optional self-adhesive infill plates give wood grain finish to end caps.
- Optional diffuser couplers make a neat join between diffusers mounted end-to-end.
- 125W versions now also in E start.

MATERIALS & FINISH

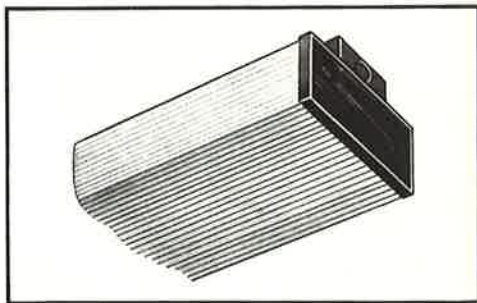
- Channels and cover plates:** Sheet steel, Durawhite stoved finish.
- Channel end caps:** Grey medium-impact polystyrene mouldings.
- Sprung bi-pin lampholders:** white urea mouldings fitted to plated spring steel supports.
- Diffuser:** Opal polystyrene extrusion with push-fit grey polystyrene end caps and two support straps.
- Decorative infill plates:** Self-adhesive composition.
- Diffuser coupler:** Sheet steel, Durawhite stoved finish.

RANGE OF OPERATION

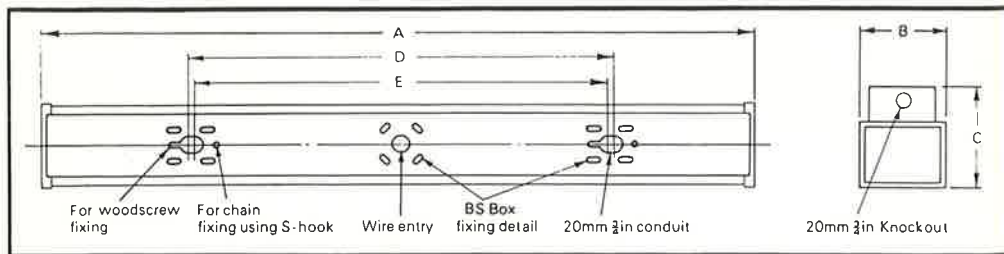
- 240V 50Hz.
- Normal indoor conditions up to 25°C (single lamp up to 30°C).
- Not suitable for wall-mounting.



Close-up of Catalogue Number DF25 opal diffuser.



Close-up of Catalogue Number DF25 opal diffuser with decorative infill type WG2 fitted to end cap to give a wood grain effect.



DIMENSIONS & WEIGHTS

Pack (batten with White 35 lamp)	Catalogue numbers		Weight complete with lamps (kg/lb)	Overall length A (mm/in.)	Batten Fixing centres E/D (mm/in.)
	Batten only	Diffuser assembly only			
P2	—	DF2	2-4/4-8	632/25	460/18
P4	S4	DF4	3-6/7-9	1242/49	600/24
P4	S4	DF24	3-9/8-6	1242/49	600/24
P24	S24	DF24	5-7/12-5	1242/49	600/24
P5	S5	DF5	4-9/10-8	1542/61	600/24
—	SQ5	DF5	5-1/11-2	1542/61	600/24
P5	S5	DF25	5-3/11-7	1542/61	600/24
—	SQ5	DF25	5-5/12-1	1542/61	600/24
P25	S25	DF25	7-7/16-9	1542/61	600/24
—	SQ25	DF25	7-9/17-4	1542/61	600/24
PQ6	SQ6	DF6	5-4/11-9	1808/71-2	600/24
PQ6	SQ6	DF26	5-8/12-8	1808/71-2	600/24
PQ26	SQ26	DF26	8-3/18-3	1808/71-2	600/24
P8	S8	DF8	6-5/14-3	2417/95-2	1200/48
P8	S8	DF28	7-0/15-4	2417/95-2	1200/48
P28	S28	DF28	10-0/22-0	2417/95-2	1200/48
PQ8E	SQ8E	DF8	6-5/14-3	2417/95-2	1200/48
PQ8E	SQ8E	DF28	7-0/15-4	2417/95-2	1200/48
PQ28E	SQ28E	DF28	10-0/22-0	2417/95-2	1200/48

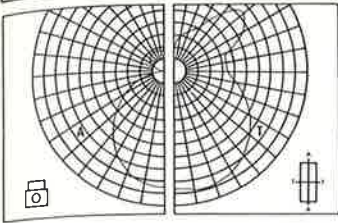
Overall width B: one lamp 97mm (3-8in.)
one or two-lamp 160mm (6-3in.)
Overall depth C: (both types) 115mm (4-5in.)

PHOTOMETRIC DATA

STREAMLITE 1 LAMP

WITH WIDE DIFFUSER

Mounting: SUSPENDED



CIE Flux Number

173141

SHR MAX	(Square)	1.84
SHR MAX TR	(Transverse)	2.24

ULORL	.29	Multiply by each Service Correction Factor
DLORL	.47	
LORL	.76	

Glare Data (IES)

Flux Fraction Ratio	.62
ACG Classification	ACG2
For RI = 2.5 at SHR = NOM	BZ6

Luminous Area (sq cm)

40W	65W	85W	125W
1987	2467	2893	3867

Measured: BS 5225 Part 1 1975

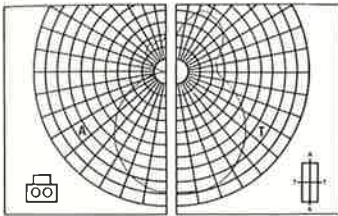
Calculated: I.E.S. TR 2 and TR 10

Test No: A871 Dated: 77.12.09

STREAMLITE 2 LAMP

WITH WIDE DIFFUSER

Mounting: SUSPENDED



CIE Flux Number

172934

SHR MAX	(Square)	1.77
SHR MAX TR	(Transverse)	2.10

ULORL	.25	Multiply by each Service Correction Factor
DLORL	.42	
LORL	.67	

Glare Data (IES)

Flux Fraction Ratio	.60
ACG Classification	ACG2
For RI = 2.5 at SHR = NOM	BZ5

Luminous Area (sq cm)

40W	65W	85W	125W
1987	2467	2893	3867

Measured: BS 5225 Part 1 1975

Calculated: I.E.S. TR 2 and TR 10

Test No: A873 Dated: 77.12.14

Photoset direct from Photometer tape output.

Service Correction Factors

	mm	40W 1200mm	65W 1500mm	85W 1800mm	125W 2400mm
Rating Factor		1.00	1.00	1.00	0.96
Amalgam Factor			1.10		
Ballast Lumen Factor SS		1.00	0.99		0.98
Ballast Lumen Factor XS			0.95	0.96	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	36	40	44	47	52	55	57	60	62
	30		31	36	39	43	48	51	54	57	60
	10		27	31	35	39	44	48	51	55	57
50	50	10	32	35	39	42	46	49	51	53	55
	30		28	31	35	38	43	46	48	51	53
	10		25	28	32	35	40	43	45	49	51
30	50	10	29	31	34	37	40	43	45	47	48
	30		25	28	31	34	38	40	42	45	47
	10		23	25	28	31	35	38	40	43	45
0	0	0	19	20	23	25	28	31	32	35	37

Multiply by each Service Correction Factor

Service Correction Factors

	40W 1200mm	65W 1500mm	85W 1800mm	125W 2400mm
Rating Factor	1.00	1.00	1.00	0.96
Amalgam Factor		1.12		
Ballast Lumen Factor SS	1.00	0.99		0.98
Ballast Lumen Factor XS		0.95	0.96	

Utilization Factors UF (F)

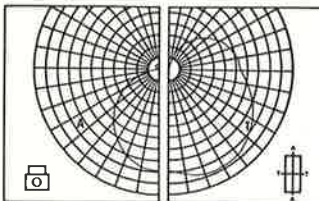
Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	32	36	40	43	47	49	51	54	55
	30		28	32	35	39	43	46	48	51	53
	10		25	28	32	35	40	43	46	49	51
50	50	10	29	32	35	38	41	44	45	48	49
	30		26	29	32	35	39	41	43	46	48
	10		23	26	29	32	36	39	41	44	46
30	50	10	26	29	31	34	37	39	40	42	44
	30		23	26	29	31	34	37	38	41	42
	10		21	23	26	29	32	35	37	39	41
0	0	0	18	19	21	24	26	28	30	32	33

Multiply by each Service Correction Factor

PHOTOMETRIC DATA

STREAMLITE DIFFUSER 1 LAMP

WITH	NARROW	DIFFUSER
Mounting: SUSPENDED		



CIE Flux Number 163041

SHR MAX	(Square)	1.99
SHR MAX TR	(Transverse)	2.57

ULORL	.22	Multiply by each Service Correction Factor
DLORL	.50	
LORL	.72	

Glare Data (IES)

Flux Fraction Ratio .44
ACG Classification ACG1
For RI = 2.5 at SHR = NOM BZ6

Luminous Area (sq cm)

20W	40W	65W	85W	125W
613	1205	1496	1754	2344

Measured: BS 5225 Part 1 1975

Calculated: I.E.S. TR 2 and TR 10

Test No: A682 Dated: 76.12.09

Photoset direct from Photometer tape output.

ORDERING DATA

Rating	Circuit	Catalogue numbers		
		Batten with White 35 lamp	Batten only	Diffuser assembly
1 x 20W 600mm (2ft)	Switch	P2	—	DF2
1 x 40W 1200mm (4ft)	Switch	P4	S4	DF4
1 x 40W 1200mm (4ft)	Switch	P4	S4	DF24
2 x 40W 1200mm (4ft)	Switch	P24	S24	DF24
1 x 65W 1500mm (5ft)	Switch	P5	S5	DF5
1 x 65W 1500mm (5ft)	Starterless	—	SQ5	DF5
1 x 65W 1500mm (5ft)	Switch	P5	S5	DF25
1 x 65W 1500mm (5ft)	Starterless	—	SQ5	DF25
2 x 65W 1500mm (5ft)	Switch	P25	S25	DF25
2 x 65W 1500mm (5ft)	Starterless	—	SQ25	DF25
1 x 85W 1800mm (6ft)	Starterless	PQ6	SQ6	DF6
1 x 85W 1800mm (6ft)	Starterless	PQ6	SQ6	DF26
2 x 85W 1800mm (6ft)	Starterless	PQ26	SQ26	DF26
1 x 125W 2400mm (8ft)	Switch	P8	S8	DF8
1 x 125W 2400mm (8ft)	Switch	P8	S8	DF28
2 x 125W 2400mm (8ft)	Switch	P28	S28	DF28
1 x 125W 2400mm (8ft)	Electronic "E Start"	PQ8E	SQ8E	DF8
2 x 125W 2400mm (8ft)	Electronic "E Start"	PQ8E	SQ8E	DF28
2 x 125W 2400mm (8ft)	Electronic "E Start"	PQ28E	SQ28E	DF28

Associated accessories

Decorative infill plates – Wood grain effect (narrow)
(supplied in pairs) – Wood grain effect (wide)
Diffuser coupler (narrow) (1 required per luminaire)
Diffuser coupler (wide) (1 required per luminaire)

Replacement Parts

Lampholder assembly
Grey diffuser end cap (narrow)
Grey diffuser end cap (wide)
Grey batten end cap (narrow)
Grey batten end cap (wide)

Catalogue number

WG1
WG2
DC1
DC2

A7673
A8023
A8024
A8025
A8026

Service Correction Factors

	20W 600 mm	40W 1200mm	65W 1500mm	85W 1800mm	125W 2400mm
Rating Factor	1.00	1.00	1.00	1.00	0.96
Amalgam Factor			1.17		
Ballast Lumen Factor SS	0.98	1.00	0.99		0.98
Ballast Lumen Factor XS			0.95	0.96	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	33	37	41	45	49	52	54	57	59
	30		28	32	36	40	45	48	51	54	57
	10		25	28	32	36	41	45	47	51	54
50	50	10	30	34	37	40	44	47	49	52	54
	30		26	29	33	36	41	44	46	49	51
	10		23	26	29	33	37	41	43	47	49
30	50	10	28	30	33	36	40	42	44	46	48
	30		24	27	30	33	37	39	41	44	46
	10		22	24	27	30	34	37	39	43	45
0	0	0	18	20	22	25	28	31	33	36	38

Multiply by each Service Correction Factor

Packing

Diffusers: two per carton.
Infill plates:
one pair per envelope, packed to order.
Diffuser coupler:
ten per carton (one lamp diffusers)
five per carton (two lamp diffusers)
Replacement end caps: packed to order.

Please order in the form given in the following example, in multiples of the packing quantity:

50 Philips battens SQ25
50 Philips diffusers DF25
50 Philips diffuser couplers DC2

Made in Great Britain.

CI/SIB
(63.1)UDC
696.6:628.972

2

STREAMLITE POPULAR

Clear Prismatic Controller

Prismatic controllers with extruded bodies of rectangular section. Linear prisms are formed on the inside surfaces of the sides, and the base has regular, well-defined prismatic impressions of pyramid form to look attractive whether lit or unlit and to control the light. Standard push-fit grey end caps have a textured surface; self-adhesive infill plates are available to give a wood grain effect.

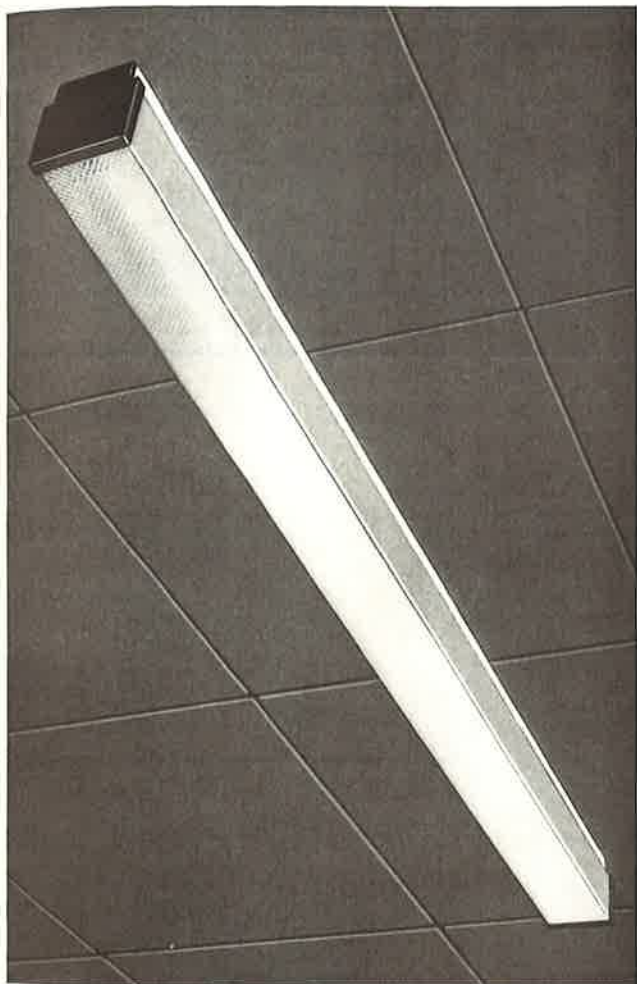
RANGE

Prismatic controllers are available in two widths: for use with a single lamp only, or in a wider version for one or two lamps to fit all Streamlite Popular battens with lengths of 1200mm (4ft), 1500mm (5ft), 1800mm (6ft) and 2400mm (8ft). Couplers can be supplied to make a neat join between controllers mounted end-to-end.

APPLICATIONS

Applications include:

- Small and large offices
- Shops and stores
- Travel concourses
- Banks and Building Societies
- Canteens
- Corridors



Handbook Ref.

1.2.1/3

To reorder this Data Sheet quote 9.79 PL1716/1

Replaces

PL1716

FLUORESCENT LUMINAIRE

FEATURES

■ Clear polystyrene extrusions with internal linear prisms on the sides and external pyramid prisms on the base – light is adequately controlled, and appearance is attractive whether lit or unlit.

■ Push-fit end caps in grey medium-impact polystyrene with textured surface.

■ Optional self-adhesive infill plates give wood grain finish to end caps (see illustrations at foot of page).

■ Optional couplers make a neat join between controllers mounted end-to-end.

■ 125W versions now also in E start.

MATERIALS & FINISH

Channels and cover plates: sheet steel, Durawhite stoved finish.

Channel end caps: grey medium-impact polystyrene mouldings.

Sprung bi-pin lampholders: white urea mouldings fitted to plated spring steel supports.

Controller assembly: Clear polystyrene prismatic extrusion with push-fit grey polystyrene end caps and two support straps.

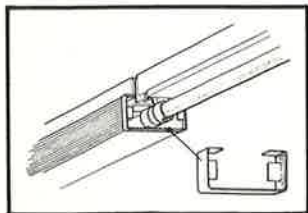
Decorative infill plates: Self-adhesive composition.

Controller coupler: Sheet steel, Durawhite stoved finish.

RANGE OF OPERATION

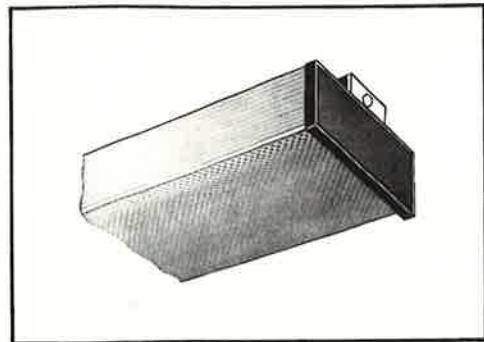
240V 50Hz.

Minus 5°C to 25°C (single lamp 30°C).
Not suitable for wall-mounting.



Controller Coupler

Close-up of Catalogue Number PC25 prismatic controller.



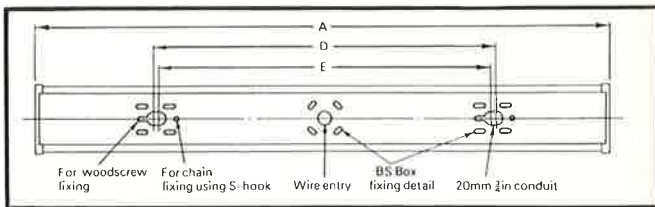
DIMENSIONS & WEIGHTS

Pack (batten and White 35 lamp)	Catalogue numbers		Weight complete with lamps (kg/lb)	Overall length A (mm/in.)	Batten Fixing centres E/D (mm/in.)
	Batten only	Controller assembly only			
P4	S4	PC4	3.5/7.7	1242/49	600/24
P4	S4	PC24	3.9/8.6	1242/49	600/24
P24	S24	PC24	5.3/11.7	1242/49	600/24
P5	S5	PC5	5.0/11.0	1542/61	600/24
—	SQ5	PC5	5.2/11.4	1542/61	600/24
P5	S5	PC25	5.4/11.9	1542/61	600/24
—	SQ5	PC25	5.6/12.3	1542/61	600/24
P25	S25	PC25	7.8/17.2	1542/61	600/24
—	SQ25	PC25	8.0/17.6	1542/61	600/24
PQ6	SQ6	PC6	5.6/12.3	1808/71.2	600/24
PQ6	SQ6	PC26	6.0/13.2	1808/71.2	600/24
PQ26	SQ26	PC26	8.5/18.7	1808/71.2	600/24
P8	S8	PC8	6.7/14.7	2417/95.2	1200/48
P8	S8	PC28	7.3/16.1	2417/95.2	1200/48
P28	S28	PC28	10.3/22.7	2417/95.2	1200/48
PQ8E	SQ8E	PC8	6.7/14.7	2417/95.2	1200/48
PQ8E	SQ8E	PC28	7.3/16.1	2417/95.2	1200/48
PQ28E	SQ28E	PC28	10.3/22.7	2417/95.2	1200/48

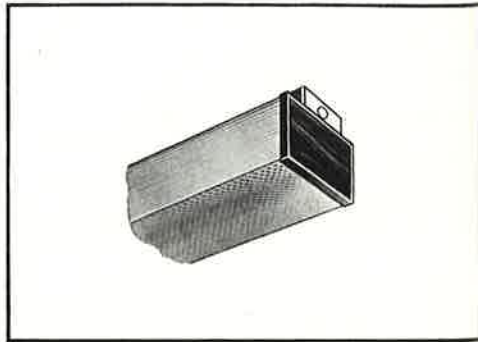
Overall width B: One-lamp 97mm (3.8in.)

One- or two-lamp 160mm (6.3in.)

Overall depth C: (both types) 115mm (4.5in.)

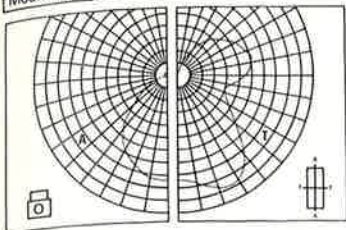


Close-up of Catalogue Number PC5 prismatic controller with infill type WG1 fitted to end cap to give wood grain effect.



PHOTOMETRIC DATA
STREAMLITE CONTROLLER 1 LAMP

WITH NARROW CONTROLLER
Mounting: SUSPENDED



CIE Flux Number 233745

SHR MAX (Square)	1.84
SHR MAX TR (Transverse)	2.15

ULORL .29	Multiply by each Service Correction Factor
DLORL .52	
LORL .81	

Glare Data (IES)

Flux Fraction Ratio	.56		
ACG Classification	ACG5		
For RI = 2.5 at SHR = NOM	BZ5		
Luminous Area (sq cm)			
40W	65W	85W	125W
1205	1496	1754	2344

Measured: BS 5225 Part 1 1975
Calculated: I.E.S. TR 2 and TR 10
Test No: A616 Dated: 76.08.31

Service Correction Factors

	40W 1200 mm	65W 1500 mm	85W 1800 mm	125W 2400 mm
Rating Factor	1.00	1.00	1.00	0.96
Amalgam Factor		1.19		
Ballast Lumen Factor SS	1.00	0.99		0.98
Ballast Lumen Factor XS		0.95	0.96	

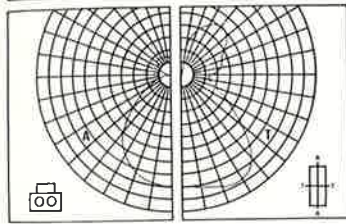
Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	41	46	50	53	58	61	63	66	67
	30		37	40	45	48	53	57	59	63	65
	10		33	37	41	45	50	53	56	60	62
50	50	10	38	41	45	48	52	54	56	59	60
	30		34	37	41	44	48	51	53	56	58
	10		31	34	38	41	45	49	51	54	56
30	50	10	34	37	40	43	46	48	50	52	54
	30		31	34	37	40	43	46	48	50	52
	10		29	31	34	37	41	44	46	49	51
0	0	0	25	26	29	31	34	36	38	40	42

Multiply by each Service Correction Factor

STREAMLITE CONTROLLER 2 LAMP

WITH CONTROLLER
Mounting: SUSPENDED



CIE Flux Number 243946

SHR MAX (Square)	1.84
SHR MAX TR (Transverse)	2.14

ULORL .30	Multiply by each Service Correction Factor
DLORL .49	
LORL .79	

Glare Data (IES)

Flux Fraction Ratio	.61		
ACG Classification	ACG5		
For RI = 1.5 at SHR = NOM	BZ4		
Luminous Area (sq cm)			
40W	65W	85W	125W
1987	2467	2893	3867

Measured: BS 5225 Part 1 1975
Calculated: I.E.S. TR 2 and TR 10
Test No: A621 Dated: 76.09.03

Service Correction Factors

	40W 1200mm	65W 1500mm	85W 1800mm	125W 2400mm
Rating Factor	1.04	1.00	1.00	0.96
Amalgam Factor		1.16		
Ballast Lumen Factor SS	1.00	0.99		0.98
Ballast Lumen Factor XS		0.95	0.96	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	42	46	50	53	58	61	62	65	67
	30		37	41	46	49	54	57	60	63	65
	10		34	38	42	46	51	54	57	60	63
50	50	10	38	42	45	48	52	54	56	58	60
	30		35	38	42	45	49	52	54	56	58
	10		32	35	39	42	46	49	52	55	56
30	50	10	35	37	40	43	46	48	50	52	53
	30		32	34	38	40	44	46	48	50	52
	10		30	32	35	38	42	45	46	49	50
0	0	0	26	27	30	32	35	37	38	40	41

Multiply by each Service Correction Factor

Photoset direct from Photometer tape output.

ORDERING DATA

Rating	Circuit	Catalogue numbers		
		Batten with White 35 lamp	Batten only	Controller assembly only†
1 x 40W 1200mm (4ft)	Switch	P4	S4	PC4
1 x 40W 1200mm (4ft)	Switch	P4	S4	PC24
2 x 40W 1200mm (4ft)	Switch	P24	S24	PC24
1 x 65W 1500mm (5ft)	Switch	P5	S5	PC5
1 x 65W 1500mm (5ft)	Starterless	—	SQ5	PC5
1 x 65W 1500mm (5ft)	Switch	P5	S5	PC25
1 x 65W 1500mm (5ft)	Starterless	—	SQ5	PC25
2 x 65W 1500mm (5ft)	Switch	P25	S25	PC25
2 x 65W 1500mm (5ft)	Starterless	—	SQ25	PC25
1 x 85W 1800mm (6ft)	Starterless	PQ6	SQ6	PC6
1 x 85W 1800mm (6ft)	Starterless	PQ6	SQ6	PC26
2 x 85W 1800mm (6ft)	Starterless	PQ26	SQ26	PC26
1 x 125W 2400mm (8ft)	Switch	P8	S8	PC8
1 x 125W 2400mm (8ft)	Switch	P8	S8	PC28
2 x 125W 2400mm (8ft)	Switch	P28	S28	PC28
1 x 125W 2400mm (8ft)	Electronic "E Start"	PQ8E	SQ8E	PC8
1 x 125W 2400mm (8ft)	Electronic "E Start"	PQ8E	SQ8E	PC28
2 x 125W 2400mm (8ft)	Electronic "E Start"	PQ28E	SQ28E	PC28

†Assembly comprises controller end caps and support straps.

Please order in the form given in the following example, in multiples of the packing quantity:

50 Philips battens SQ25

50 Philips controllers PC25

50 Philips controller couplers DC2

Associated accessories

Decorative infill plates – Wood grain effect (narrow)

(supplied in pairs) – Wood grain effect (wide)

Controller coupler (narrow) (1 required per luminaire)

Controller coupler (wide) (1 required per luminaire)

Catalogue number

WG1

WG2

DC1

DC2

Replacement parts

Lampholder

A7673

Grey controller end cap (narrow)

A8023

Grey controller end cap (wide)

A8024

Grey batten end cap (narrow)

A8025

Grey batten end cap (wide)

A8026

Packing quantities

Controller Assemblies: two per carton.

Controller coupler: ten per carton.

Infill plates: one pair per carton.

Replacement parts: one per carton.



Made in Great Britain.

CI/SIB
(63.1)

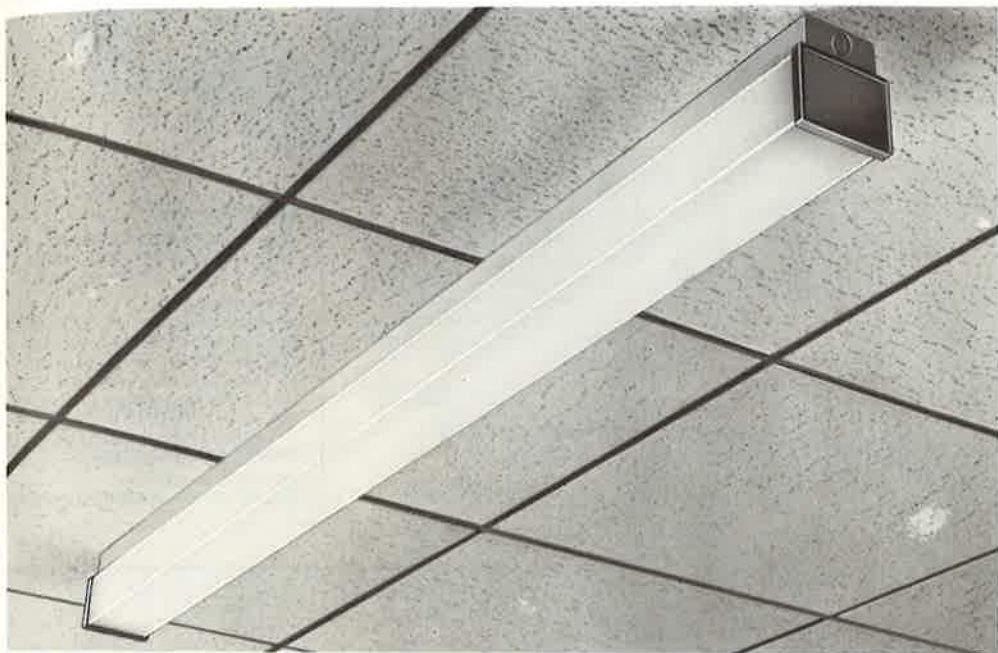
UDC

696.6:628.972

2

STREAMLITE 3-in-1 KOMBIPAK

Batten complete with opal
diffuser and White 35 lamp



Surface-mounted luminaire consisting of batten, White 35 lamp and opal diffuser with linear external reeding and push-fit grey end caps with textured surface. Supplied as a KombiPak complete with fixing accessories.

RANGE

KP4 – 40W 1200mm (4ft) rating, switchstart circuit

KP5 – 65W 1500mm (5ft) rating, switchstart circuit

KP6 – 85W 1800mm (6ft) rating, starterless circuit.

Each pack contains batten, diffuser, end caps, diffuser supports and 2 x 1½ in. No. 8 woodscrews.

APPLICATIONS

In new installations or as replacements for tungsten filament or old fluorescent installations, e.g. in:

- Small and large offices
- Shops and stores
- Travel concourses
- Canteens
- Corridors
- Domestic (e.g. kitchen)

Handbook Ref.

1.2.1/4

To reorder this Data Sheet quote 7,79 PL No. 1887

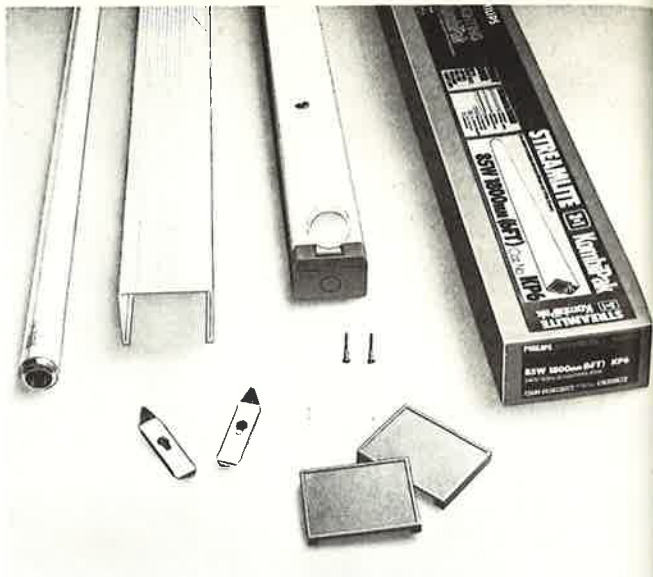
Replaces

NEW

FLUORESCENT LUMINAIRE

FEATURES

- Energy-saving replacement for old-fashioned installations – the 1200mm (4ft) version consumes 51 Watts, yet the lamp gives more light than two 100 Watt filament lamps.
- Convenient KombiPak contains lamp, diffuser and parts needed for installation.
- Opal polystyrene diffuser with linear external reeding maintains an attractive appearance whether lit or unlit.
- Easily mounted onto a standard BS box, which it covers completely.
- Batten end caps have 20mm ($\frac{3}{4}$ in) knockouts for end conduit termination, and peg-and-socket locations to align luminaires mounted end-to-end.
- Low-loss ballast is firmly attached with nuts and studs for efficient heat transfer. Terminals provide positive connections, with no screws to come loose.
- External metal parts are Durawhite finished for long service and retention of reflective properties.
- Spring-loaded injection-moulded lampholders are fixed in seconds, and one person can relamp a luminaire from one end.
- Miniature two-contact starter switches have tough insulated canisters and are neatly located in the side of the channel.



MATERIALS & FINISH

Batten channels and cover plates: Sheet steel, Durawhite finish.

Channel end caps: Grey medium-impact polystyrene mouldings.

Sprung bi-pin lampholders: White urea mouldings fitted to plated spring steel supports.

Diffuser: Opal polystyrene extrusion with push-fit grey polystyrene end caps and two support straps.

SPECIFICATION

■ Type compliance with BS 4533 2.2 Ordinary Indoor Class I. Complies with S.I. 1978 No. 1268 Regulation 6.

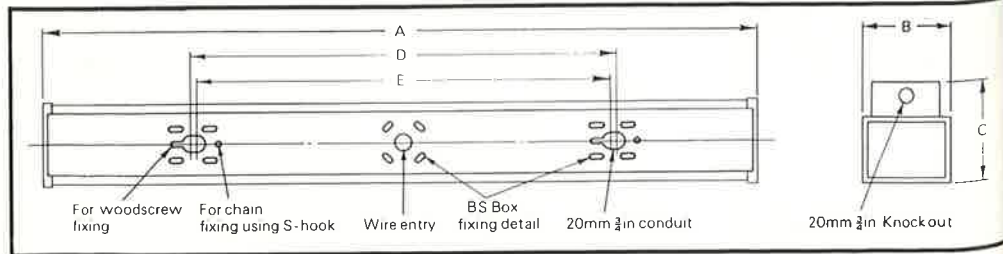
To specify state:

■ Batten fluorescent lamp luminaire, supplied as a KombiPak complete with opal diffuser, lamp and fixing accessories; batten to cover a standard BS box. Similar to Philips Streamlite KombiPak.

RANGE OF OPERATION

240V 50Hz supplies.
Normal indoor conditions, up to 30°C.

DIMENSIONS



DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Catalogue No.	Weight complete with lamps (kg/lb)	Overall length A (mm/in)	Batten fixing centres (E/D) (mm/in)	Circuit Watts (running)	Electrical characteristics		Minimum Power Factor
					Circuit Current (Amperes)		
KP4	3.6/7.9	1242/49	600/24	51	0.23		0.85
KP5	4.9/10.6	1542/61	600/24	77	0.34		0.85
KP6	5.4/11.9	1808/71.2	600/24	96	0.46		0.90

All types:-

Overall width (B): 97mm (3.8in)

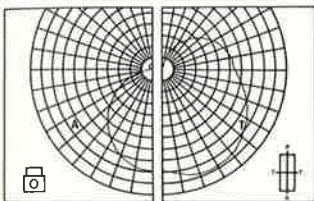
Overall depth (C): 115mm (4.5in)



PHOTOMETRIC DATA

STREAMLITE DIFFUSER 1 LAMP

WITH	NARROW	DIFFUSER
Mounting: SUSPENDED		



CIE Flux Number

163041

SHR MAX	(Square)	1.99
SHR MAX TR	(Transverse)	2.57

ULORL	.22	Multiply by each Service Correction Factor
DLORL	.50	
LORL	.72	

Glare Data (IES)

Flux Fraction Ratio	.44	
ACG Classification	ACG1	
For Ri = 2.5 at SHR = NOM	BZ6	
Luminous Area (sq cm)		
40W	65W	85W
1205	1496	1754

Measured:	BS 5225 Part 1 1975
Calculated:	I.E.S. TR 2 and TR 10
Test No:	A682
Dated:	76.12.09

Service Correction Factors

	40W 1200mm	65W 1500mm	85W 1800mm	
Rating Factor	1.00	1.00	1.00	
Amalgam Factor		1.17		
Ballast Lumen Factor SS	1.00	0.99		
Ballast Lumen Factor XS			0.96	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	33	37	41	45	49	52	54	57	59
	30		28	32	36	40	45	48	51	54	57
	10		25	28	32	36	41	45	47	51	54
50	50	10	30	34	37	40	44	47	49	52	54
	30		26	29	33	36	41	44	46	49	51
	10		23	26	29	33	37	41	43	47	49
30	50	10	28	30	33	36	40	42	44	46	48
	30		24	27	30	33	37	39	41	44	46
	10		22	24	27	30	34	37	39	43	45
0	0	0	18	20	22	25	28	31	33	36	38

Multiply by each Service Correction Factor

ORDERING DATA

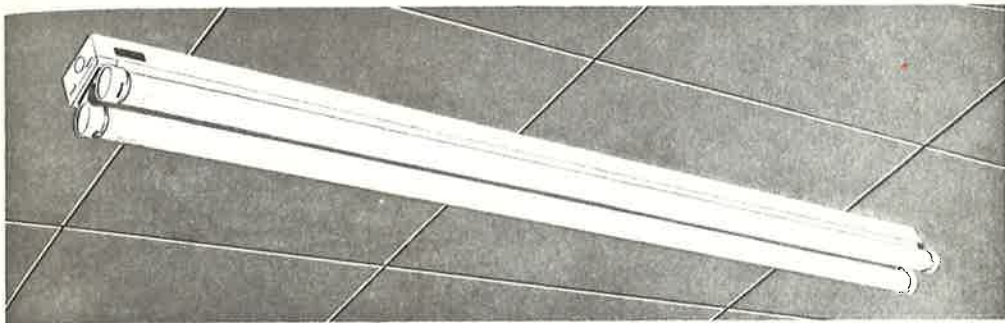
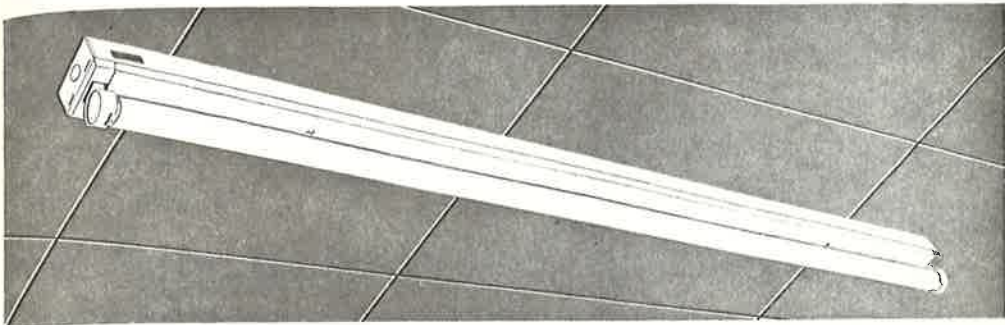
Catalogue No.	Description
KP4	KombiPak complete with 40W 1200mm (4ft) batten, White 35 lamp, diffuser and fixing accessories – switchstart circuit.
KP5	KombiPak complete with 65W 1500mm (5ft) batten, White 35 lamp, diffuser and fixing accessories – switchstart circuit.
KP6	KombiPak complete with 85W 1800mm (6ft) batten, White 35 lamp, diffuser and fixing accessories – starterless circuit.

Luminaires are supplied complete with lamp and diffuser in one carton.

Please order in the form given in the following example, in multiples of the packing quantity:–
10 Philips KombiPaks KP4

Made in UK

FEATURE



High-quality Luminaires for Fluorescent Lamps

Feature high quality fused luminaires may be used as Battens, with Trough or Angle Reflectors for industrial use, or with Diffusers or Prismatic Controllers for commercial applications. The Battens are attractively finished in Durawhite stoved finish with white chamfered end caps.

RANGE

One- and two-lamp batten luminaires in:

1200mm (4ft), 1500mm (5ft),
1800mm (6ft) and 2400mm (8ft) sizes.
2400mm (8ft) ratings available in
electronic "E start"

All battens are supplied fitted with
low-loss control gear.

Full details of the attachment can be
found in Data Sheets:

PL 1720 Trough Reflectors
PL 1721 Angled Reflectors
PL 1722 Opal Diffuser
PL 1723 Prismatic Controller

APPLICATIONS

For use in any normal indoor
situation such as:-

- Small or large offices
- Shops and departmental stores
- Corridors
- Stock and store rooms
- Canteens
- Workshops

FLUORESCENT LUMINAIRE

Handbook Ref

1.2.2/1

To reorder this Data Sheet quote 9.79 PL1719/2

Replaces PL1719/1

FEATURES

- Easily mounted onto a standard BS box, which it covers completely.
- The channel and cover plates are finished in Durawhite stoved finish for long service life and retention of reflective properties.
- Attractively chamfered end caps feature 20mm ($\frac{3}{4}$ in.) knockouts for end conduit terminations.
- Spring-mounted, injection-moulded lampholders are fixed in seconds, and one person can re-lamp a luminaire from one end. Lampholders of two-lamp luminaires are individually mounted, so that one lamp can be removed without disturbing the other, and are keyed to prevent accidental cross-over.
- Low-loss starterless control gear conserves energy.
- Each batten is provided with a 3-way terminal block of $2 \times 2.5\text{mm}^2$ section cable capacity, and a side-mounted fuse. Internal wiring is held by cleats, and additional cleats are provided down one side for contractors' wiring.
- 125W versions of Feature in "E start".

MATERIALS & FINISH

Channels and cover plates: Sheet steel, Durawhite stoved finish.

Channel end caps: White medium-impact polystyrene.

Sprung bi-pin lampholders: White urea mouldings fitted to plated spring steel supports.

SPECIFICATION

- Type compliance with BS 4533 2.2 Class I Ordinary Indoor.

To specify state:

Batten fluorescent lamp luminaires complying with BS 4533 2.2, with Durawhite stoved finish, fuse and starterless control gear, covering a BS box, similar to Phillips Feature luminaires.

RANGE OF OPERATION

240V 50Hz.
Normal indoor conditions.

CIRCUIT COMPONENTS

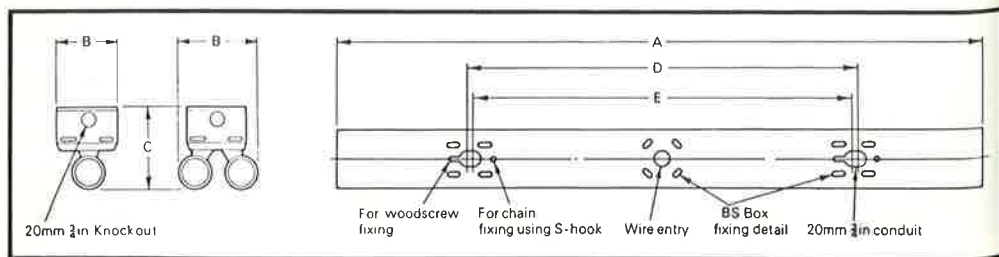
Catalogue numbers		Capacitor part numbers	Capacitor (dry film type)
Batten	Ballast		
FSQ4	BBX40	H1655	5.5mfd $\pm 5\%$ (250V)
FSQ24	2 x BBX40		2 x 5.5mfd $\pm 5\%$ (250V)
FSQ5	BBX65	H1684	8.4mfd $\pm 5\%$ (250V)
FSQ25	2 x BBX65		2 x 8.4mfd $\pm 5\%$ (250V)
FSQ6	BBXK85		8.4mfd $\pm 5\%$ (250V)
FSQ26	2 x BBXK85		2 x 8.4mfd $\pm 5\%$ (250V)
FSQ85	BBX85	H1650/1	5.0mfd $\pm 5\%$ (440V)
FSQ285	2 x BBX85		2 x 5.0mfd $\pm 5\%$ (440V)
FSQ8E	1 x BBE125*	H1672	7.2mfd $\pm 5\%$ (440V)
FSQ28E	2 x BBE125*	H1672	2 x 7.2mfd $\pm 5\%$ (440V)

*With ES06 electronic starters see data sheet PL 1785/1

Harmonic content

Third harmonic content will not normally exceed 45% for 40W-85W 1800mm and 2400mm 125W ratings, or 30% for 2400mm 85W ratings, measured in the neutral of a balanced 3-phase 4-wire supply. Divide by three for equivalent single-phase values.

All information quoted relates to average luminaires on a 240V 50Hz supply at 25°C.



DIMENSIONS, WEIGHTS & ELECTRICAL DATA

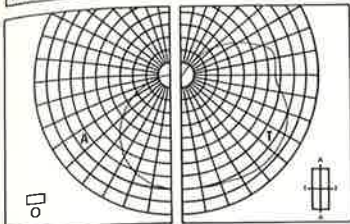
Catalogue number	Rating	Overall length A (mm/in.)	Fixing centres (mm/in.)	Weight with lamp(s) (kg/lb)	Electrical characteristics		
					Circuit Watts (running)	Circuit current (Amperes)	Minimum power factor
Starterless types							
FSQ4	1 lamp 40W 1200mm (4ft)	1234/48-6	600/24	3-4/7-5	55	0.25	0.9
FSQ24	2 lamp 40W 1200mm (4ft)	1234/48-6	600/24	5-8/12-7	110	0.5	0.9
FSQ5	1 lamp 65W 1500mm (5ft)	1534/60-5	600/24	4-4/9-6	82	0.4	0.9
FSQ25	2 lamp 65W 1500mm (5ft)	1534/60-5	600/24	6-8/15-0	164	0.8	0.9
FSQ6	1 lamp 85W 1800mm (6ft)	1800/71	600/24	4-6/10-0	100	0.5	0.9
FSQ26	2 lamp 85W 1800mm (6ft)	1800/71	600/24	7-1/15-6	200	1.0	0.9
FSQ85	1 lamp 85W 2400mm (8ft)	2409/95	1200/48	6-5/14-3	105	0.5	0.9
FSQ285	2 lamp 85W 2400mm (8ft)	2409/95	1200/48	10-2/22-3	210	1.0	0.9
Electronic start types							
FSQ8E	1 lamp 125W 2400mm (8ft)	2409/95	1200/48	5-4/11-9	137	0.94	0.66 LDG
FSQ28E	2 lamp 125W 2400mm (8ft)	2409/95	1200/48	8-4/18-5	276	1.98	0.66 LDG

Overall width: One lamp 76mm (3in.)
Two lamp 98mm (3.8in.)
Overall depth (all luminaires): 100mm (4in.)

PHOTOMETRIC DATA

FEATURE 1 LAMP

BATTEN	WITHOUT	ATTACHMENT
Mounting: SUSPENDED		



CIE Flux Number

213955

SHR MAX	(Square)	2.00
SHR MAX TR	(Transverse)	2.67

ULORL	.24	Multiply by each Service Correction Factor
DLORL	.67	
LORL	.91	

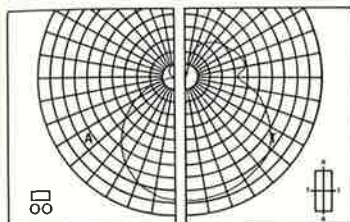
Glare Data (IES)

Flux Fraction Ratio	.36			
ACG Classification	ACG2			
For RI = 2.5 at SHR = NOM	BZ6			
Luminous Area (sq cm)				
40W	65W	85W	85W	125W
900	1100	1300	1750	1750

Measured:	BS 5225 Part 1 1975
Calculated:	I.E.S. TR 2 and TR 10
Test No:	A612
Dated:	76.08.26

FEATURE 2 LAMP

BATTEN	WITHOUT	ATTACHMENT
Mounting: SUSPENDED		



CIE Flux Number

234256

SHR MAX	(Square)	1.86
SHR MAX TR	(Transverse)	2.35

ULORL	.28	Multiply by each Service Correction Factor
DLORL	.65	
LORL	.93	

Glare Data (IES)

Flux Fraction Ratio	.43			
ACG Classification	ACG2			
For RI = 2.5 at SHR = NOM	BZ6			
Luminous Area (sq cm)				
40W	65W	85W	85W	125W
1150	1450	1750	2300	2300

Measured:	BS 5225 Part 1 1975
Calculated:	I.E.S. TR 2 and TR 10
Test No:	A617
Dated:	76.09.01

Photoset direct from Photometer tape output.

Service Correction Factors

	40W 1200mm	65W 1500mm	85W 1800mm	85W 2400mm	125W 2400mm
Rating Factor	1.00	1.00	1.00	1.00	1.00
Amalgam Factor		1.00			
Ballast Lumen Factor SS					
Ballast Lumen Factor XS	1.02	0.95	0.96	0.99	1.00

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	42	47	52	56	62	66	69	73	75
	30		35	40	45	49	56	60	64	68	72
	10		31	35	40	44	51	56	59	65	68
50	50	10	38	42	47	51	56	60	63	66	69
	30		33	37	41	45	51	55	58	63	66
	10		29	32	37	41	47	52	55	60	63
30	50	10	35	39	43	46	51	54	57	60	62
	30		31	34	38	42	47	51	53	57	60
	10		27	30	34	38	43	47	50	55	58
0	0	0	23	25	29	32	37	40	43	47	49

Multiply by each Service Correction Factor

Service Correction Factors

	40W 1200mm	65W 1500mm	85W 1800mm	85W 2400mm	125W 2400mm
Rating Factor	1.00	1.00	1.00	1.00	1.00
Amalgam Factor		1.00			
Ballast Lumen Factor SS					
Ballast Lumen Factor XS	1.02	0.95	0.96	0.99	1.00

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	45	50	55	59	65	69	72	76	78
	30		39	43	49	53	60	64	67	72	75
	10		34	38	44	48	55	60	63	68	72
50	50	10	41	45	50	54	59	62	65	68	71
	30		36	40	45	49	54	58	61	65	68
	10		32	36	40	45	51	55	58	63	66
30	50	10	38	41	45	48	53	56	59	62	64
	30		33	36	41	44	49	53	56	59	62
	10		30	33	37	41	46	50	53	57	60
0	0	0	26	28	31	35	39	42	45	48	51

Multiply by each Service Correction Factor

ORDERING DATA

Catalogue Number	Rating	Circuit
FSQ4	1 × 40W 1200mm (4ft)	Starterless
FSQ24	2 × 40W 1200mm (4ft)	Starterless
FSQ5	1 × 65W 1500mm (5ft)	Starterless
FSQ25	2 × 65W 1500mm (5ft)	Starterless
FSQ6	1 × 85W 1800mm (6ft)	Starterless
FSQ26	2 × 85W 1800mm (6ft)	Starterless
FSQ85	1 × 85W 2400mm (8ft)	Starterless
FSQ285	2 × 85W 2400mm (8ft)	Starterless
FSQ8E	1 × 125W 2400mm (8ft)	Electronic "E Start"
FSQ28E	2 × 125W 2400mm (8ft)	Electronic "E Start"

All battens are supplied packed individually.

Lamps should be ordered separately.

Please order as in the form given in the following example:

50 Philips FSQ25 fluorescent luminaires

Made in Great Britain

CI/SIB	(63.1)
UDC	696.6:628.972

FEATURE Opal Diffusers

Diffusers mainly for commercial applications, with rectangular-section bodies with linear external reeding. Push-fit grey end caps have a textured surface; alternatively self-adhesive infill plates are available to give a wood grain effect.

Diffusers are available in two widths: for use with a single lamp only, or in a wider version for one or two lamps.

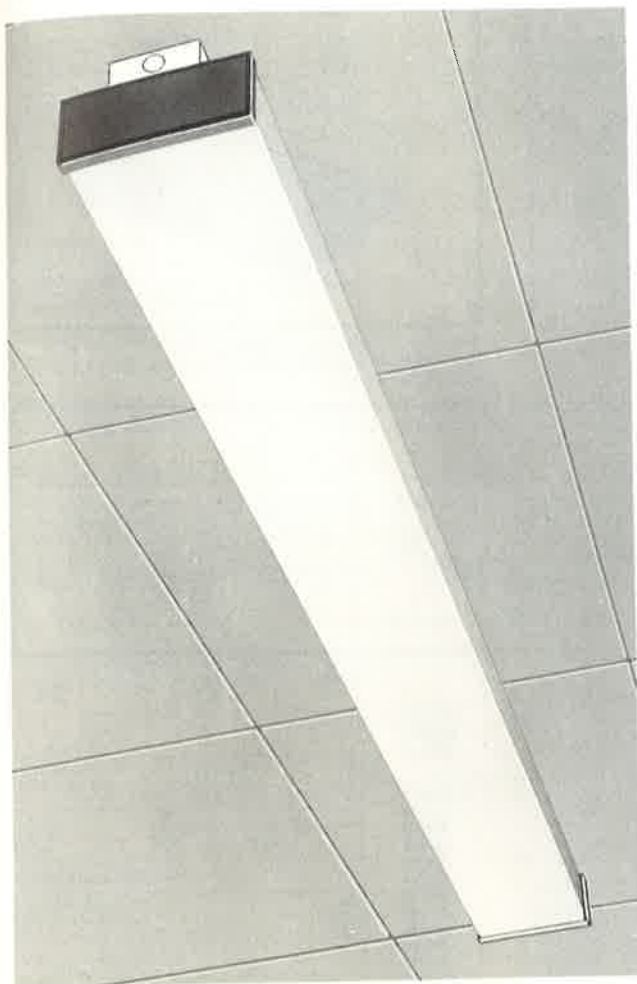
RANGE

Diffusers are available in both narrow (1-lamp) or wide (1- or 2-lamp) versions to fit all lengths of Feature battens. Diffuser couplers are available to provide a neat joint between diffusers mounted end-to-end.

APPLICATIONS

For use in normal indoor applications such as:

- Small and large offices
- Shops and stores
- Travel concourses
- Banks and Building Societies
- Canteens
- Corridors



Wide version diffuser.

Handbook Ref.

1.2.2/2

To reorder this data sheet quote

9.79 PL 1722/1

Replaces

PL 1722

FEATURES

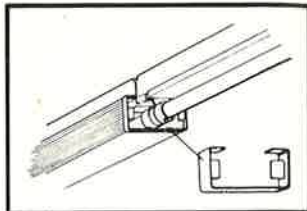
- Opal polystyrene extrusions with external linear reeding maintain an attractive appearance whether lit or unit.
- Push-fit end caps in grey medium-impact polystyrene have an inset textured surface.
- Optional self-adhesive infill plates give a wood grain effect to end caps.
- Optional diffuser couplers make a neat join between diffusers mounted end-to-end.
- 125W versions of Feature in E start.

MATERIALS & FINISH

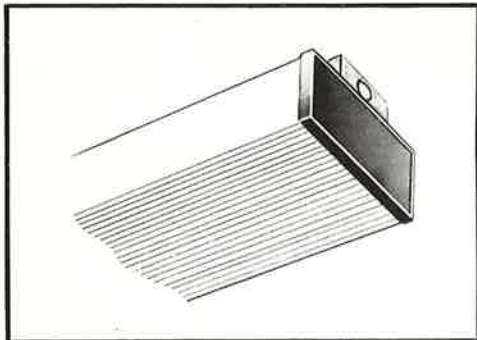
- Channels and cover plates:** Sheet steel, Durawhite stoved finish.
- Channel end caps:** White medium-impact polystyrene mouldings.
- Sprung bi-pin lampholders:** White urea mouldings fitted to plated spring steel supports.
- Diffuser:** Opal polystyrene extrusion with push-fit grey medium-impact polystyrene end caps and two support straps.
- Decorative infill plates:** Self-adhesive composition.
- Diffuser coupler:** Sheet steel, Durawhite stoved finish.

RANGE OF OPERATION

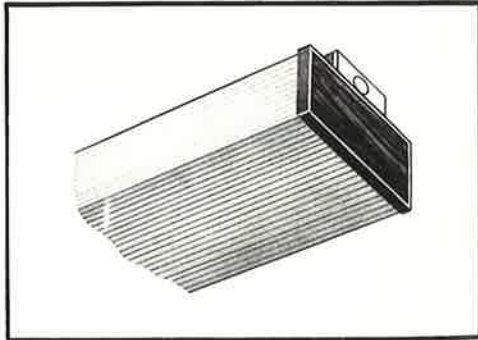
- 240V 50Hz.
5°C to 25°C (single lamp 30°C).
Not suitable for wall-mounting.



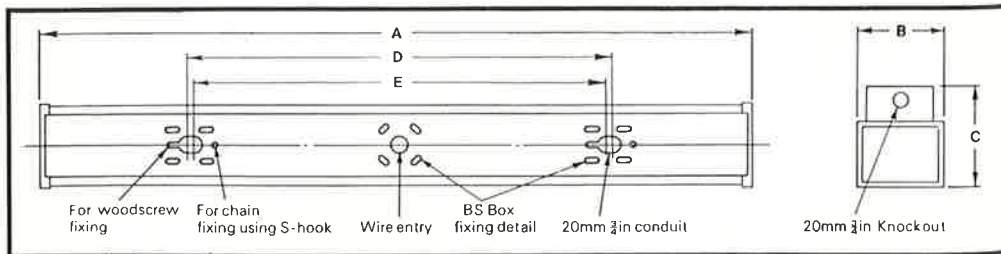
Diffuser coupler



Close-up of Catalogue Number DF25 opal diffuser.



Close-up of Catalogue Number DF25 opal diffuser with decorative infill type WG2 fitted to end cap to give a wood grain effect.



DIMENSIONS & WEIGHTS

Batten only	Catalogue Nos. Diffuser attachment only	Weight complete with lamps (kg/lb)	Overall length (mm/in.) (A)	Fixing centres (mm/in.) (E/D)
FSQ4	DF4	4-0/8-9	1242/49	600/24
FSQ4	DF24	4-3/9-5	1242/49	600/24
FSQ24	DF24	6-7/14-7	1242/49	600/24
FSQ5	DF5	5-1/11-4	1542/61	600/24
FSQ5	DF25	5-5/12-1	1542/61	600/24
FSQ25	DF25	7-9/17-5	1542/61	600/24
FSQ6	DF6	5-4/12-2	1808/71-2	600/24
FSQ6	DF26	5-8/12-8	1808/71-2	600/24
FSQ26	DF26	8-3/18-4	1808/71-2	600/24
FSQ85	DF8	7-0/17-2	2417/95-2	1200/48
FSQ85	DF28	8-1/17-8	2417/95-2	1200/48
FSQ285	DF28	11-8/25-8	2417/95-2	1200/48
FSQ8E	DF8	6-5/14-3	2417/95-2	1200/48
FSQ8E	DF28	7-0/15-4	2417/95-2	1200/48
FSQ28E	DF28	10-0/22-0	2417/95-2	1200/48

Overall width (B): 1 lamp 97mm (3-8in.)

1 or 2 lamp 160mm (6-3in.)

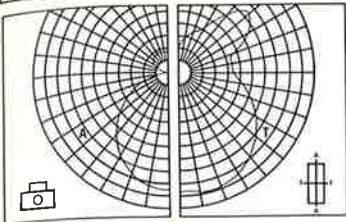
Overall depth (C) (both types): 115mm (4-5in.)

PHOTOMETRIC DATA

FEATURE 1 LAMP

WITH WIDE DIFFUSER

Mounting: SUSPENDED



CIE Flux Number

173141

SHR MAX	(Square)	1.84
SHR MAX TR	(Transverse)	2.24

ULORL	.29	Multiply by each Service Correction Factor
DLORL	.47	
LORL	.76	

Glare Data (IES)

Flux Fraction Ratio	.62			
ACG Classification	ACG2			
For Ri = 2.5 at SHR = NOM	BZ6			
Luminous Area (sq cm)				
40W	65W	85W	85W	125W
1987	2467	2893	3867	3867

Measured: BS 5225 Part 1 1975

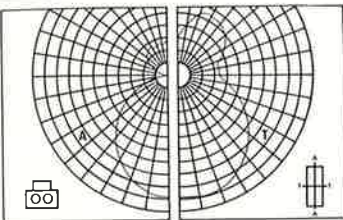
Calculated: I.E.S. TR 2 and TR 10

Test No: A871 Dated: 77.12.09

FEATURE 2 LAMP

WITH WIDE DIFFUSER

Mounting: SUSPENDED



CIE Flux Number

172934

SHR MAX	(Square)	1.77
SHR MAX TR	(Transverse)	2.10

ULORL	.25	Multiply by each Service Correction Factor
DLORL	.42	
LORL	.67	

Glare Data (IES)

Flux Fraction Ratio	.60			
ACG Classification	ACG2			
For Ri = 2.5 at SHR = NOM	BZ5			
Luminous Area (sq cm)				
40W	65W	85W	85W	125W
1987	2467	2893	3867	3867

Measured: BS 5225 Part 1 1975

Calculated: I.E.S. TR 2 and TR 10

Test No: A873 Dated: 77.12.14

Photoset direct from Photometer tape output.

Service Correction Factors

	40W 1200mm	65W 1500mm	85W 1800mm	85W 2400mm	125W 2400mm
Rating Factor	1.00	1.00	1.00	0.96	0.96
Amalgam Factor					
Ballast Lumen Factor SS					
Ballast Lumen Factor XS	1.02	0.95	0.96	0.99	1.00

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	36	40	44	47	52	55	57	60	62
	30		31	35	39	43	48	51	54	57	60
	10		27	31	35	39	44	48	51	55	57
50	50	10	32	35	39	42	46	49	51	53	55
	30		28	31	35	38	43	46	48	51	53
	10		25	28	32	35	40	43	45	49	51
30	50	10	29	31	34	37	40	43	45	47	48
	30		25	28	31	34	38	40	42	45	47
	10		23	25	28	31	35	38	40	43	45
0	0	0	19	20	23	25	28	31	32	35	37

Multiply by each Service Correction Factor

Service Correction Factors

	40W 1200 mm	65W 1500 mm	85W 1800 mm	85W 2400 mm	125W 2400 mm
Rating Factor	1.00	1.00	1.00	0.96	0.96
Amalgam Factor					
Ballast Lumen Factor SS					
Ballast Lumen Factor XS	1.02	0.95	0.96	0.99	1.00

Utilization Factors UF (F)

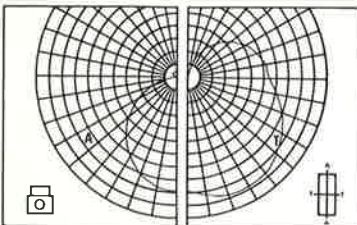
Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	32	36	40	43	47	49	51	54	55
	30		28	32	35	39	43	46	48	51	53
	10		25	28	32	35	40	43	46	49	51
50	50	10	29	32	35	38	41	44	45	48	49
	30		26	29	32	35	39	41	43	46	48
	10		23	26	29	32	36	39	41	44	46
30	50	10	26	29	31	34	37	39	40	42	44
	30		23	26	29	31	34	37	38	41	42
	10		21	23	26	29	32	35	37	39	41
0	0	0	18	19	21	24	26	28	30	32	33

Multiply by each Service Correction Factor

PHOTOMETRIC DATA

FEATURE 1 LAMP

WITH	NARROW	DIFFUSER
Mounting:	SUSPENDED	



CIE Flux Number

163041

SHR MAX	(Square)	1.99
SHR MAX TR	(Transverse)	2.57

ULORL	.22	Multiply by each Service Correction Factor
DLORL	.50	
LORL	.72	

Glare Data (IES)

Flux Fraction Ratio	.44			
ACG Classification	ACG1			
For RI = 2.5 at SHR = NOM	BZ6			
Luminous Area (sq cm)				
40W	65W	85W	85W	125W
1205	1496	1754	2344	2344

Measured: BS 5225 Part 1 1975

Calculated: I.E.S. TR 2 and TR 10

Test No: A682 Dated: 76.12.09

Service Correction Factors

	40W 1200mm	65W 1500mm	85W 1800mm	85W 2400mm	125W 2400mm
Rating Factor	1.00	1.00	1.00	1.00	1.00
Amalgam Factor					
Ballast Lumen Factor SS					
Ballast Lumen Factor XS	1.02	0.95	0.96	0.99	1.00

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	33	37	41	45	49	52	54	57	59
		30	28	32	36	40	45	48	51	54	57
		10	25	28	32	36	41	45	47	51	54
50	50	10	30	34	37	40	44	47	49	52	54
		30	26	29	33	36	41	44	46	49	51
		10	23	26	29	33	37	41	43	47	49
30	50	10	28	30	33	36	40	42	44	46	48
		30	24	27	30	33	37	39	41	44	46
		10	22	24	27	30	34	37	39	43	45
0	0	0	18	20	22	25	28	31	33	36	38

Multiply by each Service Correction Factor

Photoset direct from Photometer tape output.

ORDERING DATA

Description	Catalogue Nos.	
	Batten only	Diffuser attachment only
1 x 40W 1200mm (4ft) narrow diffuser	FSQ4	DF4
1 x 40W 1200mm (4ft) wide diffuser	FSQ4	DF24
2 x 40W 1200mm (4ft) wide diffuser	FSQ24	DF24
1 x 65W 1500mm (5ft) narrow diffuser	FSQ5	DF5
1 x 65W 1500mm (5ft) wide diffuser	FSQ5	DF25
2 x 65W 1500mm (5ft) wide diffuser	FSQ25	DF25
1 x 85W 1800mm (6ft) narrow diffuser	FSQ6	DF6
1 x 85W 1800mm (6ft) wide diffuser	FSQ6	DF26
2 x 85W 1800mm (6ft) wide diffuser	FSQ26	DF26
1 x 85W 2400mm (8ft) narrow diffuser	FSQ85	DF8
1 x 85W 2400mm (8ft) wide diffuser	FSQ85	DF28
2 x 85W 2400mm (8ft) wide diffuser	FSQ285	DF28
1 x 125W 2400mm (8ft) narrow diffuser	FSQ8E	DF8
1 x 125W 2400mm (8ft) wide diffuser	FSQ8E	DF28
2 x 125W 2400mm (8ft) wide diffuser	FSQ28E	DF28

Associated accessories:

Decorative infill plates - Wood grain effect (narrow)
(supplied in pairs) - Wood grain effect (wide)
Diffuser coupler (narrow) (one required per luminaire)
Diffuser coupler (wide) (one required per luminaire)

Spares:

Lampholder assembly
Grey diffuser end cap (narrow) (2 required per luminaire)
Grey diffuser end cap (wide) (2 required per luminaire)
White batten end cap and clips (1 lamp) (2 required per luminaire)
White batten end cap and clips (2 lamp) (2 required per luminaire)

Catalogue No.

WG1
WG2
DC1
DC2

A7673
A8023
A8024
FP494
FP495

Please order in the form given in the following example, in multiples of the packing quantity:

50 Philips Feature battens FSQ5.
50 Philips diffuser attachment DF25.
50 Diffuser couplers DC2.

All Feature circuits are starterless.
Lamps should be ordered separately.

Packing:

Diffusers: Two per carton.
Infill plates: One pair per envelope,
packed to order.
Diffuser couplers:

Ten per carton (narrow)
Five per carton (wide).

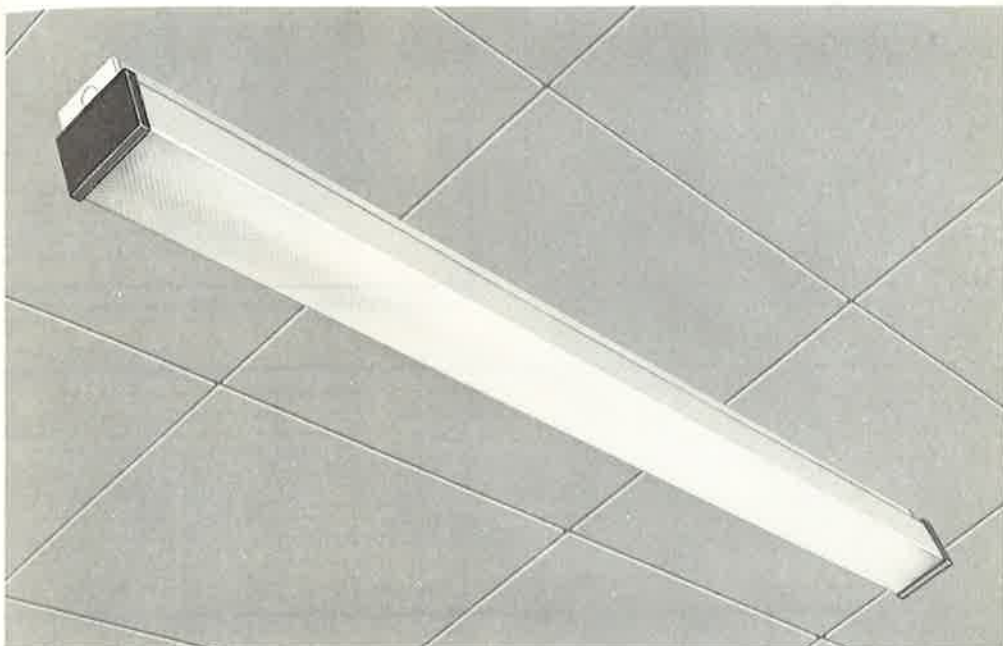
Replacement end caps: Packed to order.

Made in Great Britain

CI/SIB	(63.1)
UDC	696.6:628.972

2

FEATURE Clear Prismatic Controller



Prismatic controller with extruded body of rectangular section. Linear prisms are formed on the inside surfaces of the sides, and the base has regular, well-defined impressions of pyramid form to look attractive whether lit or unlit and to control the light. Push-fit grey end caps have a textured surface; alternatively, self-adhesive infill plates are available to give a wood grain effect. Prismatic controllers are available in two widths; for use with a single lamp, or in a wider version for one or two lamps.

APPLICATIONS

For use in normal indoor applications such as:-

- Small and large offices
- Shops and stores
- Travel concourses
- Banks and Building Societies
- Canteens
- Offices

RANGE

Prismatic controllers are available in both narrow (1-lamp) or wide (2-lamp) versions to fit all lengths of Feature batten.

Controller couplers are available to provide a neat joint between controllers mounted end-to-end.

FLUORESCENT LUMINAIRE

Handbook Ref.

1.22/3

To reorder this Data Sheet quote 11.79 PL1723/1

Replaces

PL 1723

FEATURES

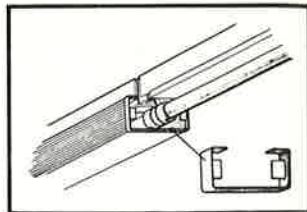
- Clear polystyrene extrusions with internal linear prisms on the sides and external pyramid prisms on the base – light is controlled to limit direct glare in the angles above 60° from the vertical, and appearance is attractive whether lit or unlit.
- Push-fit end caps in grey medium-impact polystyrene have an inset textured surface.
- Optional self-adhesive infill plates give wood grain effect to end caps.
- Optional couplers between end controllers mounted end-to-end, make a neat join.
- 125W versions of Feature in E start,

MATERIALS & FINISH

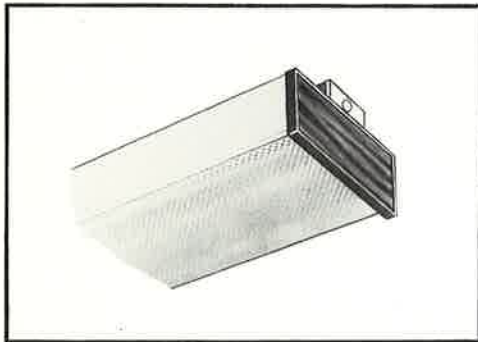
- Channels and cover plates:** Sheet steel, Durawhite stoved finish.
- Channel end caps:** White medium-impact polystyrene mouldings.
- Sprung bi-pin lampholders:** White urea mouldings fitted to plated spring steel supports.
- Controller:** Clear polystyrene prismatic extrusion with push-fit grey polystyrene end caps and two support straps.
- Decorative infill plates:** Self-adhesive composition.
- Controller coupler:** Sheet steel, Durawhite stoved finish.

RANGE OF OPERATION

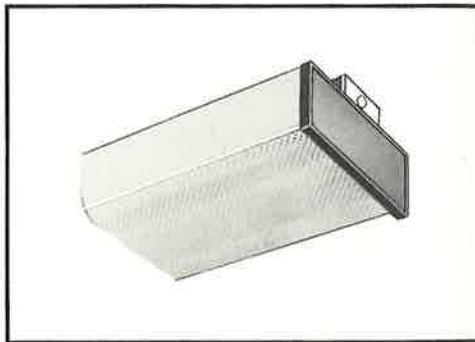
- 240V 50Hz.
- 5°C to 25°C (single lamp 30°C).
- Not suitable for wall-mounting.



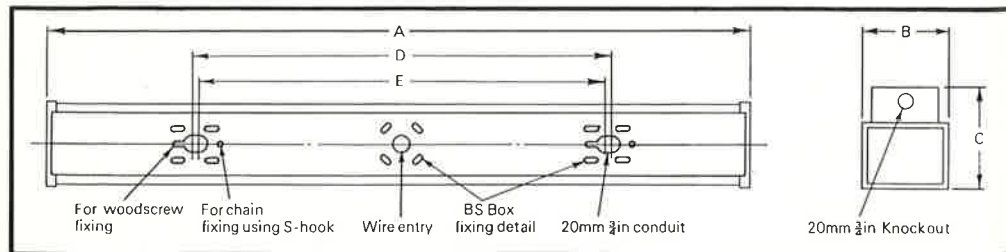
Controller coupler



Close-up of Catalogue Number PC25 prismatic controller with decorative infill type WG1 fitted to end cap to give a wood grain effect.



Close-up of Catalogue Number PC25 prismatic controller.



DIMENSIONS & WEIGHTS

Batten only	Catalogue Nos. Controller attachments only	Weight complete with lamps (kg/lb)	Overall length (mm/in.) (A)	Fixing centres (mm/in.) (E/D)
FSQ4	PC4	4-0/8-9	1242/49	600/24
FSQ4	PC24	4-4/9-7	1242/49	600/24
FSQ24	PC24	6-8/14-9	1242/49	600/24
FSQ5	PC5	5-2/11-4	1542/61	600/24
FSQ5	PC25	5-6/12-3	1542/61	600/24
FSQ25	PC25	8-0/17-7	1542/61	600/24
FSQ6	PC6	5-6/12-2	1808/71-2	600/24
FSQ6	PC26	6-0/13-1	1808/71-2	600/24
FSQ26	PC26	8-5/18-7	1808/71-2	600/24
FSQ85	PC8	7-8/17-2	2417/95-2	1200/48
FSQ85	PC28	8-1/17-8	2417/95-2	1200/48
FSQ285	PC28	11-8/25-8	2417/95-2	1200/48
FSQ8E	PC8	8-6/19-0	2417/95-2	1200/48
FSQ8E	PC28	9-2/20-3	2417/95-2	1200/48
FSQ28E	PC28	13-9/30-8	2417/95-2	1200/48

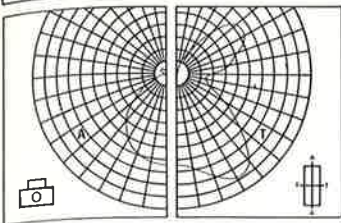
Overall width (B): One lamp 97mm (3-8in.)
One or two lamp 160mm (6-3in.)
Overall depth (C) (both types): 115mm (4-5in.)

PHOTOMETRIC DATA

FEATURE 1 LAMP

WITH WIDE CONTROLLER

Mounting: SUSPENDED



CIE Flux Number

244149

SHR MAX	(Square)	2.07
SHR MAX TR	(Transverse)	2.42

ULORL	.32	Multiply by each Service Correction Factor
DLORL	.53	
LORL	.85	

Glare Data (IES)

Flux Fraction Ratio	.60
ACG Classification	ACG5
For RI = 2.5 at SHR = NOM	BZ4

Luminous Area (sq cm)

40W	65W	85W	85W	125W
1987	2467	2893	3867	3867

Measured: BS 5225 Part 1 1975

Calculated: I.E.S. TR 2 and TR 10

Test No: A872

Dated: 77.13.10

Service Correction Factors

	40W 1200 mm	65W 1500 mm	85W 1800 mm	85W 2400 mm	125W 2400 mm
Rating Factor	1.00	1.00	1.00	0.96	0.96
Amalgam Factor					
Ballast Lumen Factor SS					
Ballast Lumen Factor XS	1.02	0.95	0.96	0.99	1.00

Utilization Factors UF (F)

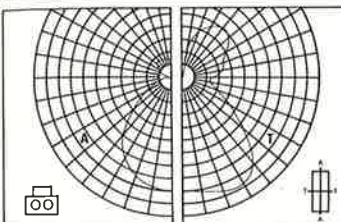
Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	47	51	55	58	62	65	67	70	72
	30		42	46	50	53	59	62	64	68	70
	10		39	42	46	50	55	59	61	65	68
50	50	10	43	46	49	52	56	59	60	63	64
	30		39	42	46	48	53	56	58	61	63
	10		36	39	43	46	50	54	56	59	61
30	50	10	39	41	44	46	50	52	54	56	57
	30		36	38	41	44	48	50	52	54	56
	10		34	36	39	42	46	48	50	53	55
0	0	0	30	31	33	35	38	40	42	44	45

Multiply by each Service Correction Factor

FEATURE 2 LAMP

WITH WIDE CONTROLLER

Mounting: SUSPENDED



CIE Flux Number

243946

SHR MAX	(Square)	1.84
SHR MAX TR	(Transverse)	2.14

ULORL	.30	Multiply by each Service Correction Factor
DLORL	.49	
LORL	.79	

Glare Data (IES)

Flux Fraction Ratio	.61
ACG Classification	ACG5
For RI = 2.5 at SHR = NOM	BZ4

Luminous Area (sq cm)

40W	65W	85W	85W	125W
1987	2467	2893	3867	3867

Measured: BS 5225 Part 1 1975

Calculated: I.E.S. TR 2 and TR 10

Test No: A621

Dated: 76.09.03

Service Correction Factors

	40W 1200 mm	65W 1500 mm	85W 1800 mm	85W 2400 mm	125W 2400 mm
Rating Factor	1.04	1.00	1.00	0.96	0.96
Amalgam Factor					
Ballast Lumen Factor SS					
Ballast Lumen Factor XS	1.02	0.95	0.96	0.99	1.00

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	42	46	50	53	58	61	62	65	67
	30		37	41	46	49	54	57	60	63	65
	10		34	38	42	46	51	54	57	60	63
50	50	10	38	42	45	48	52	54	56	58	60
	30		35	38	42	45	49	52	54	56	58
	10		32	35	39	42	46	49	52	55	56
30	50	10	35	37	40	43	46	48	50	52	53
	30		32	34	38	40	44	46	48	50	52
	10		30	32	35	38	42	45	46	49	50
0	0	0	26	27	30	32	35	37	38	40	41

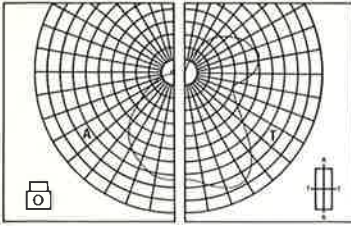
Multiply by each Service Correction Factor

Photoset direct from Photometer tape output.

PHOTOMETRIC DATA

FEATURE 1 LAMP

WITH	NARROW	CONTROLLER
Mounting: SUSPENDED		



CIE Flux Number

233745

SHR MAX	(Square)	1.84
SHR MAX TR	(Transverse)	2.15

ULORL	29	Multiply by each Service Correction Factor
DLORL	52	
LORL	81	

Glare Data (IES)

Flux Fraction Ratio	.56			
ACG Classification	ACG5			
For Rf = 2.5 at SHR = NOM	BZ5			
Luminous Area (sq cm)				
40W	65W	85W	85W	125W
1205	1496	1754	2344	2344

Measured:	BS 5225 Part 1 1975
Calculated:	I.E.S. TR 2 and TR 10
Test No:	A616
Dated:	76.08.31

Service Correction Factors

	40W 1200mm	65W 1500mm	85W 1800mm	85W 2400mm	125W 2400mm
Rating Factor	1.00	1.00	1.00	0.96	0.96
Amalgam Factor					
Ballast Lumen Factor SS					
Ballast Lumen Factor XS	1.02	0.95	0.96	0.99	1.00

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	41	46	50	53	58	61	63	66	67
	30		37	40	45	48	53	57	59	63	65
	10		33	37	41	45	50	53	56	60	62
50	50	10	38	41	45	48	52	54	56	59	60
	30		34	37	41	44	48	51	53	56	58
	10		31	34	38	41	45	49	51	54	56
30	50	10	34	37	40	43	46	48	50	52	54
	30		31	34	37	40	43	46	48	50	52
	10		29	31	34	37	41	44	46	49	51
0	0	0	25	26	29	31	34	36	38	40	42

Multiply by each Service Correction Factor

Photoset direct from Photometer tape output.

ORDERING DATA

Description	Catalogue Nos.	
	Batten only	Diffuser assembly only
1 x 40W 1200mm (4ft) narrow controller	FSQ4	PC4
1 x 40W 1200mm (4ft) wide controller	FSQ4	PC24
2 x 40W 1200mm (4ft) wide controller	FSQ24	PC24
1 x 65W 1500mm (5ft) narrow controller	FSQ5	PC5
1 x 65W 1500mm (5ft) wide controller	FSQ5	PC25
2 x 65W 1500mm (5ft) wide controller	FSQ25	PC25
1 x 85W 1800mm (6ft) narrow controller	FSQ6	PC6
1 x 85W 1800mm (6ft) wide controller	FSQ6	PC26
1 x 85W 1800mm (6ft) wide controller	FSQ26	PC26
1 x 85W 2400mm (8ft) narrow controller	FSQ85	PC8
1 x 85W 2400mm (8ft) wide controller	FSQ85	PC28
2 x 85W 2400mm (8ft) wide controller	FSQ285	PC28
1 x 125W 2400mm (8ft) narrow controller	FSQ8E	PC8
1 x 125W 2400mm (8ft) wide controller	FSQ8E	PC28
2 x 125W 2400mm (8ft) wide controller	FSQ28E	PC28

Associated accessories-

Decorative infill plates - Wood grain effect (narrow) (supplied in pairs)	- Wood grain effect (wide)
Controller coupler (narrow) (1 required per luminaire)	
Controller coupler (wide) (1 required per luminaire)	

Cat. No.

WG1
WG2
DC1
DC2

Spares:

Lampholder assembly	A7673
Grey controller end cap (narrow) (2 required per luminaire)	A8023
Grey controller end cap (wide) (2 required per luminaire)	A8024
White batten end cap and clips (1 lamp) (2 required per luminaire)	FP494
White batten end cap and clips (2 lamp) (2 required per luminaire)	FP495

Please order in the form given in the following example, in multiples of the packing quantity:

50 Philips Feature battens FSQ5
50 Philips controller attachments PC25
50 controller couplers DC2.

All Feature circuits are starterless. Lamps should be ordered separately.

Packing:

Controllers: Two per carton.
Infill plates: One pair per envelope, packed to order.

Controller couplers:

Ten per carton (narrow)
Five per carton (wide).
Replacement end caps: Packed to order.

Made in Great Britain

CI/SIB
(63.1)

UDC
696.6 : 628.972

2

FINESSE Luminaires with Clear Prismatic Controllers

A range of shallow, surface-mounted luminaires particularly suitable for low, modern ceilings. There is a choice of rectangular or 'bow-tie' end caps, and infills are available for the rectangular end caps to give a simulated wood grain effect. The 2 lamp 65W batten can be supplied with the WideSpread Linsomatic prismatic optic, which permits increased spacing between luminaires.

RANGE

Available in the following types:

- 2 lamp 40W 1200mm (4ft)
- 2 lamp 65W 1500mm (5ft)
- 2 lamp 85W 1800mm (6ft)
- 2 lamp 85W 2400mm (8ft)

The 40W and 65W battens have switchstart circuits, both 85W sizes have semi-resonant circuits. The choice of end caps, rectangular or 'bow-tie', is available on all sizes.

The range is suitable for individual or continuous mounting, and inter-body couplings are optionally available to make a neat join between controllers.

APPLICATIONS

Suitable for most indoor installations such as:-

- Boardrooms
- Offices
- Banking halls
- Shops and department stores.

Although bold in appearance to suit spacious premises such as banks, the luminaires are shallow, making them also suitable for modern premises with low ceilings.

A1715S with 'bow-tie' end caps.

Handbook Ref.

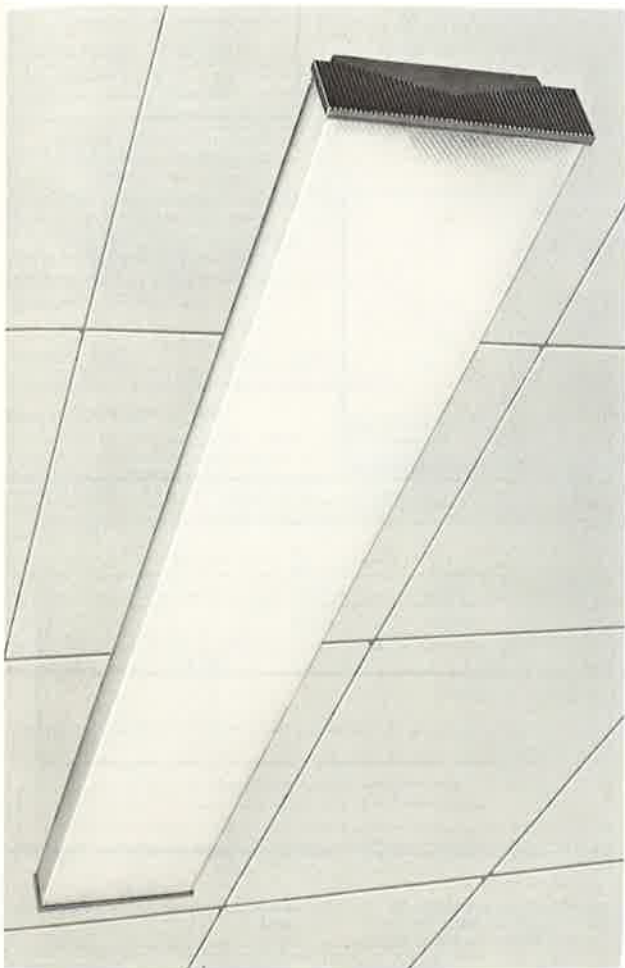
1.23/1

To reorder this Data Sheet quote 9 79 PL 1730/1

Replaces

PL 1730

FLUORESCENT LUMINAIRE



FEATURES

- Shallow depth – only 89mm – provides an alternative to a recessed luminaire.
- Easy to install and maintain, thus saving money.
- Fashionable appearance with choice of trim for personalising a scheme.
- The frame is supported along its full length, and hinges down on one side to simplify lamp changing.
- Suitable for individual or continuous mounting. When luminaires are mounted continuously, individual controllers are easily removed for lamp changing.

In addition, the Widespread Linsomatic prismatic optic permits wider spacing between luminaires, giving economic, aesthetic and lighting benefits. (see Leaflet PL 1608). The WideSpread Linsomatic controller is made in one piece, with prismatic end plates of similar form to the side panels, for use with individually mounted luminaires.

MATERIALS & FINISH

Batten: Sheet steel body, Durawhite stoved finish, with light grey medium-impact polystyrene end trims. Knockouts in end trims line up with holes in metal end brackets for end conduit ('bow-tie' end caps only).

Control gear: Low-loss ballasts attached with nuts and studs, and fused terminal block with capacity for 2.5mm² cable in each way. Control gear, fixing bolts and wiring are concealed by internal reflector.

Controllers and end caps: Clear polystyrene extrusion controller with internal linear prisms on the sides and external, well-defined pyramid prisms on the base. Light grey medium-impact polystyrene end caps in bow-tie form are supplied as standard and provide clearance for end conduit. Optional rectangular end caps can be styled with simulated wood grain infills in simulated wood grain.

Sprung bi-pin lampholders: White urea mouldings fitted to plated spring steel supports.

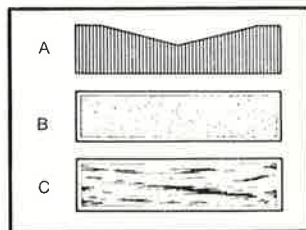
SPECIFICATION

- Type compliance with BS 4533 2.2 Ordinary Indoor Class I.

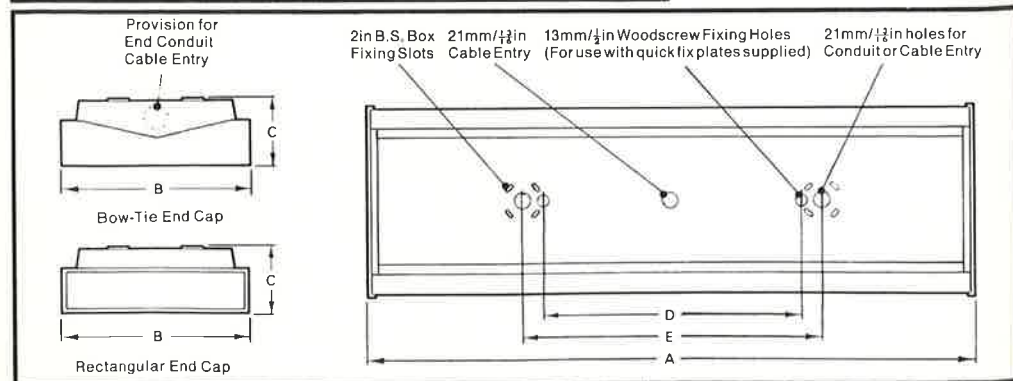
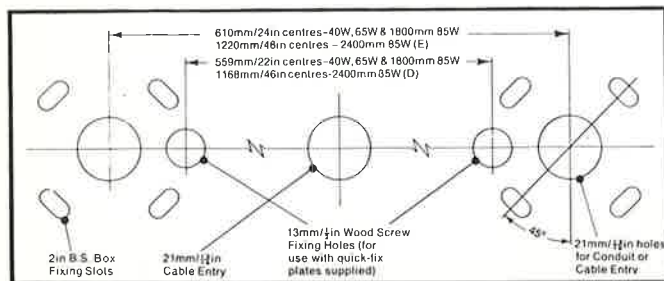
To specify state:

- Two-lamp surface-mounted luminaires for fluorescent lamps, complete with prismatic controller but with overall depth less than 90mm. Substantially as Philips Finesse.

STYLING OPTIONS



- (A) Standard 'bow-tie' end cap supplied with controller (no separate part number)
- (B) Optional rectangular end cap with grey textured finish (Cat. No. A7817)
- (C) Optional rectangular end cap fitted with simulated wood grain infill plate (Cat. Nos. A7817 and WG3)



DIMENSIONS & WEIGHTS

Individual mounting

Finesse luminaires can be close-mounted to the ceiling by BS box, woodscrew fixing

or recessed trunking, or they can be suspended on conduit tubes. The end conduit/cable entry in the batten end trim

is accessible when the 'bow-tie' end cap is used.

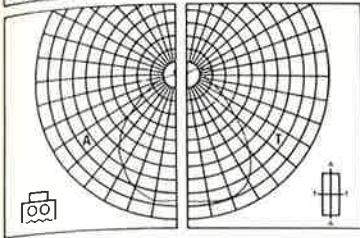
Catalogue No. (Complete luminaire)	Length A (mm/in.)	Width B (mm/in.)	Depth C (mm/in.)	Woodscrew fixing centres D (mm/in.)	Conduit hole fixing centres E (mm/in.)	Weight complete with lamps (kg/lb)
A1714S	1265/49.8	259/10.2	89/3.5	559/22	610/24	7.8/17.6
A1715S	1566/61.6	259/10.2	89/3.5	559/22	610/24	10.4/22.8
A1716X	1831/71.2	259/10.2	89/3.5	559/22	610/24	11.9/27
A1718X	2440/96.1	259/10.2	89/3.5	1168/46	1220/48	15.9/35.7

PHOTOMETRIC DATA

FINESSE PRISMATIC 2 LAMP

WITH CLEAR PRISMATIC CONTROLLER

Mounting: SUSPENDED



CIE Flux Number

274248

SHR MAX	(Square)	1.64
SHR MAX TR	(Transverse)	1.82

ULORL	.08	Multiply by each Service Correction Factor
DLORL	.51	
LORL	.59	

Glare Data (IES)

Flux Fraction Ratio	.16
ACG Classification	ACG5
For RI = 2.5 at SHR = NOM	BZ4

Luminous Area (sq cm)

40W	65W	85W	85W
3200	3950	4650	6200

Measured: BS 5225 Part 1 1975

Calculated: I.E.S. TR 2 and TR 10

Test No: A335 Dated: 75.07.16

Photoset direct from Photometer tape output.

CONTINUOUS MOUNTING

An inter-body coupling set, Cat. No. A7822, is used in place of end caps. It includes a joining piece, a U bracket that is sprung into place between the battens and a join cover.

The table lists fixing dimensions for a continuous row of Finesse controller luminaires, using Cat. No. A7822 inter-body coupling sets. The diagram shows a pendant system using the minimum number of conduit tubes, in which the

conduit is attached to a suspension bracket (Cat. No. A7820) which bolts to the inter-body coupling set. If two conduit drops per luminaire are used, they may be attached directly to the body without the suspension bracket.

Catalogue No.

	Dimensions (mm/in.)				
	A	B	C	D	E
A1714S	327/12.9	610/24	654/25.75	937/36.9	1262/49.7
A1715S	477/18.8	610/24	955/37.6	1090/42.8	1565/61.6
A1716X	610/24	610/24	1220/48	1220/48	1830/72
A1718X	610/24	1220/48	1220/48	1830/72	2438/96

The use of the suspension bracket adds 21mm/¾in. to the luminaire depth. The bracket has a clearance hole for 20mm/¾in. conduit.

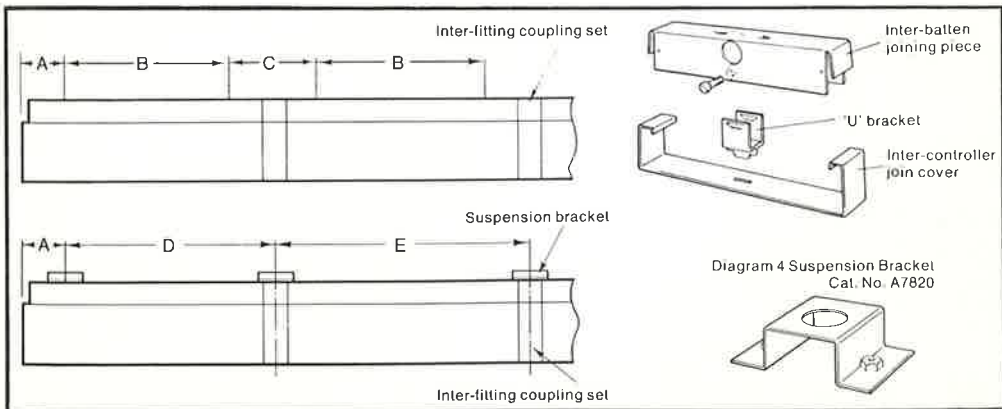


Diagram 4 Suspension Bracket
Cat. No. A7820

Service Correction Factors

	40W 1200mm	65W 1500mm	85W 1800mm	85W 2400mm	
Rating Factor	1.05	1.00	1.00	1.05	
Amalgam Factor		1.13			
Ballast Lumen Factor SS	1.00	0.99			
Ballast Lumen Factor XS			0.96	0.99	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	35	39	43	45	48	50	52	54	55
	30		32	36	39	42	46	48	50	52	54
	10		29	33	37	40	44	46	48	51	53
50	50	10	34	37	41	43	46	48	49	51	53
	30		31	35	38	41	44	46	48	50	52
	10		29	32	36	38	42	44	46	49	51
30	50	10	33	36	39	41	44	46	47	49	50
	30		30	33	37	39	42	44	46	48	49
	10		28	31	35	37	41	43	44	47	48
0	0	0	26	29	33	35	38	40	41	43	45

Multiply by each Service Correction Factor

ELECTRICAL DATA

Catalogue No.	Rating	Ballast catalogue No.	Capacitor	Circuit Watts (running)	Circuit current (Amperes)	Minimum power factor
A1714S	2 x 40W 1200mm (4ft) Switchstart	2 x BCS40	2 x 3.5mfd 10% 250V	104	0.46	0.9
A1715S	2 x 65W 1500mm (5ft) Switchstart	2 x BCS65	2 x 5.5mfd 10% 250V	154	0.68	0.9
A1716X	2 x 85W 1800mm (6ft) Starterless	2 x BBXK85	2 x 8.4mfd 5% 250V	192	0.92	0.9
A1718X	2 x 85W 2400mm (8ft) Starterless	2 x BBX85	2 x 5.0mfd 5% 440V	204	0.90	0.9

All information quoted relates to average luminaires on a 240V 50Hz supply at 25°C.

All control gear is designed to have an adequately low harmonic content. On a balanced 3-phase 4-wire supply the current in the neutral does not exceed 3 x 25% of that in any line conductor.

RANGE OF OPERATION

240V 50Hz, Normal indoor conditions.

ORDERING DATA

Description	Catalogue No. Complete	Batten only	Controller only
2 x 40W 1200mm (4ft) switchstart	A1714S	A1704S	A7824
2 x 65W 1500mm (5ft) switchstart	A1715S	A1705S	A7825
2 x 85W 1800mm (6ft) starterless	A1716X	A1706X	A7826
2 x 85W 2400mm (8ft) starterless	A1718X	A1708X	A7828
2 x 65W 1500mm (5ft) with WideSpread Linsomatic optic	—	A1705S	A7925TLP*

*For further details of the WideSpread Linsomatic A7925TLP in the Finesse range, see Data Sheet PL 1725.

Please order in the form given in the following example, in multiples of the packing quantity:-

20 Philips Finesse luminaires A1716X
 20 Philips coupling sets A7822
 20 Philips suspension brackets A7820
 10 Philips rectangular end caps A7817
 10 pair Philips wood grain infills WG3

Accessories and spares

Suspension bracket for pendant mounting
 Inter-body coupling set
 Woodgrain infill plates (1 pair)
 Rectangular end cap (controller) (1 pair)
 Spare lampholder assembly

Catalogue No.

A7820
 A7822
 WG3
 A7817
 A7831

Packing quantities

Battens: Individually packed.
 Controllers: Packed in pairs.
 Infill plates: 1 pair per envelope, packed to order.
 Coupling sets: 5 per pack.
 Suspension brackets: 5 per pack.
 Rectangular end caps: Packed to order.
 Lamps should be ordered separately.

Made in U.K.

CI/SIB	(63.1)
UDC	696.6:628.972

2

FINESSE

De Luxe

Luminaires with Aluminium Attachments

Two standard Finesse battens, 2 x 65W and 2 x 85W, with De Luxe aluminium-framed clear prismatic controllers. The 2 x 65W version is also available with the WideSpread Linsomatic prismatic controller, which permits increased spacing between luminaires.

RANGE

Battens:

2 x 65W 1500mm (5ft)
2 x 85W 1800mm (6ft)

Controllers:

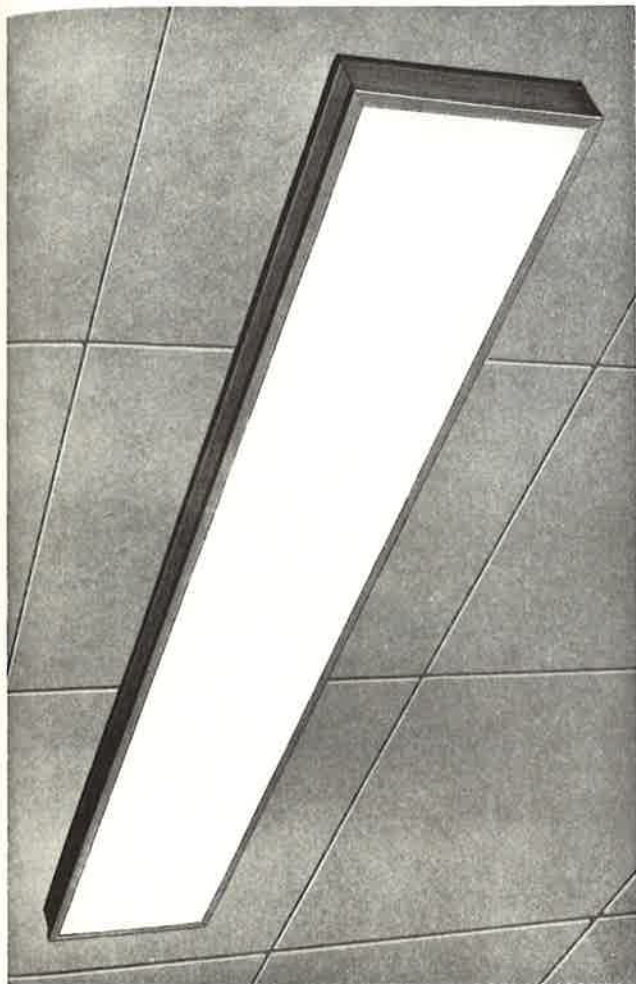
1500mm and 1800mm clear prismatic controller with aluminium frame.
1500mm WideSpread Linsomatic prismatic controller with aluminium frame (see Data Sheet PL 1724).

APPLICATIONS

Suitable for most commercial installations such as:-

- Boardrooms
- Offices
- Shops and Department Stores
- Banking Halls.

The aluminium frame blends well with modern decor. Although bold in appearance to suit spacious premises the luminaires are shallow, making them also suitable for use in modern premises with low ceilings.



A1750S 2 x 65W 1500mm (5ft)

Handbook Ref

1.2.3/2

To reorder this Data Sheet quote

11.77 PL1731

Replaces

PL8765/4

FLUORESCENT LUMINAIRE

FEATURES

- Shallow depth – only 89mm – provides an alternative to a recessed luminaire.
- Easy to install and maintain, thus saving money.
- Fashionable, bold appearance suits modern decor.
- The frame is supported along its full length, and hinges down on one side to simplify lamp changing.

In addition, the WideSpread Linsomatic prismatic controller permits wider spacing between luminaires, giving economic, and aesthetic lighting benefits.

Mounting: Close ceiling by BS box or woodscrew, or suspension by conduit tubes. End conduit entry is not possible.

MATERIALS & FINISH

Batten: Sheet steel body, Durawhite stoved finish, with light grey medium-impact polystyrene end trims.

Control gear: Low-loss ballasts attached with nuts and studs, and fused terminal block with capacity for 2.5mm² cable in each way. Control gear and wiring are concealed by internal reflector.

Aluminium frame and controllers: Extruded self-finish aluminium frame, polished and anodised, Clear polystyrene prismatic controller.

SPECIFICATION

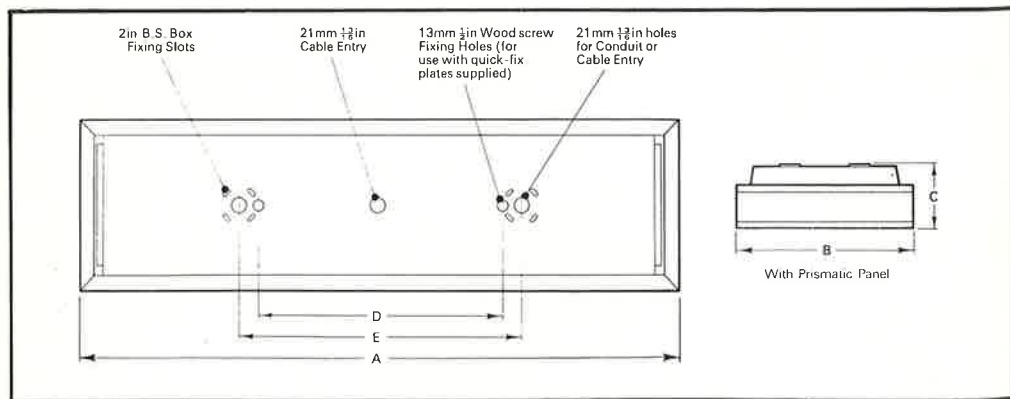
- Type compliance with BS 4533 2.2 Ordinary Indoor Class I.

To specify state:

Two-lamp surface-mounted luminaire for fluorescent lamps with prismatic controller with aluminium frame: substantially as Philips Finesse De Luxe luminaire.

RANGE OF OPERATION

240V 50Hz. Normal indoor operation.

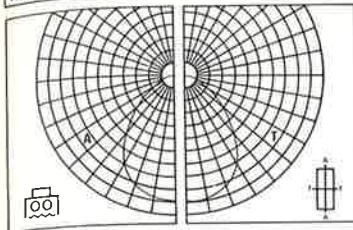


DIMENSIONS & WEIGHTS

Luminaire complete	Catalogue Numbers		Overall length A (mm/in.)	Overall width B (mm/in.)	Overall depth C (mm/in.)	Woodscrew fixing centres D (mm/in.)	Conduit hole fixing centres E (mm/in.)	Weight including lamps (kg/lb)
Attachment	Batten							
A1750S	A7850	A1705S	1592/62-7	269/10-6	89/3-5	559/22	610/24	11-8/26
—	A7950TLP	A1705S	1592/62-7	269/10-6	89/3-5	559/22	610/24	11-8/26
A1760X	A7860	A1706X	1859/73-1	269/10-6	89/3-5	559/22	610/24	13-9/30-7

PHOTOMETRIC DATA FINESSE PRISMATIC 2 LAMP

WITH ALUMINIUM	PRISMATIC FRAME	PANEL IN
Mounting: SUSPENDED		



CIE Flux Number 263841

SHR MAX	(Square)	1.46
SHR MAX TR	(Transverse)	1.58

ULORL	.00	Multiply by each Service Correction Factor
DLORL	.42	
LORL	.42	

Glare Data (IES)

Flux Fraction Ratio	0
ACG Classification	ACG3
For R _l = 2.5 at SHR = NOM	BZ3
Luminous Area (sq cm)	
65W	85W
3770	4410

Measured:	BS 5225 Part 1 1975
Calculated:	I.E.S. TR 2 and TR 10
Test No:	A338
Dated:	75.07.17

Photoset direct from Photometer tape output.

Service Correction Factors

		65W 1500mm	85W 1800mm		
Rating Factor		1.00	1.00		
Amalgam Factor		1.20			
Ballast Lumen Factor SS		0.99			
Ballast Lumen Factor XS			0.96		

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	27	30	33	34	37	38	39	40	41
	30		24	28	31	32	35	37	38	39	40
	10		23	26	29	31	33	35	37	38	39
50	50	10	26	30	32	34	36	37	38	39	40
	30		24	27	30	32	34	36	37	39	39
	10		23	26	29	30	33	35	36	38	39
30	50	10	26	29	32	33	35	37	37	39	39
	30		24	27	30	31	34	36	36	38	39
	10		22	26	29	30	33	35	36	37	38
0	0	0	22	25	28	29	32	34	35	36	37

Multiply by each Service Correction Factor

ELECTRICAL DATA

Ballen catalogue No.	Rating	Ballast catalogue No.	Capacitor	Circuit Watts (running)	Circuit current (Amperes)	Minimum power factor
A1705S	2 x 65W 1500mm (5ft) switchstart	2 x BCS65	2 x 5.5mfd 10% 250V	154	0.68	0.9
A1706X	2 x 85W 1800mm (6ft) starterless	2 x BBXK85	2 x 8.4mfd 5% 440V	192	0.92	0.9

All control gear is designed to have an adequately low harmonic content. On a balanced 3-phase 4-wire supply, the current in the neutral does not exceed 3 x 25% of that in any line conductor.

All information quoted relates to average luminaires on a 240V 50Hz supply at 25°C.

ORDERING DATA

Description	Catalogue numbers		
	Composite* less lamps	Batten only	Attachment only
Rating - 2 x 65W 1500mm (5ft) switchstart			
Aluminium frame prismatic controller	A1750S	A1705S	A7850
Aluminium frame Linsomatic controller	—	A1705S	A7950TLP
Rating - 2 x 85W 1800mm (6ft) starterless			
Aluminium frame self-finish, prismatic controller	A1760X	A1706X	A7860
Spares			
Spare lampholder assembly	A7831		
Prismatic panel - for 1500mm frame	A7858		
Prismatic panel - for 1800mm frame	A7868		

Please order in the form given in the following example:
25 Philips A1760X Finesse De Luxe luminaires

Packing:

Battens: Individually packed.
Attachments: Individually packed.

Lamps should be ordered separately.

*A composite catalogue number is equivalent to the combination of batten and attachment.

Made in UK.

CI/SfB

(63.1)

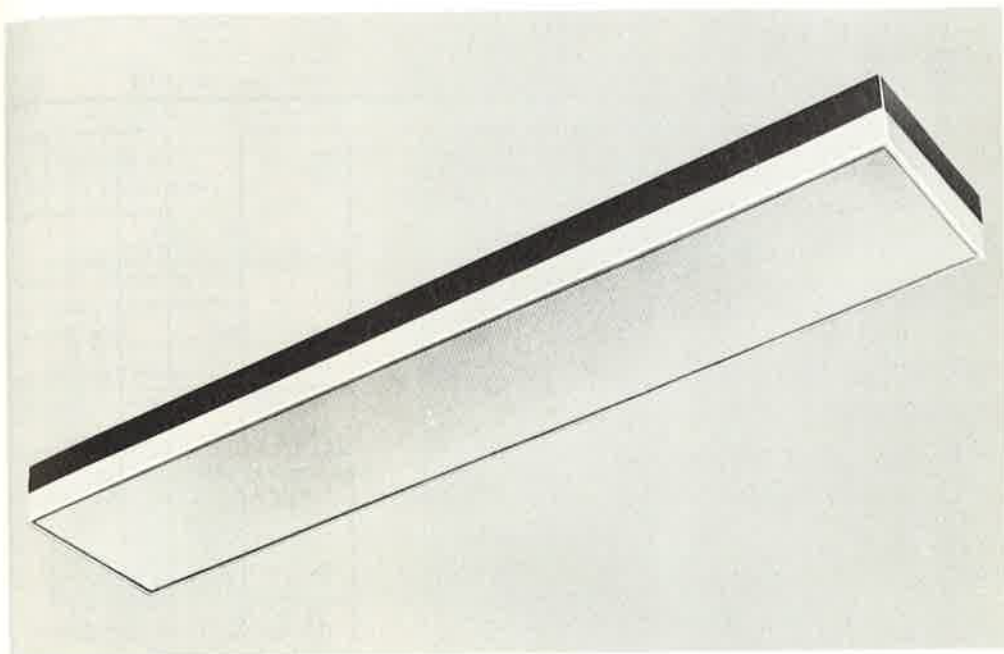
UDC

696.6:628.972

2

POLYPRISM

Surface-mounted luminaires
for fluorescent lamps



A range of luminaires with opal-sided prismatic controllers for surface mounting.

RANGE

Nominal size (mm)	Rating
1800 x 115	1 x 85W 1800mm (6ft) starterless
1500 x 300	2 x 65W 1500mm (5ft) switchstart
1800 x 300	2 x 85W 1800mm (6ft) starterless
600 x 600	4 x 20W 600mm (2ft) switchstart
1200 x 600	4 x 40W 1200mm (4ft) switchstart

APPLICATIONS

- Offices
- Reception areas
- Travel bureaux
- Hotels
- Municipal buildings
- Restaurants
- Hospitals

Handbook Ref.

1.2.3/3

To reorder this data sheet quote

9.79 PL 1745/2

Replaces

PL 1745/1

FEATURES

- Clean, simple lines with vertical sides, reduced dust collection. Easily cleaned.
- Two-part construction – sheet steel tray with Durawhite stoved finish inside and satin black finish outside, and a two-tone prismatic controller.
- The controller is fabricated from a clear polystyrene sheet having regular and well-defined prismatic impressions of pyramid form, welded to an opal polystyrene surround.
- Light passing through the prismatic base is directed onto the working plane, and controlled to prevent glare at normal viewing angles.

- The controller is fitted to the tray with spring catches to give positive location. It can be hinged downward by releasing the catches on one side, leaving the hands free to change lamps or carry out other routine servicing.

- All trays are fitted with low-loss control gear and are individually fused.

- Tray and controller are supplied packed in separate cartons to enable the controller to be kept clean while the tray is being erected, wired and lamped.

- Internal white reflector acts as coverplate to the control gear and improves the lit appearance.

MATERIALS & FINISH

Tray: Sheet steel, Durawhite stoved finish inside, satin black outside.

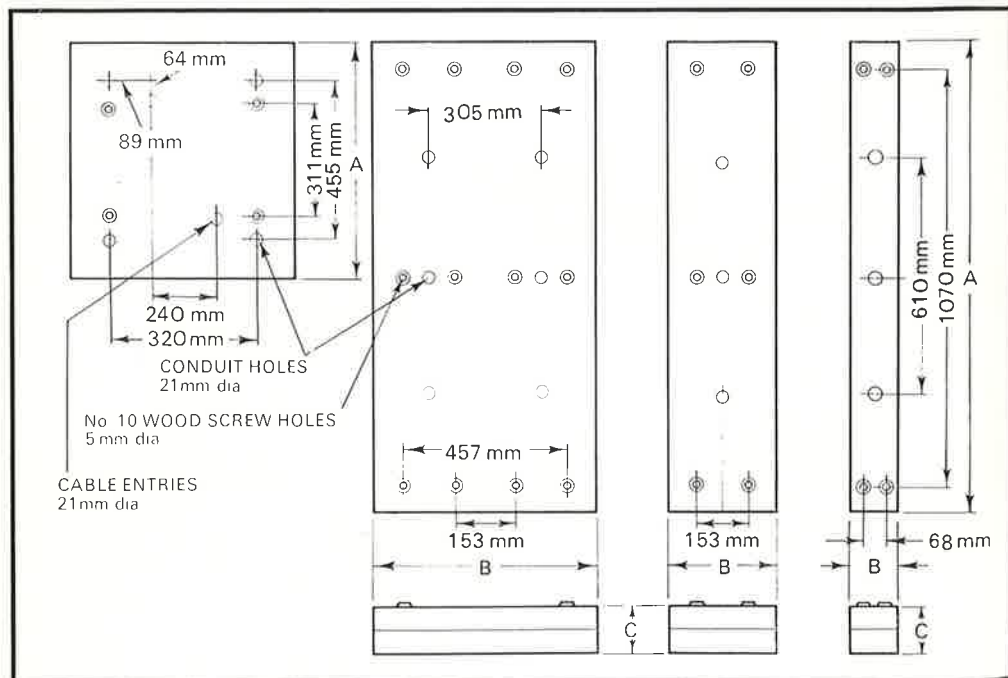
Controller: Clear polystyrene prismatic base with opal polystyrene surround.

SPECIFICATION

- Type compliance with BS 4533 2.2 Class I, ordinary (IP20) indoor.

To specify state:

Fluorescent luminaire of two-part construction, the tray to be finished Durawhite stoved finish inside and black satin outside, with fused control gear, the controller to have a clear prismatic base and opal surround: substantially as Philips Polyprism.



DIMENSIONS & WEIGHTS

Nominal size (mm)	Overall dimensions (mm/in.)			Weight including lamps (kg/lb)
	Length (A)	Width (B)	Depth (C)	
1800 x 115	1830/72	115/4.5	115/4.5	6.9/15.2
1500 x 300	1570/61.81	310/12.25	115/4.5	14.5/31.9
1800 x 300	1830/72	310/12.25	115/4.5	15.6/34.3
600 x 600	660/26	615/24.25	115/4.5	12.7/27.9
1200 x 600	1270/50	615/24.25	115/4.5	20.6/45.3

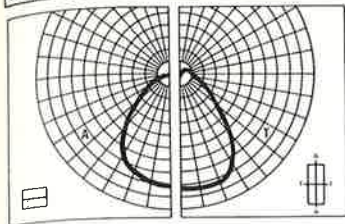
RANGE OF OPERATION

240V 50Hz. Normal indoor conditions.

PHOTOMETRIC DATA

POLYPRISM 2 LAMP

PRISMATIC SURROUND	BASE WITH	OPAL
Mounting: CEILING		



CIE Flux Number 314753

SHR MAX	(Square)	1.50
SHR MAX TR	(Transverse)	1.75

ULORL	.06	Multiply by each Service Correction Factor
DLORL	.57	
LORL	.63	

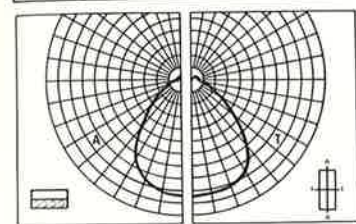
Glare Data (IES)

Flux Fraction Ratio	.11
ACG Classification	ACG3
For Ri = 2.5 at SHR = NOM	BZ4
Luminous Area (sq cm)	
65W	85W
4850	5650

Measured:	BS 5225 Part 1 1975
Calculated:	I.E.S. TR 2 and TR 10
Test No:	A853
Dated:	77.10.18

POLYPRISM 4 LAMP

PRISMATIC SURROUND	BASE WITH	OPAL
Mounting: CEILING		



CIE Flux Number 334954

SHR MAX	(Square)	1.50
SHR MAX TR	(Transverse)	1.80

ULORL	.05	Multiply by each Service Correction Factor
DLORL	.57	
LORL	.62	

Glare Data (IES)

Flux Fraction Ratio	.09
ACG Classification	ACG6
For Ri = 2.5 at SHR = NOM	BZ3
Luminous Area (sq cm)	
20W	
4050	

Measured:	BS 5225 Part 1 1975
Calculated:	I.E.S. TR 2 and TR 10
Test No:	A876
Dated:	77.12.29

Photoset direct from Photometer tape output.

Service Correction Factors

		65W 1500mm	85W 1800mm	
Rating Factor		1.00	0.90	
Amalgam Factor				
Ballast Lumen Factor SS		0.99		
Ballast Lumen Factor XS		0.95	0.96	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	38	42	46	48	52	54	56	58	59
	30		34	38	42	45	49	51	53	56	58
	10		32	36	40	42	46	49	51	54	56
50	50	10	37	41	44	46	50	52	53	55	57
	30		34	37	41	43	47	50	51	54	56
	10		31	35	39	41	45	48	50	52	54
30	50	10	36	39	42	44	48	50	51	53	55
	30		33	36	40	42	46	48	50	52	53
	10		31	34	38	40	44	46	48	50	52
0	0	0	29	32	36	38	41	44	45	47	49

Multiply by each Service Correction Factor

Service Correction Factors

		20W 600 mm		
Rating Factor		1.00		
Amalgam Factor				
Ballast Lumen Factor SS		0.98		
Ballast Lumen Factor XS				

Utilization Factors UF (F)

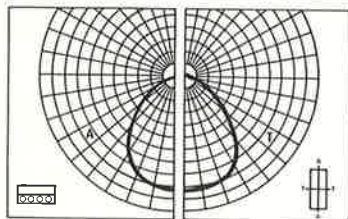
Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	39	43	46	49	52	54	56	58	59
	30		35	39	43	46	49	52	54	56	58
	10		33	37	41	43	47	50	52	54	56
50	50	10	38	42	45	47	50	52	54	55	57
	30		35	38	42	45	48	50	52	54	56
	10		32	36	40	42	46	48	50	52	55
30	50	10	37	40	43	46	48	50	52	53	55
	30		34	38	41	43	46	49	50	52	54
	10		32	35	39	41	45	47	49	51	53
0	0	0	30	34	37	39	43	45	46	48	50

Multiply by each Service Correction Factor

PHOTOMETRIC DATA

POLYPRISM 4 LAMP

PRISMATIC SURROUND	BASE WITH	OPAL
Mounting: CEILING		



CIE Flux Number 355360

SHR MAX	(Square)	1.50
SHR MAX TR	(Transverse)	1.78

ULORL	.02	Multiply by each Service Correction Factor
DLORL	.62	
LORL	.64	

Glare Data (IES)

Flux Fraction Ratio	.03
ACG Classification	ACG3
For RI = 2.5 at SHR = NOM	BZ3
Luminous Area (sq cm)	
	40W
	7750

Measured:	BS 5225 Part 1 1975
Calculated:	I.E.S. TR 2 and TR 10
Test No:	A896
Dated:	78.01.17

Photoset direct from Photometer tape output.

Service Correction Factors

		40W 1200mm		
Rating Factor		1.00		
Amalgam Factor				
Ballast Lumen Factor SS		1.00		
Ballast Lumen Factor XS		1.02		

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	41	45	49	52	55	57	59	61	62
	30		37	42	46	49	52	55	57	59	61
	10		35	39	43	46	50	53	55	57	60
50	50	10	40	44	48	50	54	56	57	59	61
	30		37	41	45	48	51	54	55	58	60
	10		35	39	43	45	49	52	54	56	58
30	50	10	39	43	47	49	52	54	56	58	59
	30		37	40	44	47	50	53	54	56	58
	10		34	38	42	45	49	51	53	55	57
0	0	0	33	37	41	43	47	49	51	53	55

Multiply by each Service Correction Factor

ELECTRICAL DATA

Tray Catalogue No.	Rating	Circuit Watts per tray	Circuit current (Amperes)	Ballast	Capacitor	Starter
A 1776X	1 x 85W 1800mm (6ft)	96	0.46	BBXK85	8.4mfd 5% 250V	—
A 1765S	2 x 65W 1500mm (5ft)	156	0.68	2 x BCS65	2 x 8.0mfd 10% 250V	2 x S10
A 1797X	2 x 85W 1800mm (6ft)	192	0.92	2 x BBXK85	2 x 8.4mfd 5% 250V	—
A 1792S	4 x 20W 600mm (2ft)	104	0.46	2 x BCS40	2 x 3.5mfd 10% 250V	4 x S2
A 1794S	4 x 40W 1200mm (4ft)	208	0.92	4 x BCS40	4 x 3.5mfd 10% 250V	4 x S10

Note: All circuits have a power factor of at least 0.85 lagging.
All information is average and relates to a 240V 50Hz supply at 25°C.

ORDERING DATA

Nominal Size (mm)	Rating	Cat No. complete	Component parts	
			Tray	Prismatic controller
1800 x 115	1 x 85W 1800mm (6ft)	A1796X	A1776X	A7876
1500 x 300	2 x 65W 1500mm (5ft)	A1785S	A1765S	A7805
1800 x 300	2 x 85W 1800mm (6ft)	A1797X	A1777S	A7877
600 x 600	4 x 20W 600mm (2ft)	A1792S	A1772S	A7812
1200 x 600	4 x 40W 1200mm (4ft)	A1794S	A1774S	A7814

Trays and controllers are packed separately and individually.
Lamps should be ordered separately.

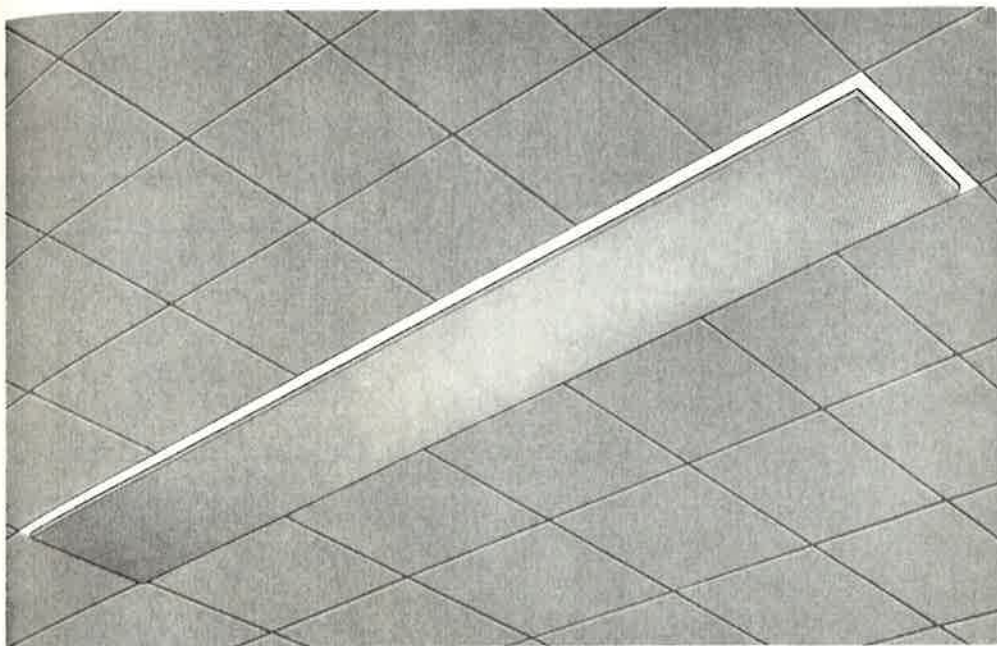
Please order in the form given in the following example:-
25 Philips Polyprism luminaires A1785S

Made in Great Britain.

CI/SIB	(63.1)
UDC	696.6:628.972

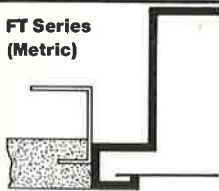
FT PLANNER

**300mm wide metric
recessed modular luminaire
with flush trim**



FT318/285/PC

FT Series (Metric)



with 'flush' trim for hole size
300mm x 1800mm

Recessed modular luminaire with flush trim to suit metric-dimension suspended ceilings with 300mm module apertures.

RANGE

Available in nominal size 300mm x 1800mm, with one or two lampways, fitted with either 85W 1800mm or 65W 1500mm lamps. All ratings available with prismatic controllers or opal diffusers. The 65W 1500mm is also available fitted with the WideSpread Linsomatic controller, enabling luminaires to be used at extended spacings between rows (see Data Sheet PL 1727).

APPLICATIONS

For 300mm module suspended ceilings used in situations such as:

- Shops and department stores
- Offices
- Municipal buildings
- Hospitals
- Restaurants and hotels
- Cinema and theatre foyers
- Banking halls

Handbook Ref.

1.24/1

To reorder this data sheet quote

9.79 PL 1735/2

Replaces

PL 1735/1

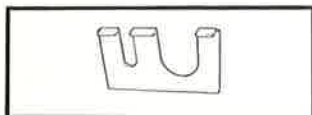
FEATURES

- Fits with 'flush' trim into ceiling apertures, with low installed depth for use with shallow voids.
- Low-loss control gear for reduced energy consumption.
- One-piece controller or diffuser hinges down on one side to simplify lamp changing.
- Prismatic controller is a one-piece fabrication with a clear prismatic base and opal sides to control the downward spread of light and reduce sideways glare.
- Easily mounted from structural ceiling using 20mm ($\frac{3}{4}$ in.) conduit tubes or 6mm ($\frac{1}{4}$ in.) drop rods onto optional suspension plates, or can be directly mounted onto suspended ceiling grids of adequate strength by means of four optional bearer arms.

FIXING ACCESSORIES

(optional extras)

Suspension plate set - Cat. No. SP1



A set of four dual-purpose suspension plates for use with either 20mm ($\frac{3}{4}$ in.) conduit or 6mm ($\frac{1}{4}$ in.) rods fixed to the structural ceiling (four per luminaire).

Note: Luminaires may only be fixed to suspended ceilings of adequate strength, and it is therefore necessary to check in advance with the ceiling manufacturer or ceiling erector that the luminaires will be adequately supported, and that the ceiling members are suited to the bearer supports.

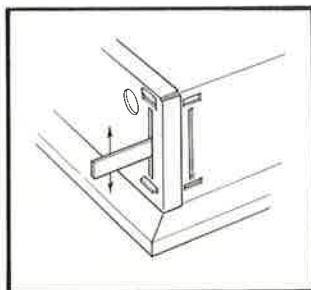
MATERIALS & FINISH

- Body (housing):** Sheet steel, Dura-white stoved finish.
- Control gear tray:** Sheet steel, Dura-white stoved finish.
- Lampholders:** White urea mouldings.
- Suspension plates and bearer supports:** Steel, zinc plated.
- Controllers:** Clear polystyrene prismatic sheet welded to opal edgings, with plated hinge clips.
- Diffuser:** Vacuum-formed opal polystyrene dish with plated hinge clips.

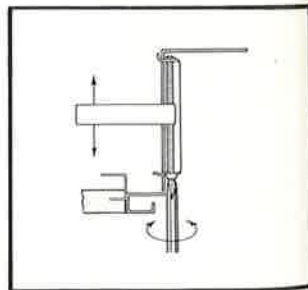
SPECIFICATION

- Type compliance with BS 4533-2.2 Ordinary Indoor Class I (electrical).
- To specify state:**
Modular recessed luminaires with Durawhite stoved finish. Substantially as Philips Planner luminaires.
- RANGE OF OPERATION**
240V 50Hz. Normal indoor conditions.

Adjustable snap-fix bearer support set - Cat. No. BS1



A set of four bearer supports that are snap-fixed into position from inside the housing. The projecting arms bear on the support members of the suspended ceiling.



Adjusting screws give fine adjustment for lining up the trim with the underside of the ceiling.

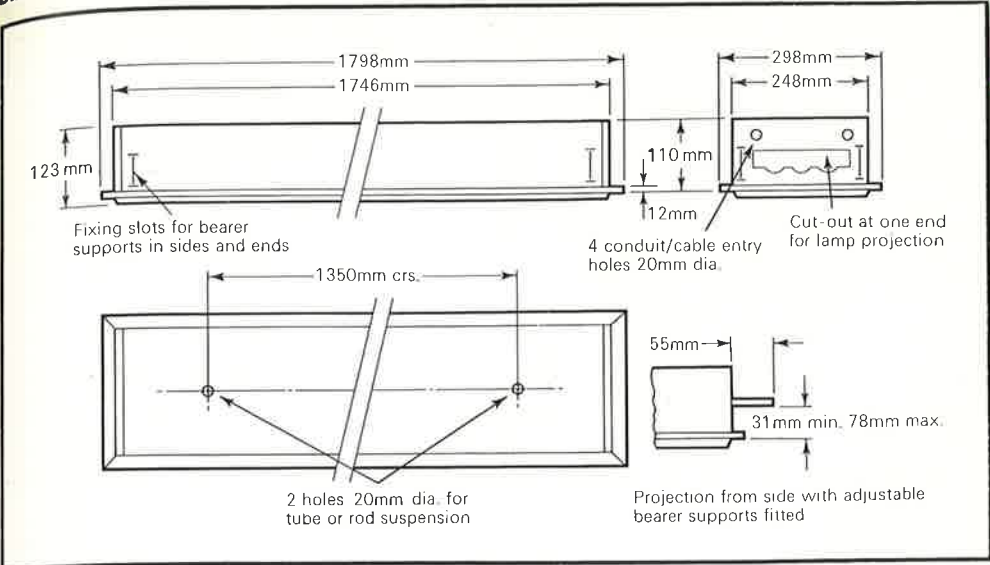
WEIGHTS & ELECTRICAL DATA

All data applicable to luminaires whether fitted with prismatic controllers or opal diffusers. All luminaires have nominal size 300mm x 1800mm.

Rating	Weight complete with lamps (kg/lb)	Circuit Watts (running)	Circuit current (Amperes)	Ballast Cat. No.	Capacitor (mfd)	Starter Cat. No.
2 x 65W 1500mm switchstart	15.1/33.2	154	0.68	2 x BCS65	2 x 5.5 10% 250V	2 x S10
1 x 85W 1800mm starterless	13.1/28.8	96	0.46	BBXK85	8.4 5% 440V	—
2 x 85W 1800mm starterless	15.1/33.2	192	0.92	2 x BBXK85	2 x 8.4 5% 440V	—

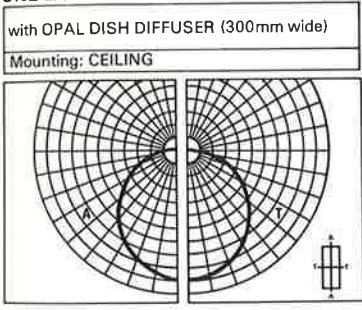
All information relates to average luminaire on a 240V 50Hz supply at 25°C.

On a balanced 3-phase 4-wire supply, the current in the neutral conductor does not exceed 3 x 25% of that in any line conductor.



Note: For installation, at least 125mm clearance should be allowed above the lower surface of suspended ceilings.

PHOTOMETRIC DATA
ONE LAMP PLANNER



L.O.R.	52%
BZ	4
UFF	1%
DFP	99%
S/H	1.5
Lum. Area	4360 cm ²

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	30	34	37	39	42	45	46	48	49
	30		27	31	34	36	40	42	44	46	48
	10		24	28	31	34	38	40	42	45	46
50	50	10	30	33	36	38	41	43	45	47	48
	30		27	30	33	36	39	41	43	45	47
	10		24	28	31	33	37	40	42	44	46
30	30	10	26	30	33	35	38	41	43	45	46
	10		24	28	31	33	37	39	41	43	45
0	0	0									

FOR TWO LAMP MULTIPLY L.O.R. AND UF(F) BY 0.94

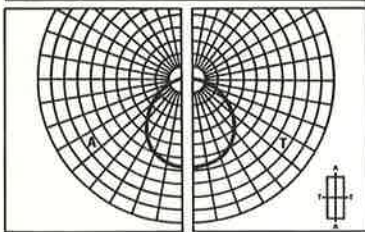
See also Photometric Data Sheet PL 1798.

PHOTOMETRIC DATA

TWO LAMP PLANNER

with PRISMATIC CONTROLLER (300mm wide)

Mounting: CEILING



L.O.R.	57%
BZ	3(2)4
UFF	1%
DFP	99%
S/H	1:25
Lum. Area	4360 cm ²

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	37	41	44	47	48	51	52	55	56
	30		34	38	41	44	46	48	50	53	54
	10		31	35	39	41	43	46	48	51	53
50	50	10	36	40	44	46	47	50	51	53	54
	30		33	37	41	43	45	47	50	52	53
	10		31	35	39	41	43	45	48	51	52
30	30	10	33	37	40	43	44	46	48	50	52
	10		31	35	38	41	43	45	47	49	50
	0	0	0								

FOR SINGLE LAMP MULTIPLY L.O.R. AND UF(F) BY 1.05

See also Photometric Data Sheet
PL 1798.

ORDERING DATA

Description	Catalogue No. (complete luminaire)	Housing-complete with Gear	Component parts Diffuser	Prismatic controller
1 x 85W 1800mm opal diffuser	FT318/185DF	FT318/185	DF318	—
1 x 85W 1800mm prismatic controller	FT318/185PC	FT318/185	—	PC318
2 x 85W 1800mm opal diffuser	FT318/285DF	FT318/285	DF318	—
2 x 85W 1800mm prismatic controller	FT318/285PC	FT318/285	—	PC318
2 x 65W 1500mm opal diffuser	*FT318/265/DF/S	FT318/265	DF318	—
2 x 65W 1500mm prismatic controller	*FT318/265PC/S	FT318/265	—	PC318

*The WideSpread Linsomatic controller TLPC 318 is available for use with the 2 x 65W Housings (see Data Sheet PL 1727).

Accessories

Description	Catalogue No.	Packing Quantity
Suspension plates (2 per luminaire)	SP1	Sets of four
Adjustable bearer support set (4 per luminaire)	BS1	Sets of four

Complete luminaires are supplied individually packed, and diffusers and controllers are supplied packed two per carton.

Ordering codes for complete luminaires are sufficient to obtain all required components excepting accessories which should be ordered separately.

Lamps should be ordered separately.

Please order in the form given in the following example, in multiples of the packing quantity:

50 Philips Planner luminaires with prismatic controllers FT318/185PC

25 Philips suspension plate sets SP1

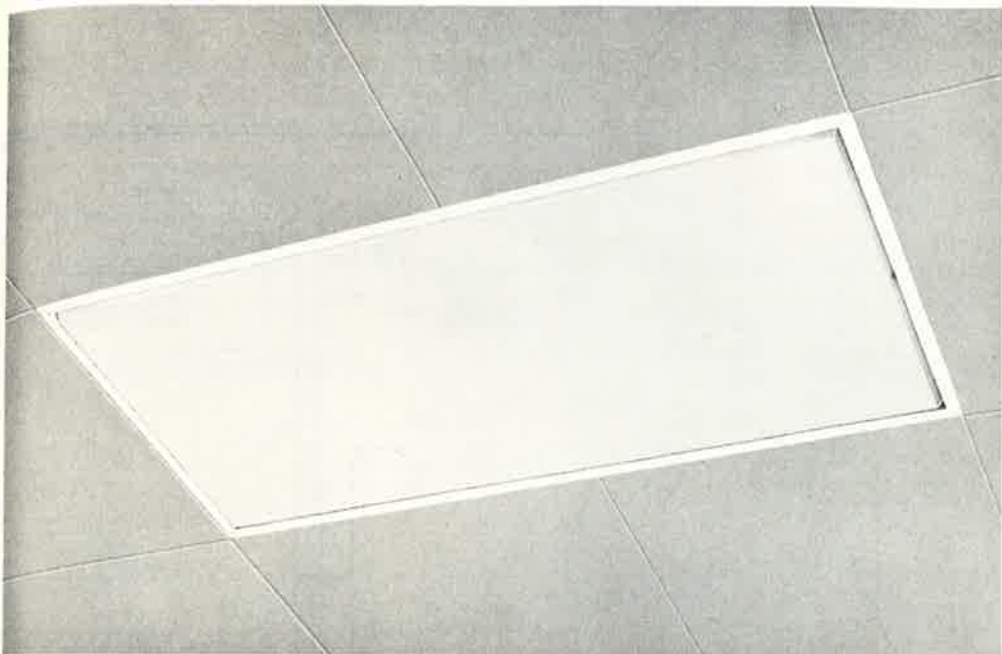
Made in Great Britain.

C/SfB
(63.1)

UDC
696.6:628.972

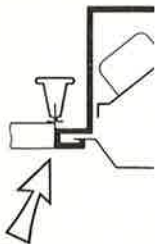
2

FT PLANNER 600mm wide metric



FT612/340/PC

FT Series (Metric) recessed modular luminaire with flush trim



Recessed modular luminaire to suit metric-dimension suspended ceilings. The trim is of the flush type to fit modular-construction ceilings with 600mm module apertures.

RANGE

600mm module apertures. There is a choice of lampways, and prismatic controllers or opal diffusers.

600mm x 600mm body size: Two or four lampways, switchstart circuits with 20W 600mm lamps.

600mm x 1200mm body size: Two, three or four lampways, switchstart circuits with 40W 1200mm lamps.

600mm x 1800mm body size: Two, three or four lampways, switchstart circuits with 65W 1500mm lamps or starterless circuits with 85W 1800mm lamps.

APPLICATIONS

For 600mm module suspended ceiling systems used in situations such as:

- Shops and department stores
- Offices
- Municipal buildings
- Hospitals
- Restaurants and hotels
- Cinema and theatre foyers
- Banking halls

Handbook Ref

1.24/3

To reorder this data sheet quote

7.77 PL 1739

Replaces

PL 9328/11/1

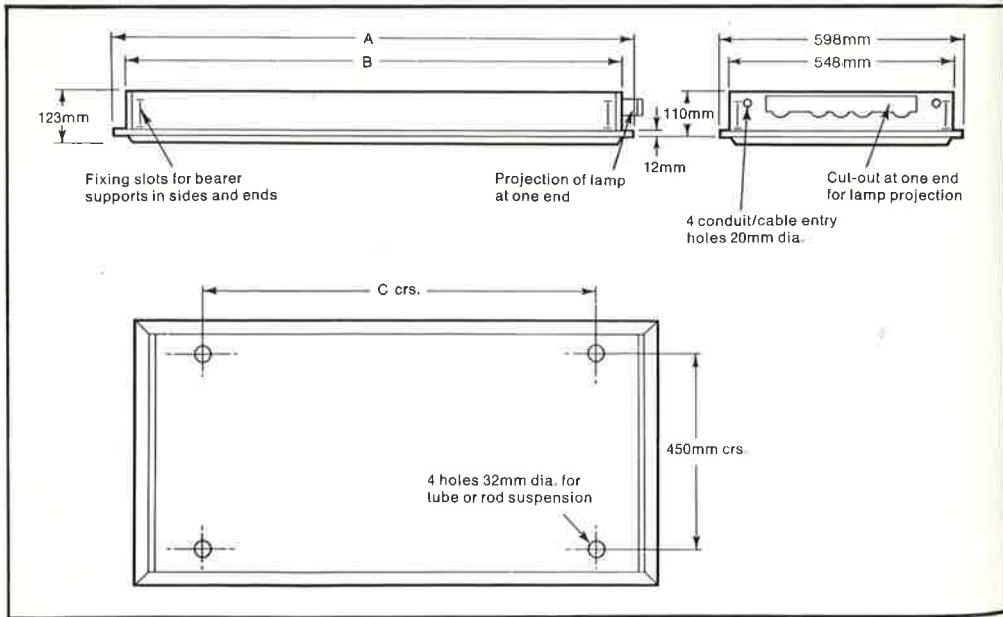
FLUORESCENT LUMINAIRE

FEATURES

- Fits flush into ceiling apertures, with low installed depth for use with shallow voids.
- Low-loss control gear for reduced energy consumption.
- Separate circuits for inner and outer lamps on three- and four-lamp luminaires permit independent switching for choice of lighting levels.
- Separate gear trays for each circuit; each gear tray has its own fuse and terminal block.
- One-piece controller or diffuser hinges down on one side to simplify lamp changing.

- Prismatic controller is a one-piece fabrication with a clear prismatic base and opal sides to control the downward spread of light and reduce sideways glare.
- Easily mounted from structural ceiling using 20mm ($\frac{3}{4}$ in) conduit tubes or 6mm ($\frac{1}{4}$ in) drop rods on to optional suspension plates, or can be directly mounted on to suspended ceiling grids of adequate strength by means of four optional bearer arms.
- Optional sheet metal box to protect ends of lamps projecting above suspended ceilings.

- Two- three- and four-lamp variations in sizes above 600mm to suit a wide range of illuminance requirements.
- Optional suspension plates or bearer supports are available for suspending the luminaires from the main ceiling structure or mounting them directly on suspended ceiling grids of adequate strength.
- Opal diffusers or prismatic controllers are available for all body sizes.



NOTE:- 10mm clearance is required between the top of the luminaire and the structural ceiling to allow room for manoeuvring the luminaire into position.

DIMENSIONS & WEIGHTS

All data applicable to luminaires whether fitted with prismatic controllers or opal diffusers.

Nominal size (mm)	Rating	Weight complete with lamps (kg/lb)	Dimensions (mm)		
			A	B	C
600 x 600	2 x 20W 600mm (2ft)	8-0/17-6	598	546	450
600 x 600	4 x 20W 600mm (2ft)	9-9/21-8			
600 x 1200	2 x 40W 1200mm (4ft)	14-5/31-9	1198	1146	900
600 x 1200	3 x 40W 1200mm (4ft)	16-9/37-2			
600 x 1200	4 x 40W 1200mm (4ft)	18-3/40-3			
600 x 1800	2 x 65W 1500mm (5ft)	20-6/45-3	1798	1746	1350
600 x 1800	3 x 65W 1500mm (5ft)	24-0/52-8			
600 x 1800	4 x 65W 1500mm (5ft)	26-0/57-2			
600 x 1800	2 x 85W 1800mm (6ft)	20-6/45-3			
600 x 1800	3 x 85W 1800mm (6ft)	24-0/52-8			
600 x 1800	4 x 85W 1800mm (6ft)	26-0/57-2			

MATERIALS & FINISH

Body (housing): Sheet steel, Durawhite stoved finish
Control gear tray: Sheet steel, Durawhite stoved finish
Lampholders: White urea mouldings
Suspension plates and bearer supports: Steel, galvanised finish
Controller: Clear polystyrene prismatic sheet welded to opal edgings, with plated hinge clips
Diffuser: Vacuum-formed opal polystyrene dish with plated hinge clips

SPECIFICATION

■ Type compliance with BS 4533 2.2, Ordinary Indoor Class I.

To specify state:

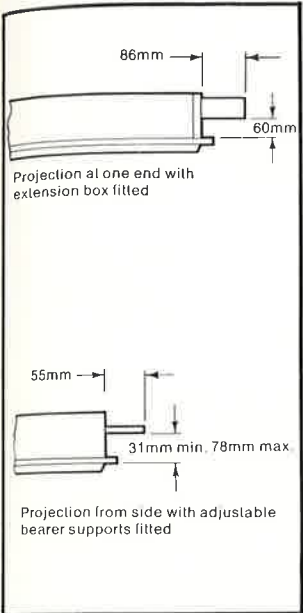
■ Modular recessed luminaires with Durawhite stoved finish and having gear trays with individual terminal blocks and fuses; substantially as Philips Planner luminaires.

RANGE OF OPERATION

240V 50Hz.
 Normal indoor conditions.

PHOTOMETRIC DATA

Photometric data for two-, three- and four-lamp versions of the FT Planner, with prismatic controllers or opal diffusers, is contained in a separate Photometric Data Sheet PL 1798.



ELECTRICAL DATA

Gear tray Catalogue No.	Circuit	Circuit Watts per gear tray	Circuit current (Amperes)	Ballast Cat. No.	Capacitor (mfd)	Starter Cat. No.
GTS220Y (inner lamps)	2 x 20W switchstart	52	0.23	BCS40	3.5 10% 250V	2 x S2
GTS220W (outer lamps)	2 x 20W switchstart	52	0.23	BCS40	3.5 10% 250V	2 x S2
GTS240Y (inner lamps)	2 x 40W switchstart	104	0.46	2 x BCS40	2 x 3.5 10% 250V	2 x S10
GTS240W (outer lamps)	2 x 40W switchstart	104	0.46	2 x BCS40	2 x 3.5 10% 250V	2 x S10
GTS265Y (inner lamps)	2 x 65W switchstart	154	0.68	2 x BCS65	2 x 5.5 10% 250V	2 x S10
GTS265W (outer lamps)	2 x 65W switchstart	154	0.68	2 x BCS65	2 x 5.5 10% 250V	2 x S10
GT185	1 x 85W starterless	96	0.46	BBXK85	8.4 5% 440V	—
GT285Y (inner lamps)	2 x 85W starterless	192	0.92	2 x BBXK85	2 x 8.4 5% 440V	—
GT285W (outer lamps)	2 x 85W starterless	192	0.92	2 x BBXK85	2 x 8.4 5% 440V	—
GTS140	1 x 40W switchstart	52	0.23	BSC40	3.5 10% 250V	S10
GTS165	1 x 65W switchstart	77	0.34	BCS65	5.0 10% 250V	S10

All information quoted relates to average luminaire on a 240V 50Hz supply at 25°C.
 Where two gear trays are used per luminaire, the individual Wattage and current should be added to give the total figure.
 On a balanced 3-phase 4-wire supply, the current in the neutral conductor does not exceed 3 x 25% of that in any line conductor.

ORDERING DATA

Nominal size (mm)	Rating	Catalogue No. (complete luminaire)	Housing	Component parts		
				Diffuser	Prismatic controller	Gear tray
600 x 600	2 x 20W 600mm (2ft)	FT66/220DF/S	FT66	DF66	—	GTS220Y
600 x 600	2 x 20W 600mm (2ft)	FT66/220PC/S	FT66	—	PC66	GTS220Y
600 x 600	4 x 20W 600mm (2ft)	FT66/420DF/S	FT66	DF66	—	GTS220W
600 x 600	4 x 20W 600mm (2ft)	FT66/420PC/S	FT66	—	PC66	GTS220Y GTS220W
600 x 1200	2 x 40W 1200mm (4ft)	FT612/240DF/S	FT612	DF612	—	GTS240Y
600 x 1200	2 x 40W 1200mm (4ft)	FT612/240PC/S	FT612	—	PC612	GTS240Y
600 x 1200	3 x 40W 1200mm (4ft)	FT612/340DF/S	FT612	DF612	—	GTS140 GTS240W
600 x 1200	3 x 40W 1200mm (4ft)	FT612/340PC/S	FT612	—	PC612	GTS140 GTS240W
600 x 1200	4 x 40W 1200mm (4ft)	FT612/440DF/S	FT612	DF612	—	GTS240Y GTS240W
600 x 1200	4 x 40W 1200mm (4ft)	FT612/440PC/S	FT612	—	PC612	GTS240Y GTS240W
600 x 1800	2 x 65W 1500mm (5ft)	FT618/265DF/S	FT618	DF618	—	GTS265Y
600 x 1800	2 x 65W 1500mm (5ft)	FT618/265PC/S	FT618	—	PC618	GTS265Y
600 x 1800	3 x 65W 1500mm (5ft)	FT618/365DF/S	FT618	DF618	—	GTS165 GTS265W
600 x 1800	3 x 65W 1500mm (5ft)	FT618/365PC/S	FT618	—	PC618	GTS165 GTS265W
600 x 1800	4 x 65W 1500mm (5ft)	FT618/465DF/S	FT618	DF618	—	GTS265Y GTS265W
600 x 1800	4 x 65W 1500mm (5ft)	FT618/465PC/S	FT618	—	PC618	GTS265Y GTS265W
600 x 1800	2 x 85W 1800mm (6ft)	FT618/285DF	FT618	DF618	—	GT285Y
600 x 1800	2 x 85W 1800mm (6ft)	FT618/285PC	FT618	—	PC618	GT285Y
600 x 1800	3 x 85W 1800mm (6ft)	FT618/385DF	FT618	DF618	—	GT185 GT285W
600 x 1800	3 x 85W 1800mm (6ft)	FT618/385PC	FT618	—	PC618	GT185 GT285W
600 x 1800	4 x 85W 1800mm (6ft)	FT618/485DF	FT618	DF618	—	GT285Y GT285W
600 x 1800	4 x 85W 1800mm (6ft)	FT618/485PC	FT618	—	PC618	GT285Y GT285W

Lamps should be ordered separately.

Please order in the form given in the following example, in multiples of the packing quantity:

50 Philips Planner luminaires with prismatic controllers FT618/485PC
50 Philips Extension Box for 600mm housings EB2
50 Philips suspension plate sets SP1

Accessories

Cat.No.	Description	Packing quantity
SP1	Suspension Plate sets for use with 20mm conduit or 6mm ($\frac{1}{4}$ ") rod suspension.	Set of four
BS1	Bearer Supports. Optional for suspension on ceiling grid.	Set of four
EB2	End box for 600mm housing (not needed for 1800mm housing fitted with 1500mm lamps).	Individually packed
A1249	Spare lampholder with clip	Packed to order

Complete luminaires are supplied individually packed, and diffusers and controllers are supplied packed two per carton.

Gear trays are packed separately and individually. Ordering codes for complete luminaires are sufficient to obtain all required components excepting accessories which should be ordered separately.

Notes:-

Gear tray types GTS165 and GTS265 Y/W each contain a suspension kit and end cap blanking piece for use with 1500mm lamps. These lamps are supported by spring clips that fit into holes provided in the housing. Full details are given in the Customer Information Service leaflet supplied with the gear tray.

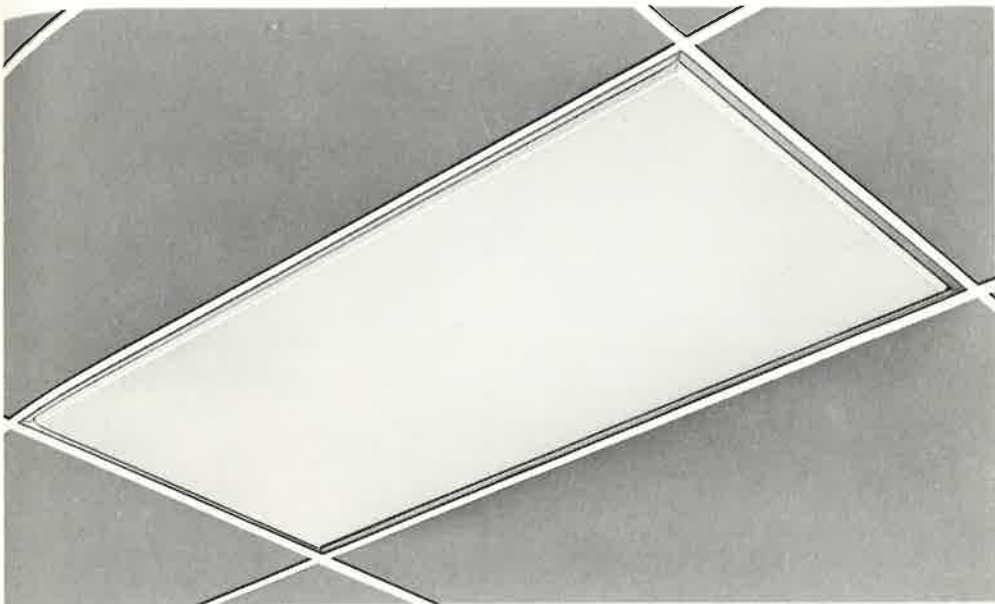
Made in Great Britain

CI/SIB	(63.1)
UDC	696.6:628.972

2

LT PLANNER

600mm wide metric



LT612 with DF612

600mm wide fluorescent recessed luminaire for exposed-tee suspended ceilings

LT Series (Metric)

With Lay-in Trim for metric nominal hole sizes.



RANGE

600mm module body sizes. There is a choice of lampways, and prismatic controllers or opal diffusers.

600mm × 600mm nominal body size:
Two or four lampways, switchstart circuits with 20W 600mm lamps.

600mm × 1200mm nominal body size:
Two, three or four lampways, switchstart circuits with 40W 1200mm lamps.

600mm × 1800mm nominal body size:
Two, three or four lampways, switchstart circuits with 65W 1500mm lamps or starterless circuits with 85W 1800mm lamps.

Opal diffusers or prismatic controllers are available for all body sizes.

APPLICATIONS

For 600mm module exposed tee grid ceiling systems used in situations such as:

- Shops and department stores
- Offices
- Hospitals
- Restaurants and hotels
- Banking halls

FLUORESCENT LUMINAIRE

Handbook Ref.

1.2.4/5

To reorder this data sheet quote

1.78 PL1797

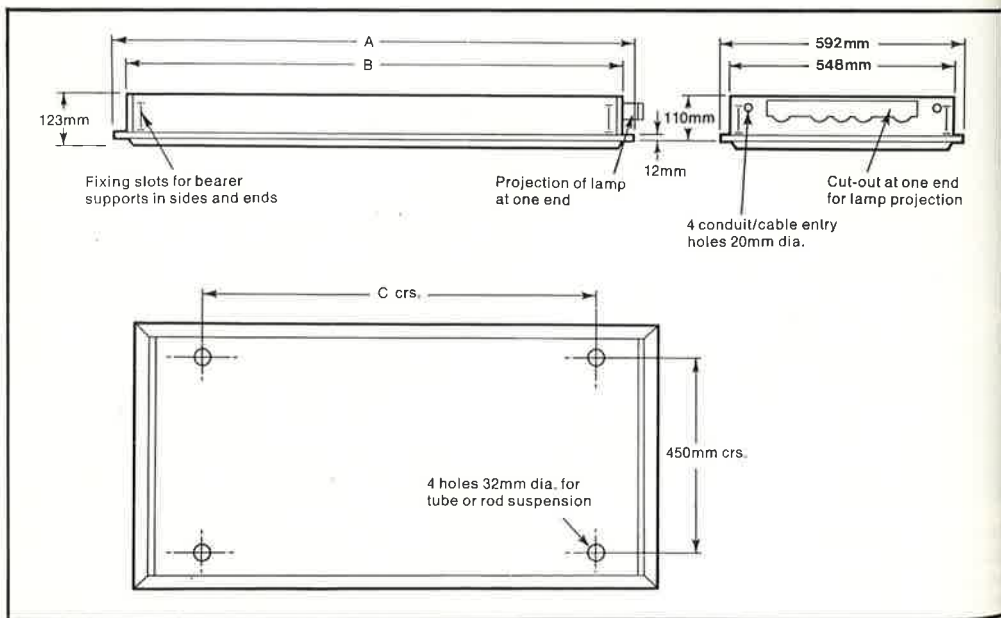
Replaces

PL 9328

FEATURES

- Fits flush into exposed tee grid, with low installed depth for use with shallow voids.
- Separate gear trays for each circuit; each gear tray has its own fuse and terminal block.
- Separate circuits for inner and outer lamps on three- and four-lamp luminaires permits independent switching for choice of lighting levels.
- One-piece controller or diffuser hinges down on one side to simplify lamp changing.
- Prismatic controller is a one-piece fabrication with a clear prismatic base and opal sides to control the downward spread of light and reduce sideways glare.

- Easily mounted from structural ceiling using 20mm ($\frac{3}{4}$ in) conduit tubes or 6mm ($\frac{1}{4}$ in) drop rods on to optional suspension plates, or can be directly mounted on to suspended ceiling grid (of adequate strength) by means of four optional bearer supports.
- Optional sheet metal box to protect ends of lamps projecting above suspended ceilings.
- Two-, three- and four-lamp variations in sizes above 600mm to suit a wide range of illuminance requirements.



NOTE:- 10mm clearance is required between the top of the luminaire and the structural ceiling to allow room for manoeuvring the luminaire into position.

ELECTRICAL DATA

Gear tray Catalogue No.	Circuit	Circuit Watts per gear tray	Circuit current (Amperes)	Ballast Cat. No.	Capacitor (mfd)	Starter Cat. No.
GTS220Y (inner lamps)	2 x 20W switchstart	52	0.23	BCS40	3.5 10% 250V	2 x S2
GTS220W (outer lamps)	2 x 20W switchstart	52	0.23	BCS40	3.5 10% 250V	2 x S2
GTS240Y (inner lamps)	2 x 40W switchstart	104	0.46	2 x BCS40	2 x 3.5 10% 250V	2 x S10
GTS240W (outer lamps)	2 x 40W switchstart	104	0.46	2 x BCS40	2 x 3.5 10% 250V	2 x S10
GTS265Y (inner lamps)	2 x 65W switchstart	154	0.68	2 x BCS65	2 x 5.5 10% 250V	2 x S10
GTS265W (outer lamps)	2 x 65W switchstart	154	0.68	2 x BCS65	2 x 5.5 10% 250V	2 x S10
GT185	1 x 85W starterless	96	0.46	BBXK85	8.4 5% 440V	—
GT285Y (inner lamps)	2 x 85W starterless	192	0.92	2 x BBXK85	2 x 8.4 5% 440V	—
GT285W (outer lamps)	2 x 85W starterless	192	0.92	2 x BBXK85	2 x 8.4 5% 440V	—
GTS140	1 x 40W switchstart	52	0.23	BCS40	3.5 10% 250V	S10
GTS165	1 x 65W switchstart	77	0.34	BCS65	5.5 10% 250V	S10

All information quoted relates to a 240V 50Hz supply at 25°C.

Where two gear trays are used per luminaire, the individual Wattage and current should be added to give the total figure.

On a balanced 3-phase 4-wire supply, the current in the neutral conductor does not exceed 3 x 25% of that in any line conductor.



Queensway Discount Warehouse
using ET Planner with Linsomatic
'WideSpread' luminaires and Colour
84 lamps.



*East Midland Electricity Board using
Special Project Luminaires with
Perforated controllers and TLH
Lamps.*

MATERIALS & FINISH

Body (housing): Sheet steel, Durawhite stoved finish

Control gear tray: Sheet steel, Durawhite stoved finish.

Lampholders: White urea mouldings

Suspension plates and bearer supports: Steel, galvanised finish

Controller: Clear polystyrene prismatic sheet welded to opal edgings, with plated hinge clips

Diffuser: Vacuum-formed opal polystyrene dish with plated hinge clips

SPECIFICATION

■ Type compliance with BS 4533 2.2. Ordinary Indoor Class I.

To specify state:

Modular recessed luminaires for exposed tee ceilings with Durawhite stoved finish and having gear trays with individual terminal blocks and fuses; substantially as Philips Planner luminaires.

RANGE OF OPERATION

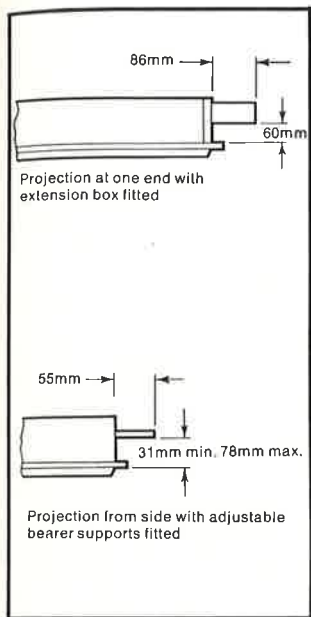
240V 50Hz.

Normal indoor conditions.

PHOTOMETRIC DATA

Photometric data for two-, three- and four-lamp versions of the LT Planner, with prismatic controllers or opal diffusers, is contained in a separate Photometric Data Sheet PL 1804.

2



DIMENSIONS & WEIGHTS

All data applicable to luminaires whether fitted with prismatic controllers or opal diffusers.

Nominal size (mm)	Rating	Weight complete with lamps (kg/lb)	Dimensions (mm)		
			A	B	C
600 x 600	2 x 20W 600mm (2ft)	8-0/17-6	592	546	450
600 x 600	4 x 20W 600mm (2ft)	9-9/21-8	592	546	450
600 x 1200	2 x 40W 1200mm (4ft)	14-5/31-9	1192	1146	900
600 x 1200	3 x 40W 1200mm (4ft)	16-9/37-2	1192	1146	900
600 x 1200	4 x 40W 1200mm (4ft)	18-3/40-3	1192	1146	900
600 x 1800	2 x 65W 1500mm (5ft)	20-6/45-3	1792	1746	1350
600 x 1800	3 x 65W 1500mm (5ft)	24-0/52-8	1792	1746	1350
600 x 1800	4 x 65W 1500mm (5ft)	26-0/57-2	1792	1746	1350
600 x 1800	2 x 85W 1800mm (6ft)	20-6/45-3	1792	1746	1350
600 x 1800	3 x 85W 1800mm (6ft)	24-0/52-8	1792	1746	1350
600 x 1800	4 x 85W 1800mm (6ft)	26-0/57-2	1792	1746	1350

ORDERING DATA

Nominal size (mm)	Rating	Cat. No. (complete luminaire)	Housing	Component parts		
				Diffuser	Prismatic controller	Gear Tray
600 x 600	2 x 20W 600mm (2ft)	LT66/220DF/S	LT66	DF66	—	GTS220Y
600 x 600	2 x 20W 600mm (2ft)	LT66/220PC/S	LT66	—	PC66	GTS220Y
600 x 600	4 x 20W 600mm (2ft)	LT66/420DF/S	LT66	DF66	—	GTS220Y
600 x 600	4 x 20W 600mm (2ft)	LT66/420PC/S	LT66	—	PC66	GTS220W
600 x 1200	2 x 40W 1200mm (4ft)	LT612/240DF/S	LT612	DF612	—	GTS240Y
600 x 1200	2 x 40W 1200mm (4ft)	LT612/240PC/S	LT612	—	PC612	GTS240Y
600 x 1200	3 x 40W 1200mm (4ft)	LT612/340DF/S	LT612	DF612	—	GTS140
600 x 1200	3 x 40W 1200mm (4ft)	LT612/340PC/S	LT612	—	PC612	GTS240W
600 x 1200	4 x 40W 1200mm (4ft)	LT612/440DF/S	LT612	DF612	—	GTS140
600 x 1200	4 x 40W 1200mm (4ft)	LT612/440PC/S	LT612	—	PC612	GTS240W
600 x 1800	2 x 65W 1500mm (5ft)	LT618/265DF/S	LT618	DF618	—	GTS265Y
600 x 1800	2 x 65W 1500mm (5ft)	LT618/265PC/S	LT618	—	PC618	GTS265Y
600 x 1800	3 x 65W 1500mm (5ft)	LT618/365DF/S	LT618	DF618	—	GTS165
600 x 1800	3 x 65W 1500mm (5ft)	LT618/365PC/S	LT618	—	PC618	GTS265W
600 x 1800	4 x 65W 1500mm (5ft)	LT618/465DF/S	LT618	DF618	—	GTS165
600 x 1800	4 x 65W 1500mm (5ft)	LT618/465PC/S	LT618	—	PC618	GTS265W
600 x 1800	2 x 85W 1800mm (6ft)	LT618/285DF	LT618	DF618	—	GT285Y
600 x 1800	2 x 85W 1800mm (6ft)	LT618/285PC	LT618	—	PC618	GT285Y
600 x 1800	3 x 85W 1800mm (6ft)	LT618/385DF	LT618	DF618	—	GT185
600 x 1800	3 x 85W 1800mm (6ft)	LT618/385PC	LT618	—	PC618	GT285W
600 x 1800	4 x 85W 1800mm (6ft)	LT618/485DF	LT618	DF618	—	GT185
600 x 1800	4 x 85W 1800mm (6ft)	LT618/485PC	LT618	—	PC618	GT285W

Lamps should be ordered separately.

Complete luminaires are supplied individually packed, and diffusers and controllers are supplied **packed two per carton**.

Gear trays are packed separately and individually. Ordering codes for complete luminaires are sufficient to obtain all required components excepting accessories which should be ordered separately.

Please order in the form given in the following example, in multiples of the packing quantity:

50 Philips Planner luminaires with prismatic controllers LT618/485PC
50 Philips End Box for 600mm housings EB2
50 Philips suspension plate sets SP1

Accessories

Cat. No.	Description	Packing Quantity
SP1	Suspension Plate sets for use with 20mm conduit or 6mm (¼") rod suspension	Set of four
BS1	Bearer Supports. Optional for suspension on ceiling grid	Set of four
EB2	End box for 600mm housing (not needed for 1800mm housing fitted with 1500mm lamps)	Individually packed
A1249	Spare lampholder with clip	Packed to order

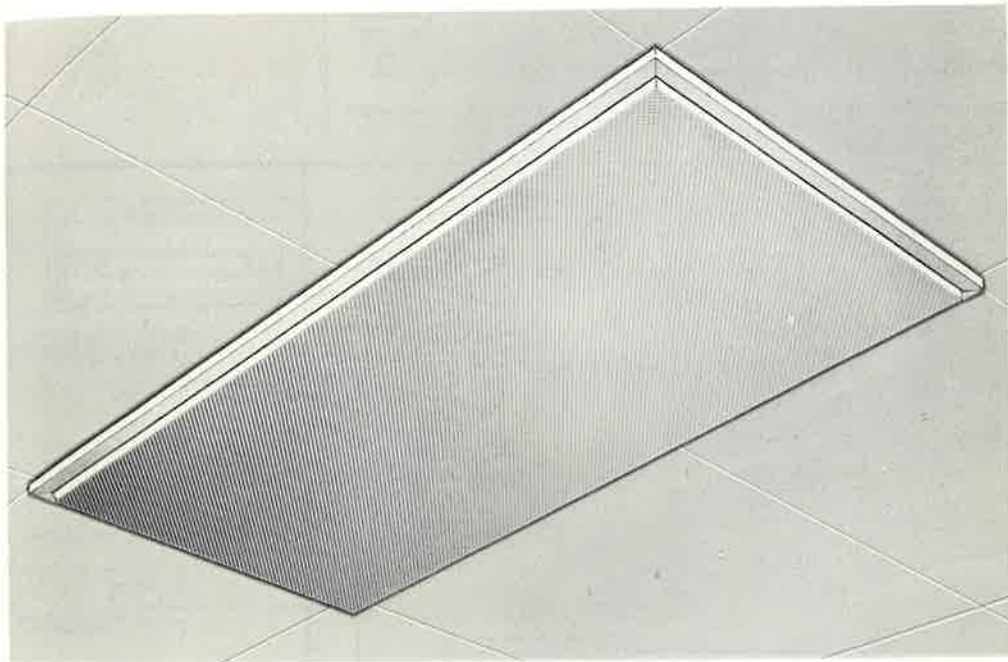
Notes:-

Gear tray types GTS165 and GTS265 Y/W each contain a suspension kit and end cap blanking piece for use with 1500mm lamps. The lamps are supported by spring clips that fit into holes provided in the housing. Full details are given in the leaflet supplied with the gear tray.

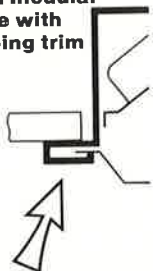
Made in Great Britain

OT PLANNER

600mm wide metric



**OT Series (Metric)
recessed modular
luminaire with
overlapping trim**



Recessed modular luminaire to suit 600mm module metric-dimension suspended ceilings. The trim is of the overlapping type to mask the edge of the ceiling opening.

RANGE

600mm × 600mm body size: Two or four lampways, switchstart circuits with 20W 600mm lamps.

600mm × 1200mm body size: Two, three or four lampways, switchstart circuits with 40W 1200mm lamps.

600mm × 1800mm body size: Two, three or four lampways, switchstart circuits with 65W 1500mm lamps or starterless circuits with 85W 1800mm lamps.

APPLICATIONS

For 600mm module suspended ceiling systems where the luminaires must mask the edges of the ceiling openings (for example, with plaster ceilings), in situations such as:

- Shops and department stores
- Offices
- Municipal buildings
- Hospitals
- Restaurants and hotels
- Cinema and theatre foyers
- Banking halls

Handbook Ref

1.2.4/7

To reorder this data sheet quote

7.77 PL 1737

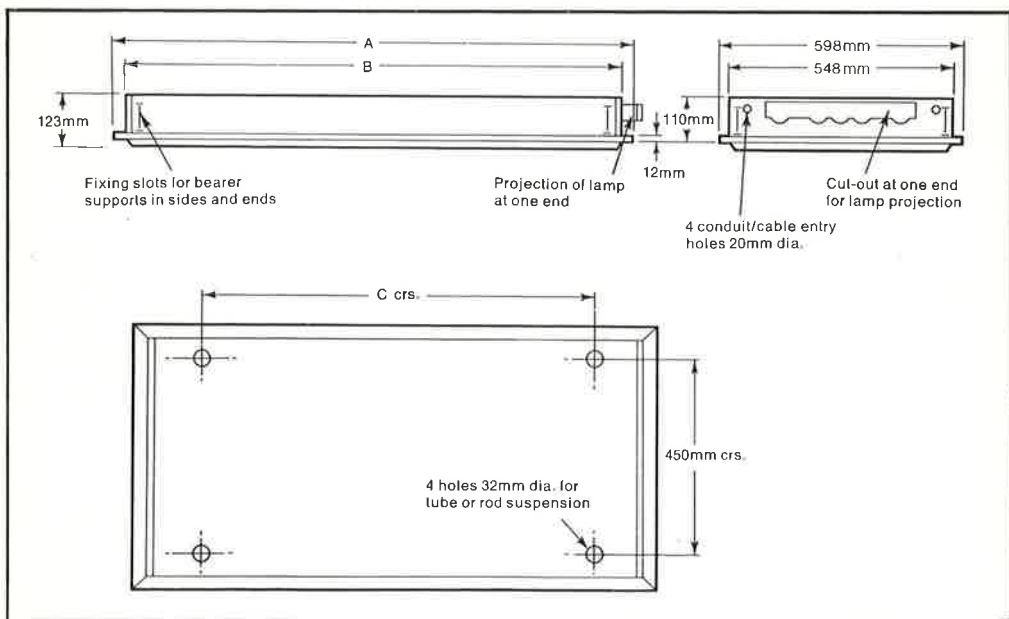
Replaces

PL 9328

FEATURES

- Fits flush into ceiling apertures, with overlapping trim to mask the edges of the aperture; low installed depth permits use with shallow voids.
- Low-loss control gear for reduced energy consumption.
- Separate circuits for inner and outer lamps on three- and four-lamp luminaires permit independent switching for choice of lighting levels.
- Separate gear trays for each circuit; each gear tray has its own fuse and terminal block.
- One-piece controller or diffuser hinges down on one side to simplify lamp changing.
- Prismatic controller is a one-piece fabrication with a clear prismatic base and opal sides to control the downward spread of light and reduce sideways glare.

- Easily mounted from structural ceiling using 20mm (¾ in.) conduit tubes or 6mm (¼ in.) drop rods on to optional suspension plates, or can be directly mounted on to suspended ceilings of adequate strength by means of four optional bearer arms.
- Optional sheet metal box to protect ends of lamps projecting above suspended ceilings.
- Two-, three- and four-lamp variations in sizes above 600mm to suit a wide range of illuminance requirements.
- Optional suspension plates or bearer supports are available for suspending the luminaires from the main ceiling structure or mounting them directly on suspended ceilings of adequate strength.
- Opal diffusers or prismatic controllers are available for all body sizes.



NOTE:- 10mm clearance is required between the top of the luminaire and the structural ceiling to allow room for manoeuvring the luminaire into position.

DIMENSIONS & WEIGHTS

All data applicable to luminaires whether filled with prismatic controllers or opal diffusers.

Nominal size (mm)	Rating	Weight complete with lamps (kg/lb)	Dimensions (mm)		
			A	B	C
600 x 600	2 x 20W 600mm (2ft)	8.5/18.7	628	546	450
600 x 600	4 x 20W 600mm (4ft)	10.4/22.9			
600 x 1200	2 x 40W 1200mm (4ft)	15.2/33.4	1228	1146	900
600 x 1200	3 x 40W 1200mm (4ft)	17.6/38.7			
600 x 1200	4 x 40W 1200mm (4ft)	19.0/41.8			
600 x 1800	2 x 65W 1500mm (5ft)	21.5/47.3	1828	1746	1350
600 x 1800	3 x 65W 1500mm (5ft)	24.9/54.8			
600 x 1800	4 x 65W 1500mm (5ft)	28.0/57.2			
600 x 1800	2 x 85W 1800mm (6ft)	21.5/47.3			
600 x 1800	3 x 85W 1800mm (6ft)	24.9/54.8			
600 x 1800	4 x 85W 1800mm (6ft)	26.0/57.2			

MATERIALS & FINISH

Body (housing): Sheet steel, Dura-white stoved finish.

Control gear tray: Sheet steel, Durawhite stoved finish.

Lampholders: White urea mouldings.

Suspension plates and bearer supports: Steel, galvanised finish.

Controller: Clear polystyrene prismatic sheet welded to opal edgings, with plated hinge clips.

Diffuser: Vacuum-formed opal polystyrene dish with plated hinge clips.

SPECIFICATION

■ Type compliance with BS 4533 2.2 Ordinary Indoor Class I.

To specify state:

■ Modular recessed luminaire with overlapping trim, with Durawhite stoved finish and having gear trays with individual terminal blocks and fuses; substantially as Philips Planner luminaires.

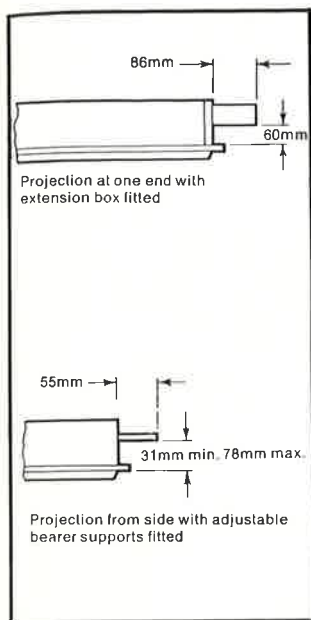
RANGE OF OPERATION

240V 50Hz. Normal indoor conditions.

PHOTOMETRIC DATA

Photometric data for two-, three- and four-lamp versions of the OT Planner, with prismatic controllers or opal diffusers, is contained in a separate Photometric Data Sheet PL 1804.

2



ELECTRICAL DATA

Gear tray Catalogue No.	Circuit	Circuit Watts per gear tray	Circuit current (Amperes)	Ballast Cat. No.	Capacitor (mfd)	Starter Cat. No.
GTS220Y (inner lamps)	2 x 20W switchstart	52	0.23	BCS40	3.5 10% 250V	2 x S2
GTS220W (outer lamps)	2 x 20W switchstart	52	0.23	BCS40	3.5 10% 250V	2 x S2
GTS240Y (inner lamps)	2 x 40W switchstart	104	0.46	2 x BCS40	2 x 3.5 10% 250V	2 x S10
GTS240W (outer lamps)	2 x 40W switchstart	104	0.46	2 x BCS40	2 x 3.5 10% 250V	2 x S10
GTS265Y (inner lamps)	2 x 65W switchstart	154	0.68	2 x BCS65	2 x 5.5 10% 250V	2 x S10
GTS265W (outer lamps)	2 x 65W switchstart	154	0.68	2 x BCS65	2 x 5.5 10% 250V	2 x S10
GT185	1 x 85W starterless	96	0.46	BBXK85	8.4 5% 440V	—
GT285Y (inner lamps)	2 x 85W starterless	192	0.92	2 x BBXK85	2 x 8.4 5% 440V	—
GT285W (outer lamps)	2 x 85W starterless	192	0.92	2 x BBXK85	2 x 8.4 5% 440V	—
GTS140	1 x 40W switchstart	52	0.23	BCS40	3.5 10% 250V	S10
GTS165	1 x 65W switchstart	77	0.34	BCS65	5.0 10% 250V	S10

All information quoted relates to average luminaire on a 240V 50Hz supply at 25°C.

Where two gear trays are used per luminaire, the individual Wattage and current should be added to give the total figure.

On a balanced 3-phase 4-wire supply, the current in the neutral conductor does not exceed 3 x 25% of that in any line conductor.

ORDERING DATA

Nominal size (mm)	Rating	Catalogue No. (complete luminaire)	Housing	Component parts		
				Diffuser	Prismatic controller	Gear Tray
600 × 600	2 × 20W 600mm (2ft)	OT66/220DF/S	OT66	DF66	—	GTS220Y
600 × 600	2 × 20W 600mm (2ft)	OT66/220PC/S	OT66	—	PC66	GTS220Y
600 × 600	4 × 20W 600mm (2ft)	OT66/420DF/S	OT66	DF66	—	GTS220Y
600 × 600	4 × 20W 600mm (2ft)	OT66/420PC/S	OT66	—	PC66	GTS220W
600 × 600	4 × 20W 600mm (2ft)	OT66/420PC/S	OT66	—	PC66	GTS220Y
600 × 600	4 × 20W 600mm (2ft)	OT66/420PC/S	OT66	—	PC66	GTS220W
600 × 1200	2 × 40W 1200mm (4ft)	OT612/240DF/S	OT612	DF612	—	GTS240Y
600 × 1200	2 × 40W 1200mm (4ft)	OT612/240PC/S	OT612	—	PC612	GTS240Y
600 × 1200	3 × 40W 1200mm (4ft)	OT612/340DF/S	OT612	DF612	—	GTS140
600 × 1200	3 × 40W 1200mm (4ft)	OT612/340DF/S	OT612	—	PC612	GTS240W
600 × 1200	3 × 40W 1200mm (4ft)	OT612/340PC/S	OT612	—	PC612	GTS140
600 × 1200	3 × 40W 1200mm (4ft)	OT612/340PC/S	OT612	—	PC612	GTS240W
600 × 1200	4 × 40W 1200mm (4ft)	OT612/440DF/S	OT612	DF612	—	GTS240Y
600 × 1200	4 × 40W 1200mm (4ft)	OT612/440DF/S	OT612	—	PC612	GTS240W
600 × 1200	4 × 40W 1200mm (4ft)	OT612/440PC/S	OT612	—	PC612	GTS240Y
600 × 1200	4 × 40W 1200mm (4ft)	OT612/440PC/S	OT612	—	PC612	GTS240W
600 × 1800	2 × 65W 1500mm (5ft)	OT618/265DF/S	OT618	DF618	—	GTS265Y
600 × 1800	2 × 65W 1500mm (5ft)	OT618/265PC/S	OT618	—	PC618	GTS265Y
600 × 1800	3 × 65W 1500mm (5ft)	OT618/365DF/S	OT618	DF618	—	GTS165
600 × 1800	3 × 65W 1500mm (5ft)	OT618/365DF/S	OT618	—	PC618	GTS265W
600 × 1800	3 × 65W 1500mm (5ft)	OT618/365PC/S	OT618	—	PC618	GTS165
600 × 1800	3 × 65W 1500mm (5ft)	OT618/365PC/S	OT618	—	PC618	GTS265W
600 × 1800	4 × 65W 1500mm (5ft)	OT618/465DF/S	OT618	DF618	—	GTS265Y
600 × 1800	4 × 65W 1500mm (5ft)	OT618/465DF/S	OT618	—	PC618	GTS265W
600 × 1800	4 × 65W 1500mm (5ft)	OT618/465PC/S	OT618	—	PC618	GTS265Y
600 × 1800	4 × 65W 1500mm (5ft)	OT618/465PC/S	OT618	—	PC618	GTS265W
600 × 1800	2 × 85W 1800mm (6ft)	OT618/285DF	OT618	DF618	—	GT285Y
600 × 1800	2 × 85W 1800mm (6ft)	OT618/285PC	OT618	—	PC618	GT285Y
600 × 1800	3 × 85W 1800mm (6ft)	OT618/385DF	OT618	DF618	—	GT185
600 × 1800	3 × 85W 1800mm (6ft)	OT618/385DF	OT618	—	PC618	GT285W
600 × 1800	3 × 85W 1800mm (6ft)	OT618/385PC	OT618	—	PC618	GT185
600 × 1800	3 × 85W 1800mm (6ft)	OT618/385PC	OT618	—	PC618	GT285W
600 × 1800	4 × 85W 1800mm (6ft)	OT618/485DF	OT618	DF618	—	GT285Y
600 × 1800	4 × 85W 1800mm (6ft)	OT618/485DF	OT618	—	PC618	GT285W
600 × 1800	4 × 85W 1800mm (6ft)	OT618/485PC	OT618	—	PC618	GT285Y
600 × 1800	4 × 85W 1800mm (6ft)	OT618/485PC	OT618	—	PC618	GT285W

Lamps should be ordered separately.

Notes: Gear tray types GTS165 and GTS265 Y/W each contain a suspension kit and end cap blanking piece for use with 1500mm lamps. These lamps are supported by spring clips that fit into holes provided in the housing. Full details are given in the Customer Information Service leaflet supplied with the gear tray.

Accessories

Cat. No.	Description	Packing quantity
SP1	Suspension Plate sets for use with 20mm conduit or 6mm ($\frac{1}{4}$ ") rod suspension.	Set of four
BS1	Bearer Supports. Optional for suspension on ceiling grid.	Set of four
EB1 or EB2	End box for 600mm housing (not needed for 1800mm housing fitted with 1500mm lamp).	Individually packed
A1249	Spare lampholder with clip	Packed to order

Please order in the form given in the following example, in multiples of the packing quantity:

- 50 Philips Planner luminaires with prismatic controllers OT618/485PC
- 50 Philips Extension Box for 600mm housings EB2
- 50 Philips suspension plate sets SP1

Complete luminaires are supplied individually packed, and diffusers and controllers are supplied packed two per carton.

Gear trays are packed separately and individually. Ordering codes for complete luminaires are sufficient to obtain all required components excepting accessories which should be ordered separately.

Made in Great Britain.

CI/SIB	(63.1)
UDC	696.6:628.972

(Provisional Information)

PLANNER LUMINAIRES

Photometric Data

Photometric data applicable to all luminaires in the Planner range, taken both with opal diffusers and prismatic controllers.

RANGE

Five sets of photometric information are included, for luminaires with one, two, three or four lamps, and with either opal diffusers or prismatic controllers.

The information is applicable to the following luminaires:-

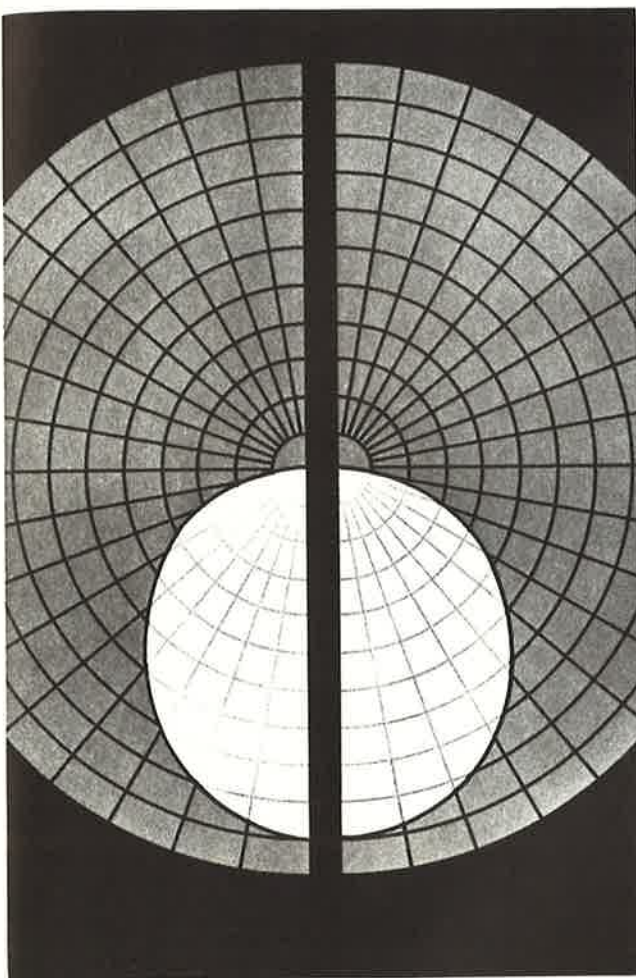
- FT 300mm Planner (1L and 2L versions)
- FT 600mm Planner (2L, 3L and 4L versions)
- FT 2ft Planner (2L, 3L and 4L versions)
- OT 600mm Planner (2L, 3L and 4L versions)
- LT 600mm Planner (2L, 3L and 4L versions)
- ET 600mm Planner (2L and 3L versions)
- CT 600mm Planner (2L, 3L and 4L versions)

Technical data on the Planner range is contained in the following Data Sheets:-

- FT 300mm Planner - PL 1735
- FT 600mm Planner - PL 1739
- FT 2ft Planner - PL 1736
- OT Planner - PL 1737
- LT Planner - PL 1797
- ET Planner - PL 1712
- CT Planner - PL 1738

Both the 300mm FT Planner and the ET Planner luminaires are available in WideSpread form, fitted with Linsomatic prismatic controllers which spread the light over a wide area. This gives the possibility of effecting economies by extending the spacing between luminaires.

Technical and photometric information on the WideSpread FT Planner is contained in Data Sheet PL 1727, and on the WideSpread ET Planner in Data Sheet PL 1728.

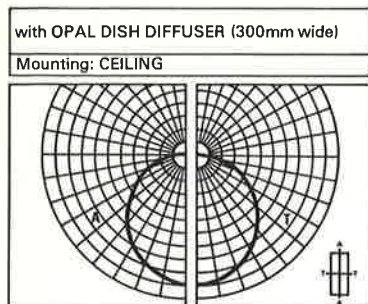


FLUORESCENT LUMINAIRE

Handbook Ref.	1.24/8
To reorder this Data Sheet quote	6.78 PL 1803/1
Replaces	PL 1803

PHOTOMETRIC DATA

FT 300mm Planner—one lamp with opal diffuser



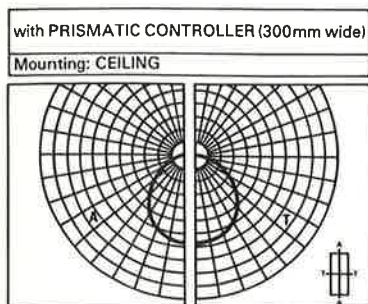
	Nom. Lgth. (m)	Lum. Area (cm ²)
L.O.R. 52%	0.6	—
BZ 4	1.2	—
UFF 1%	1.5	—
DFF 99%	1.8	4360
S/H 1.5	2.4	—

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	30	34	37	39	42	45	46	48	49
	30		27	31	34	36	40	42	44	46	48
	10		24	28	31	34	38	40	42	45	46
50	50	10	30	33	36	38	41	43	45	47	48
	30		27	30	33	36	39	41	43	45	47
	10		24	28	31	33	37	40	42	44	46
30	30	10	26	30	33	35	38	41	43	45	46
	10		24	28	31	33	37	39	41	43	45
	0	0	0								

FOR TWO LAMP MULTIPLY L.O.R. AND UF(F) BY 0.94

FT 300mm Planner—two lamp with prismatic controller



	Nom. Lgth. (m)	Lum. Area (cm ²)
L.O.R. 57%	0.6	—
BZ 3(2)4	1.2	—
UFF 1%	1.5	—
DFF 99%	1.8	4350
S/H 1.25	2.4	—

Utilization Factors UF (F)

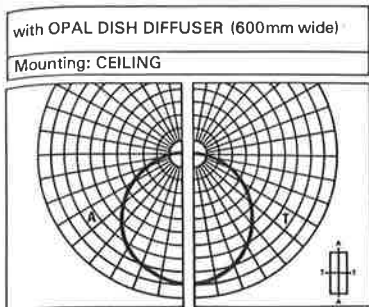
Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	37	41	44	47	48	51	52	55	56
	30		34	38	41	44	46	48	50	53	54
	10		31	35	39	41	43	46	48	51	53
50	50	10	36	40	44	46	47	50	51	53	54
	30		33	37	41	43	45	47	50	52	53
	10		31	35	39	41	43	45	48	51	52
30	30	10	33	37	40	43	44	46	48	50	52
	10		31	35	38	41	43	45	47	49	50
	0	0	0								

FOR SINGLE LAMP MULTIPLY L.O.R. AND UF(F) BY 1.05

Photometric data is provisional and due to be replaced

PHOTOMETRIC DATA contd.

FT 600mm & 2ft, OT, LT & ET 600mm Planner—two lamp with opal diffuser



	Nom. Lgth. (m)	Lum. Area (cm ²)
L.O.R. 55%	0.6	3000
BZ 4	1.2	6300
UFF 1%	1.5	—
DFF 99%	1.8	9550
S/H 1.5	2.4	—

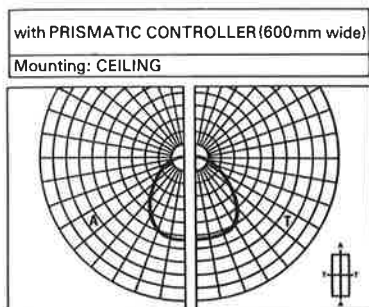
Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	34	38	41	44	47	49	51	54	56
	30		31	35	38	41	44	47	49	51	54
	10		28	32	36	38	42	45	47	50	51
50	50	10	34	37	41	43	46	48	50	52	53
	30		31	34	38	40	44	46	48	50	52
	10		28	32	35	38	42	44	47	49	51
30	30	10	30	34	37	40	43	45	47	49	51
	10		28	32	35	38	41	44	46	48	50
0	0	0									

FOR THREE LAMP MULTIPLY L.O.R. AND UF(F) BY 0.97

FOR FOUR LAMP MULTIPLY L.O.R. AND UF(F) BY 0.91

FT 600mm Planner & 2ft, OT, LT & ET 600mm Planner—two lamp with prismatic controller



	Nom. Lgth. (m)	Lum. Area (cm ²)
L.O.R. 57%	0.6	3000
BZ 3	1.2	6300
UFF 1%	1.5	—
DFF 99%	1.8	9550
S/H 1.25	2.4	—

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	38	41	45	47	50	54	56	58	59
	30		34	38	42	44	48	50	52	56	57
	10		32	36	40	42	46	49	50	54	56
50	50	10	37	41	44	46	49	52	54	56	58
	30		34	39	42	44	47	50	51	55	56
	10		32	35	39	42	45	48	50	52	55
30	30	10	34	37	41	43	47	49	50	53	56
	10		32	35	39	41	45	48	49	51	54
0	0	0									

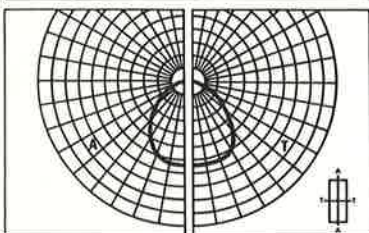
FOR THREE LAMP MULTIPLY L.O.R. AND UF(F) BY 0.95

FOR FOUR LAMP MULTIPLY L.O.R. AND UF(F) BY 0.90

PHOTOMETRIC DATA (contd.)

CT 600mm Planner—two lamp with prismatic controller

with PRISMATIC CONTROLLER (600mm wide)
 Mounting: CEILING



	Nom. Lgth. (m)	Lum. Area (cm ²)
L.O.R. 59%	0.6	3600
BZ 3	1.2	7200
UFF 2%	1.5	—
DFP 98%	1.8	10800
S/H 1.25	2.4	—

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	38	43	46	49	52	55	56	58	59
	30		35	39	43	46	50	52	54	56	58
	10		32	37	40	43	45	50	52	55	56
50	50	10	38	42	45	48	51	53	54	56	57
	30		35	39	42	45	49	51	53	55	57
	10		32	36	40	43	47	49	51	54	55
30	30	10	34	38	41	44	47	50	51	54	55
			32	36	39	42	46	48	50	53	54
	0	0	0								

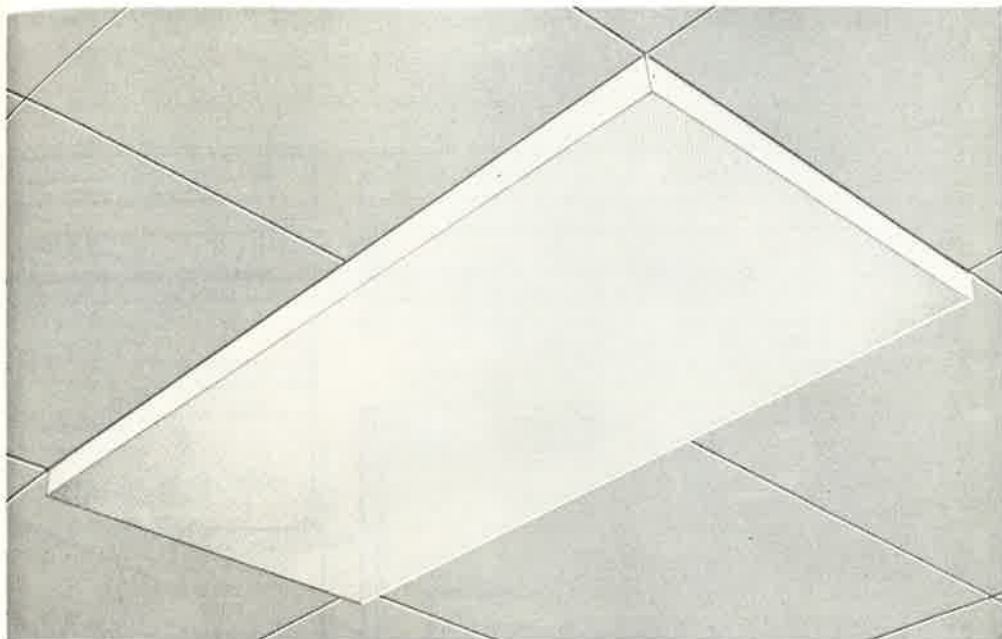
FOR THREE LAMP MULTIPLY L.O.R. AND UF(F) BY 0.95

FOR FOUR LAMP MULTIPLY L.O.R. AND UF(F) BY 0.90

Photometric data is provisional and due to be replaced

CT PLANNER

600mm wide metric

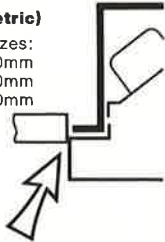


CT612/440CPC/S

recessed modular luminaire with concealed trim

CT Series (Metric)

for hole sizes:
 600mm × 600mm
 600mm × 1200mm
 600mm × 1800mm



Recessed modular luminaire to suit metric-dimension suspended ceilings. The trim is concealed, and the prismatic-based controller hides constructional parts in modular-construction ceilings with 600mm module apertures.

RANGE

600mm × 600mm body size: Two or four lampways, switchstart circuits with 20W 600mm lamps.

600mm × 1200mm body size: Two, three or four lampways, switchstart circuits with 40W 1200mm lamps.

600mm × 1800mm body size: Two, three or four lampways, switchstart circuits with 65W 1500mm lamps or starterless circuits with 85W 1800mm lamps.

APPLICATIONS

For 600mm module suspended ceiling systems used in situations such as:

- Shops and department stores
- Offices
- Municipal buildings
- Hospitals
- Restaurants and hotels
- Cinema and theatre foyers
- Banking halls

Handbook Ref.

1.23/9

To reorder this data sheet quote

7.77 PL 1738

Replaces

PLL 9328, 23/1

FEATURES

- Fits flush into ceiling apertures, the prismatic-based controller concealing the trim and completely obscuring the ceiling aperture.
- Low-loss control gear for reduced energy consumption.
- Separate gear trays for each circuit; each gear tray has its own fuse and terminal block.
- Separate circuits for inner and outer lamps on three- and four-lamp luminaires permits independent switching for choice of lighting levels.
- One-piece prismatic controller hinges down on one side to simplify lamp changing.

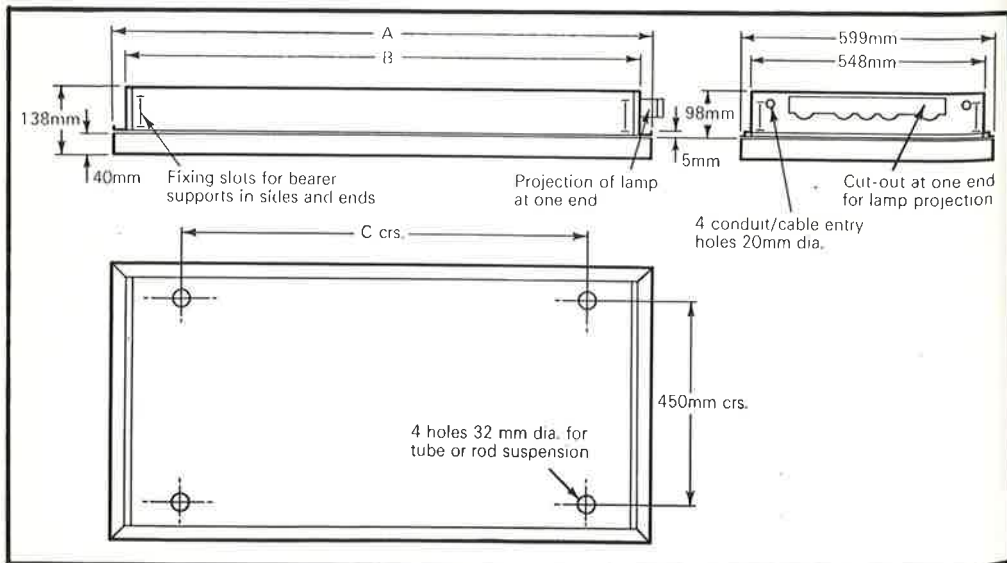
■ Prismatic controller is a one-piece fabrication with a clear prismatic base and opal sides to control the downward spread of light and reduce sideways glare.

■ Easily mounted from structural ceiling using 20mm ($\frac{3}{4}$ in.) conduit tubes or 6mm ($\frac{1}{4}$ in.) drop rods onto optional suspension plates, or can be directly mounted onto suspended ceiling grids of adequate strength by means of four optional bearer arms.

■ Optional suspension plates or bearer supports are available for suspending the luminaires from the main ceiling structure or mounting them directly on suspended ceiling grids of adequate strength.

■ Low installed depth for use with shallow ceiling voids.

■ Optional sheet metal box to protect ends of lamps projecting above suspended ceilings.



NOTE:- 10mm clearance is required between the top of the luminaire and the structural ceiling to allow room for manoeuvring the luminaire into position.

DIMENSIONS & WEIGHTS

Nominal size (mm)	Rating	Weight complete with lamps (kg/lb)	Dimensions (mm)		
			A	B	C
600 x 600	2 x 20W 600mm (2ft)	7-9/17-4	599	546	450
600 x 600	4 x 20W 600mm (4ft)	9-8/21-6			
600 x 1200	2 x 40W 1200mm (4ft)	14-0/30-8	1199	1146	900
600 x 1200	3 x 40W 1200mm (4ft)	16-4/36-1			
600 x 1200	4 x 40W 1200mm (4ft)	16-4/36-1			
600 x 1800	2 x 65W 1500mm (5ft)	20-8/45-3	1799	1746	1350
600 x 1800	3 x 65W 1500mm (5ft)	24-0/52-8			
600 x 1800	4 x 65W 1500mm (5ft)	26-0/57-2			
600 x 1800	2 x 85W 1800mm (6ft)	20-6/45-3			
600 x 1800	3 x 85W 1800mm (6ft)	24-0/52-8			
600 x 1800	4 x 85W 1800mm (6ft)	26-0/57-2			

MATERIALS & FINISH

Body (housing): Sheet steel, Durawhite stoved finish.

Control gear tray: Sheet steel, Durawhite stoved finish, with low-loss control gear for inner and outer lamps.

Lampholders: White urea mouldings.

Suspension plates and bearer supports: Steel, galvanised finish.

Controller: Clear polystyrene prismatic sheet welded to opal edgings, with plated hinge clips.

RANGE OF OPERATION

240V 50 Hz. Normal indoor conditions.

SPECIFICATION

■ Type compliance with BS 4533 2.2 Ordinary Indoor Class I.

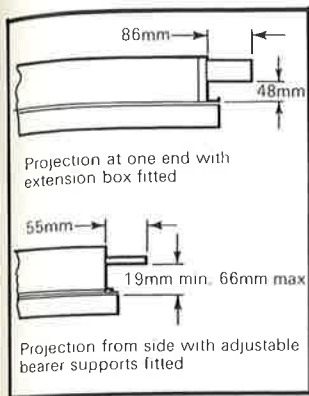
To specify state:

■ Modular recessed luminaires with Durawhite stoved finish and having gear trays with individual terminal blocks and fuses; substantially as Philips Planner.

PHOTOMETRIC DATA

Photometric data for two-, three- and four-lamp versions of the CT Planner, with prismatic controllers or opal diffusers, is contained in a separate Photometric Data Sheet PL 1803.

2



ELECTRICAL DATA

Gear tray Catalogue No.	Circuit	Circuit Watts per gear tray	Circuit current (Amperes)	Ballast Cat. No.	Capacitor (mfd)	Starter Cat. No.
GTS220Y (inner lamps)	2 x 20W switchstart	52	0.23	BCS40	3.5 10% 250V	2 x S2
GTS220W (outer lamps)	2 x 20W switchstart	52	0.23	BCS40	3.5 10% 250V	2 x S2
GTS240Y (inner lamps)	2 x 40W switchstart	104	0.46	2 x BCS40	2 x 3.5 10% 250V	2 x S10
GTS240W (outer lamps)	2 x 40W switchstart	104	0.46	2 x BCS40	2 x 3.5 10% 250V	2 x S10
GTS265Y (inner lamps)	2 x 65W switchstart	154	0.68	2 x BCS65	2 x 5.5 10% 250V	2 x S10
GTS265W (outer lamps)	2 x 65W switchstart	154	0.68	2 x BCS65	2 x 5.5 10% 250V	2 x S10
GT185	1 x 85W starterless	96	0.46	BBXK85	8.4 5% 440V	—
GT285Y (inner lamps)	2 x 85W starterless	192	0.92	2 x BBXK85	2 x 8.4 5% 440V	—
GT285W (outer lamps)	2 x 85W starterless	192	0.92	2 x BBXK85	2 x 8.4 5% 440V	—
GTS140	1 x 40W switchstart	52	0.23	BCS40	3.5 10% 250V	S10
GTS165	1 x 65W switchstart	77	0.34	BCS65	5.0 10% 250V	S10

All information quoted relates to average luminaires on a 240V 50Hz supply at 25°C.

Where two gear trays are used per luminaire, the individual Wattage and current should be added to give total figure.

On a balanced 3-phase 4-wire supply, the current in the neutral conductor does not exceed 3 x 25% of that in any line conductor.

ORDERING DATA

Nominal size (mm)	Rating	Catalogue No. (complete luminaire)	Component parts		
			Housing	Prismatic controller	Gear tray
600 x 600	2 x 20W 600mm (2ft)	CT66/220CPC/S	CT66	CPC66	GTS220Y
600 x 600	4 x 20W 600mm (2ft)	CT66/420CPC/S	CT66	CPC66	{ GTS220Y GTS220W
600 x 1200	2 x 40W 1200mm (4ft)	CT612/240CPC/S	CT612	CPC612	GTS240Y
600 x 1200	3 x 40W 1200mm (4ft)	CT612/340CPC/S	CT612	CPC612	{ GTS140 GTS240W
600 x 1200	4 x 40W 1200mm (4ft)	CT612/440CPC/S	CT612	CPC612	{ GTS240Y GTS240W
600 x 1800	2 x 65W 1500mm (5ft)	CT618/265CPC/S	CT618	CPC618	GTS265Y
600 x 1800	3 x 65W 1500mm (5ft)	CT618/365CPC/S	CT618	CPC618	{ GTS165 GTS265W
600 x 1800	4 x 65W 1500mm (5ft)	CT618/465CPC/S	CT618	CPC618	{ GTS265Y GTS265W
600 x 1800	2 x 85W 1800mm (6ft)	CT618/285CPC	CT618	CPC618	GT285Y
600 x 1800	3 x 85W 1800mm (6ft)	CT618/385CPC	CT618	CPC618	{ GT185 GT285W
600 x 1800	4 x 85W 1800mm (6ft)	CT618/485CPC	CT618	CPC618	{ GT285Y GT285W

Lamps should be ordered separately.

Please order in the form given in the following example, in multiples of the packing quantity:

50 Philips Planner luminaires complete with controllers CT618/485CPC

50 Philips Extension Box for 600mm housings EB2

50 Philips Suspension Plate sets SP1

Accessories

Cat. No.	Description	Packing quantity
SP1	Suspension Plate sets for use with 20mm conduit or 6mm (1/4") rod suspension	Set of four
BS1	Bearer Supports. Optional for suspension on ceiling grid	Set of four
EB2	End box for 600mm housing (not needed for 1800mm housing fitted with 1500mm lamps)	Individually packed
A1249	Spare lampholder with clip	Packed to order

Complete luminaires are supplied individually packed, and prismatic controllers are supplied packed two per carton.

Gear trays are packed separately and individually. Ordering codes for complete luminaires are sufficient to obtain all required components excepting accessories which should be ordered separately.

Notes:-

Gear tray types GTS165 and GTS265 Y/W each contain a suspension kit and end cap blanking piece for use with 1500mm lamps. These lamps are supported by spring clips that fit into holes provided in the housing. Full details are given in the Customer Information Service leaflet supplied with the gear tray.

Made in Great Britain.

CI/SIB
(63.1)

UDC
696.6:628.972

2

ET PLANNER

ET LAY-IN PLANNER

Recessed luminaire for fluorescent lamps

The ET Planner is for use with exposed-tee suspended ceiling systems of adequate strength. It retains all the important benefits of the LT Planner, which it supersedes, and is faster and easier to erect.

RANGE

Switchstart—

600 x 600mm 4 lamp 20W 600mm (2ft)

1200 x 600mm 4 lamp 40W 1200mm (4ft)

Starterless—

1800 x 600mm 3 lamp 85W 1800mm (6ft)

1800 x 600mm 4 lamp 85W 1800mm (6ft)

Also opal diffusers and prismatic controllers, including the WideSpread Linsomatic TLEPC612 prismatic controller (see Data Sheets PL 1724 to 1728 inclusive).

APPLICATIONS

Suitable for use in commercial premises with exposed-tee ceilings, and certain coffered ceilings in:

- Offices
- Shops and department stores
- Banking halls
- Showrooms
- Assembly and Lecture areas



Handbook Ref.

1.2.4/10

To reorder this Data Sheet quote

PL 1712/1

Replaces

PL 1712

FLUORESCENT LUMINAIRE

FEATURES

■ The body of the luminaire rests on the suspended ceiling structure – fixing is easy and costs of installation reduced.

■ Luminaires can be fixed after the ceiling is erected to suit the layout of the floor area.

■ Luminaires run in the same direction as the main tee-bar supports. All sizes of luminaires can be fixed without cutting into the main supports.

Luminaires can be repositioned if the floor arrangement alters.

■ The body is supported along its full length, giving built-in security.

■ Inner and outer lamps are wired as separate circuits, giving the facility for changing light levels.

■ Tear-outs are provided in the side flanges to clear the support straps of certain Coffered ceilings.

■ Anti-lift brackets give extra security to 1800mm (6ft) panels.

■ Diffusers or controllers are installed from beneath and simply rest on the tee-bar flats. Spring catches position them securely in the apertures, and permit panels to be hinged downwards for lamp changing.

In addition, the combination of the 4 lamp 40W 1200 × 600mm ET Planner and the WideSpread Linsomatic prismatic controller permits wider spacing between luminaires, giving economic, aesthetic and lighting benefits (see Data Sheet PL 1728).

MATERIALS & FINISH

Body: 1.2 mm sheet steel, Durawhite stoved finish.

Diffuser: Opal polystyrene with plated locating clips and hinges.

Prismatic controller: Clear polystyrene with plated locating clips and hinges.

Linsomatic controller: Clear polystyrene sheet, with prisms moulded during manufacture, and plated locating clips and hinges.

SPECIFICATION

BS 4533 2,2 Ordinary Indoor Recessed Class I.

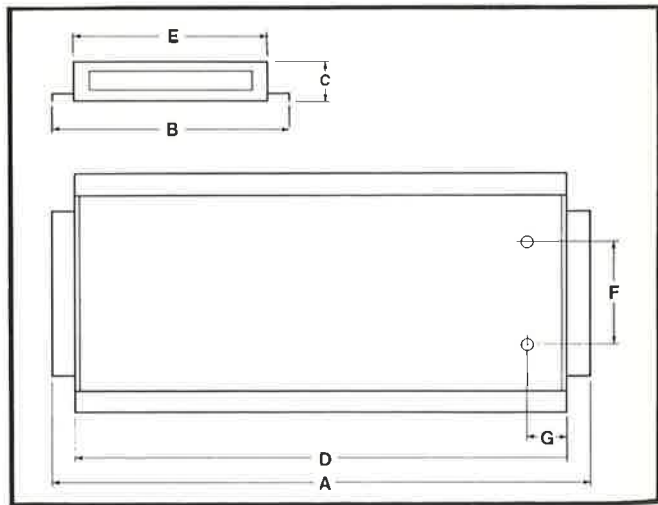
To specify state:

Lay-in luminaire for exposed-tee ceilings, with 'tear outs' in flanges for use with coffered ceilings, substantially as Philips ET Planner.

RANGE OF OPERATION

240V 50Hz
Normal indoor conditions.

For exposed tee ceilings of "tee" height not less than 38mm in both directions and of tee face width of 24/25mm.



DIMENSIONS

Rating	Dimensions (mm/in.)						
	A	B	C	D	E	F	G
4 × 20W 600mm (2ft)	672/26.46	620/24.41	76/3.0	573/22.56	558/21.97	280/11.02	78/3.07
4 × 40W 1200mm (4ft)	1272/50.08	620/24.41	76/3.0	1173/46.18	558/21.97	280/11.02	140/5.51
3 × 85W 1800mm (6ft)	1872/73.70	620/24.41	76/3.0	1773/69.80	558/21.97	280/11.02	140/5.51
4 × 85W 1800mm (6ft)	1872/73.70	620/24.41	76/3.0	1773/69.80	558/21.97	280/11.02	140/5.51

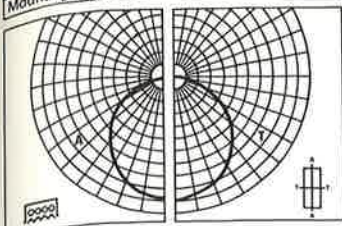
Note:—Centralising tags on the side flanges of luminaire bodies are arranged to locate on the main tee-bars of ceilings with 600mm module. Minimum ceiling clearance: 135mm.

WEIGHTS & ELECTRICAL DATA

Luminaire only	Catalogue Nos. Diffuser/controller only	Circuit	Description	Weight complete with lamps (kg/lb)	Circuit Watts (running)	Circuit Current (Amperes)
ET66/420S	EPC86	Switchstart	4 × 20W 600mm (2ft), prismatic controller	8.4/18.5	100	0.5
ET66/420S	EDF66	Switchstart	4 × 20W 600mm (2ft), opal diffuser	8.4/18.5	100	0.5
ET612/440S	EPC612	Switchstart	4 × 40W 1200mm (4ft), prismatic controller	15.5/34.1	200	1.0
ET612/440S	EDF612	Switchstart	4 × 40W 1200mm (4ft), opal diffuser	15.5/34.1	200	1.0
ET612/440S	TLEPC612	Switchstart	4 × 40W 1200mm (4ft), WideSpread Linsomatic prismatic controller	15.5/34.1	200	1.0
ET618/385X	EPC618	Starterless	3 × 85W 1800mm (6ft), prismatic controller	22.2/48.9	288	1.4
ET618/385X	EDF618	Starterless	3 × 85W 1800mm (6ft), opal diffuser	22.2/48.9	288	1.4
ET618/485X	EPC618	Starterless	4 × 85W 1800mm (6ft), prismatic controller	23.8/52.4	384	1.9
ET618/485X	EDF618	Starterless	4 × 85W 1800mm (6ft), opal diffuser	23.8/52.4	384	1.9

PHOTOMETRIC DATA E.T.PLANNER 4X40W OPAL

Mounting: CEILING



CIE Flux Number 223745

SHR MAX (Square)	1.60
SHR MAX TR (Transverse)	1.78

ULORL .00	Multiply by each Service Correction Factor
DLORL .47	
LORL .47	

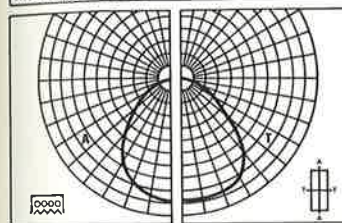
Glare Data (IES)

Flux Fraction Ratio	0
ACG Classification	ACG2
For Ri = 2.5 at SHR = NOM	BZ4
Luminous Area (sq cm)	
40W	
6036	

Measured: BS 5225 Part 1 1975
 Calculated: I.E.S. TR 2 and TR 10
 Test No: A734 Dated: 77.04.06

E.T.PLANNER 4X40W PRISMATIC

Mounting: CEILING



CIE Flux Number 314752

SHR MAX (Square)	1.64
SHR MAX TR (Transverse)	1.86

ULORL .00	Multiply by each Service Correction Factor
DLORL .53	
LORL .53	

Glare Data (IES)

Flux Fraction Ratio	0
ACG Classification	ACG3
For Ri = 2.5 at SHR = NOM	BZ3
Luminous Area (sq cm)	
40W	
6036	

Measured: BS 5225 Part 1 1975
 Calculated: I.E.S. TR 2 and TR 10
 Test No: A733 Dated: 77.04.06

Photoset direct from Photometer tape output.

Service Correction Factors

		40W 1200 mm		
Rating Factor		1.00		
Amalgam Factor		1.15		
Ballast Lumen Factor SS		1.00		
Ballast Lumen Factor XS		0.95		

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	27	31	34	36	39	41	42	44	45
	30		24	27	31	33	37	39	40	42	44
	10		22	25	29	31	35	37	39	41	43
50	50	10	27	30	33	35	38	40	41	43	44
	30		24	27	30	33	36	38	40	42	43
	10		22	25	28	31	34	37	38	40	42
30	50	10	26	29	32	34	37	39	40	42	43
	30		24	27	30	32	35	37	39	41	43
	10		22	25	28	31	34	36	38	40	42
0	0	0	21	24	27	29	33	35	37	39	41

Multiply by each Service Correction Factor

Service Correction Factors

		40W 1200 mm		
Rating Factor		1.00		
Amalgam Factor		1.15		
Ballast Lumen Factor SS		1.00		
Ballast Lumen Factor XS		0.95		

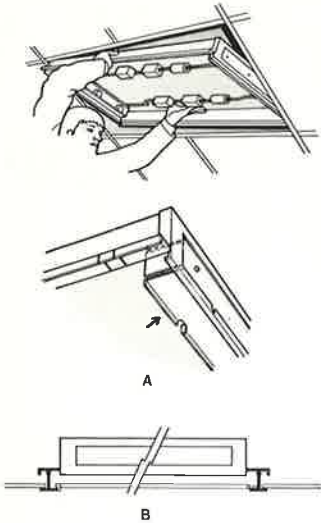
Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	35	39	42	44	47	48	50	51	53
	30		32	36	39	41	45	47	48	50	51
	10		30	34	37	40	43	45	47	49	50
50	50	10	35	38	41	43	46	47	49	50	51
	30		32	35	39	41	44	46	47	49	51
	10		30	33	37	39	42	44	46	48	50
30	50	10	34	37	40	42	45	47	48	49	50
	30		32	35	38	40	43	45	46	48	50
	10		30	33	37	39	42	44	45	47	49
0	0	0	29	32	36	38	41	43	44	46	48

Multiply by each Service Correction Factor

Approximate Data can be taken from the above table for 600mm and 1800mm versions

SIMPLE INSTALLATION



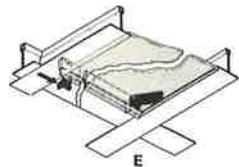
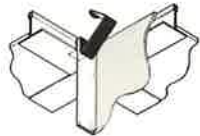
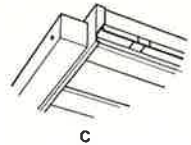
A. The luminaire, supplied with the lampholder boxes collapsed into the body, is offered into the ceiling aperture. When the side flanges are properly located on the main tee-bars, the lampholder boxes are pushed outwards into the working position.

B. End view of an installed luminaire, showing how the side flanges engage with the main tee-bar ceiling supports. The controller panel can be seen resting on the tee-bar flats.

C. Detail of a luminaire, showing a side flange and a lampholder box in the operating position.

D. The controller panel is hung vertically on the cross-tee flats on the ends of the two spring clips.

E. The panel is swung into the horizontal position and is pressed forwards against the spring clips by means of the lock tabs until the lip of the panel clears the cross-tee. The panel is therefore firmly secured by the lock tabs against spring pressure from the clips.



INSTALLER'S IMPORTANT NOTE

Ceiling opening sizes are critical to satisfactory fitting of the controller. It is essential to ensure that the nett ceiling opening sizes for the luminaires are not GREATER than 600 x 600 nom: 576 x 576 mm. 1200 x 600 nom: 1176 x 576 mm. 1800 x 600 nom: 1776 x 576 mm.

ORDERING DETAILS

Cat. No.	Description	Packing Quantities
ET66/420S	Body c/w 4 Lamp 20W Gear S/S	600 x 600 mm 1
ET612/440S	Body c/w 4 Lamp 40W Gear S/S	1200 x 600 mm 1
ET618/385X	Body c/w 3 Lamp 85W XS	1800 x 600 mm 1
ET618/485X	Body c/w 4 Lamp 85W XS	1800 x 600 mm 1
EPC66	600 x 600 Prismatic Controller	2
EDF66	Opal Diffuser	2
EPC612	1200 x 600 Prismatic Controller	2
EDF612	Opal diffuser	2
TLEPC612	1200 x 600 WideSpread Linsomatic Controller	2
EPC618	1800 x 600 Prismatic Controller	2
EDF618	Opal diffuser	2

Please order in the form given in the following example, in multiples of the packing quantity:-

50 Philips luminaires ET612/440S
50 Philips Opal diffusers EDF612

Notes: 1. Luminaire body and diffuser should be ordered separately; one complete luminaire requires two order codes.

2. Luminaire bodies are supplied complete with gear fixed in position.

Lamps should be ordered separately

Luminaires: Made in Great Britain.
Controllers/diffusers: Made in Great Britain and West Germany.

CI/SIB
(63.1)

UDC
696.6:628.972

2

WIDESPREAD FINESSE A7950 TLP

with Linsomatic Controller

WideSpread: a family of high technology luminaires with widespread intensity distribution, offering greater economy and better visual conditions.

Prismatic controller for Finesse battens

A frame attachment based on the standard Finesse aluminium frame, fitted with the Linsomatic prismatic controller. The attachment fits the standard Finesse battens.

RANGE

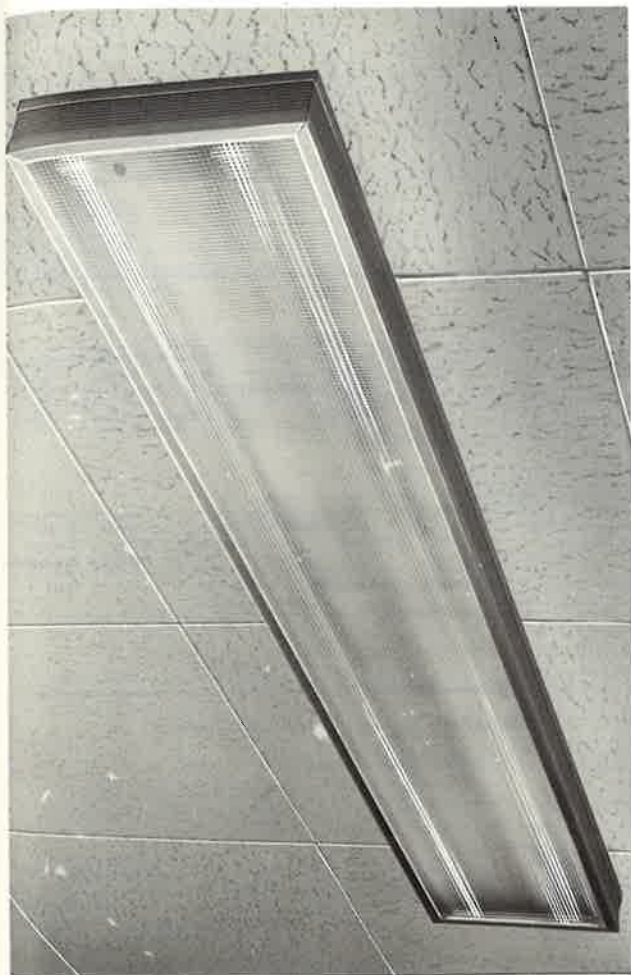
Aluminium frame attachments are available in self-finish, to fit two-lamp 65W 1500mm (5ft) Finesse battens.

APPLICATIONS

Suitable for most modern prestige installations such as:-

- Offices
- Shops and department stores
- Banking halls

Although bold in appearance to suit spacious premises such as banks, the luminaires are shallow, making them also suitable for modern premises with low ceilings.



Handbook Ref.

1.25/1

To reorder this Data Sheet quote 10,79 PL 1724/1

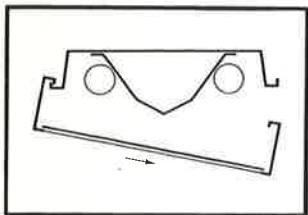
Replaces

PL 1724

FEATURES

Luminaires fitted with Linsomatic prismatic controllers provide all the advantages of the standard Finesse range, such as :-

- Shallow depth – 89mm – provides a suitable alternative to a recessed luminaire.
- Easy to install and maintain, thus saving money.
- Sheet metal reflector conceals control gear, fixing holes and wiring.
- Side returns on batten body marry with returned edges on controller to give support along the full length of the luminaire.
- Although positively held, the controller is easily disengaged by lifting and tilting the controller, and moving it bodily towards the body of the luminaire. The opposite edge then clears the body, and the controller hinges down to permit hands-free lamp changing.



■In addition, the Linsomatic prismatic controller permits wider spacing between luminaires, giving economic, aesthetic and lighting benefits (see leaflet PL 1608).

Luminaire: Made in Great Britain and West Germany.

SPECIFICATION

Type compliance with BS 4533 2.2 Ordinary Indoor Class I.

To specify state:

Surface luminaire with two 65W 1500mm lamps, with prismatic controller, suitable for a spacing/height ratio (transverse) of up to 2.3 and to have widespread light distribution, similar to Philips WideSpread Linsomatic Series A7950TLP

MATERIALS & FINISH

Batten: Sheet steel body, Durawhite stoved finish, with light grey medium-impact polystyrene end trims.

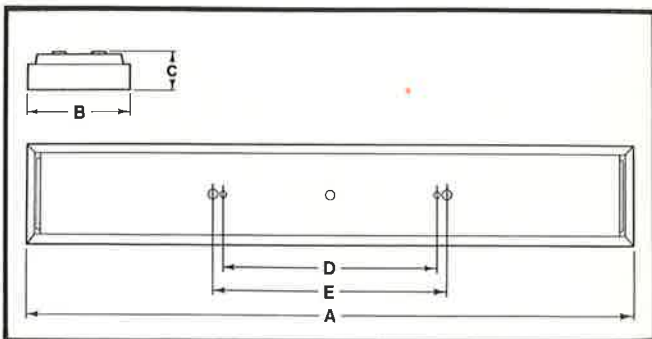
Frames: Extruded aluminium, polished and anodised self-finish.

Controller: Linsomatic prismatic polystyrene sheet, with linear and transverse prisms.

RANGE OF OPERATION

240V 50Hz.

Normal indoor conditions.



DIMENSIONS & WEIGHT

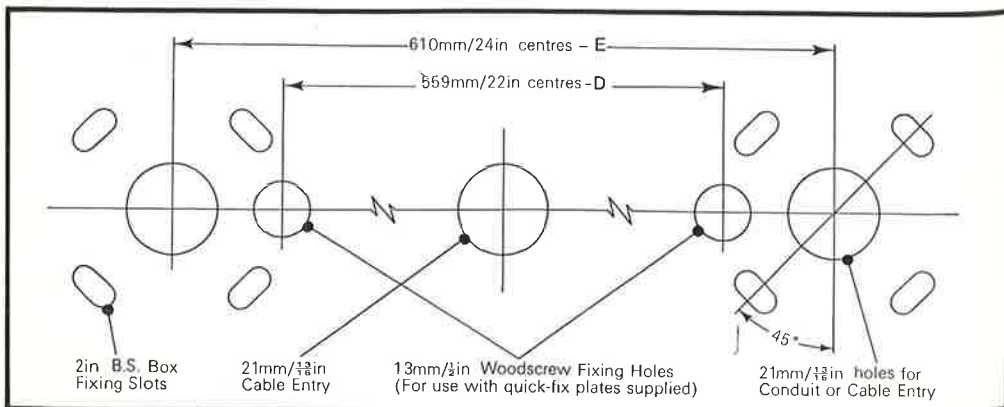
Catalogue No. Batten only	Prismatic controller only	Weight complete with lamps (kg/lb)	Overall length A	Overall width B	Overall depth C
A1705S	A7950TLP	11.8/26.0	1592mm	269mm	89mm

Rating 2 x 65W 1500mm (5ft) switchstart.

ELECTRICAL DATA

Batten Cat. No.	Rating	Ballast	Catalogue Nos. Capacitor	Circuit Watts (running)	Circuit Current (amperes)
A1705S	2 x 65W 1500mm(5ft) switch start	2 x BCS 65	2 x 5 mfd 10% 250V	154	0.68

FIXING CENTRES

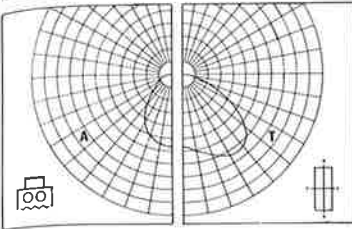


PHOTOMETRIC DATA

FINESSE WIDE SPREAD

TWO LAMP WITH TLP CONTROLLER
IN DELUXE FRAME A7950 TLP

Mounting: CEILING



CIE Flux Number 233946

SHR MAX	(Square)	1.25
SHR MAX TR	(Transverse)	2.30

ULORL	.00	Multiply by each Service Correction Factor
DLORL	.49	
LORL	.49	

Glare Data (IES)

Flux Fraction Ratio	0
ACG Classification	ACG6
For RI = 2.5 at SHR = NOM	BZ4
Luminous Area (sq cm)	
65W	
3755	

Measured: BS 5225 Part 1 1975	Calculated: I.E.S. TR 2 and TR 10	Test No: A710	Dated: 77.03.23
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Photoset direct from Photometer tape output.

Service Correction Factors

		65W 1500mm			
Rating Factor		1.00			
Amalgam Factor		1.20			
Ballast Lumen Factor SS		0.99			
Ballast Lumen Factor XS		0.95			

Utilization Factors UF (F)

SHR NOM 1.25

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	27	31	35	37	40	42	44	46	47
	30		23	28	32	34	38	40	42	44	46
	10		21	25	29	32	36	38	40	43	44
50	50	10	26	30	34	36	39	42	43	45	46
	30		23	27	31	34	37	40	41	43	45
	10		21	25	29	31	35	38	40	42	44
30	50	10	26	30	33	35	38	41	42	44	45
	30		23	27	31	33	36	39	40	42	44
	10		21	25	29	31	35	37	39	41	43
0	0	0	20	24	28	30	34	36	38	40	42

Utilization Factors UF (F)

SHR 2.30 TR × 1.25 AX

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	-	-	37	39	42	44	45	47	48
	30		-	-	34	36	40	42	43	45	46
	10		-	-	32	34	38	40	42	44	45
50	50	10	-	-	36	38	41	43	44	46	47
	30		-	-	34	36	39	41	42	44	45
	10		-	-	32	34	37	40	41	43	45
30	50	10	-	-	35	37	40	42	43	45	46
	30		-	-	33	35	38	40	42	44	45
	10		-	-	31	34	37	39	41	43	44
0	0	0	-	-	30	33	36	38	39	41	43

ORDERING DATA

Catalogue Nos.	Batten only	Controller only	Description	Packing quantities
A1705S		A7950TLP	Finesse battens Linsomatic prismatic controller in self-finish aluminium frame	1 1

Lamps should be ordered separately.

Please order in the form given in the following example:

50 Philips Finesse battens A1705S.
50 Philips prismatic controllers A7950TLP.

Recommended lamp types

All Philips lamps of appropriate rating may be used in this luminaire. In order to optimise the efficiency of the WideSpread design, however, it is recommended that Colour 84 lamps of the TLH type be used. These triphosphor lamps combine high light output with a high colour rendering index, and contain an amalgam to maintain efficiency at elevated temperatures.

CI/SIB
(63.1)UDC
696.6:628.972

WIDESPREAD FINESSE A 7925 TLP A 7926 TLP

With Linsomatic Controller

WideSpread: a family of high technology luminaires with widespread intensity distribution, offering greater economy and better visual conditions.

Prismatic controller for Finesse battens (Acrylic)

A prismatic controller which fits the Finesse A1705S/A1706X batten and permits increased spacing between rows of luminaires. The shallow luminaire is designed to be surface-mounted at low mounting heights, e.g. on modern suspended ceilings.

RANGE

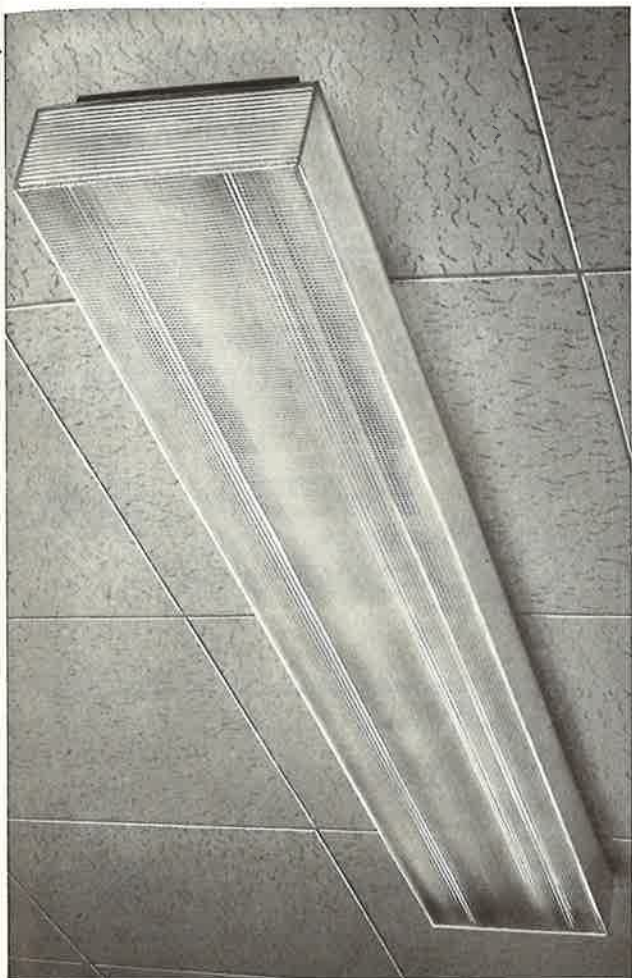
2 x 65W 1500mm (5ft) switchstart
2 x 85W 1800mm (6ft) starterless

APPLICATIONS

Suitable for many commercial installations such as:-

- Offices
- Shops and department stores
- Banking halls.

Although bold in appearance to suit spacious premises such as banking halls, the luminaires are shallow, making them also suitable for modern premises with low ceilings.



Handbook Ref

1.25/2

To reorder this Data Sheet quote 11.79, PL 1725/2

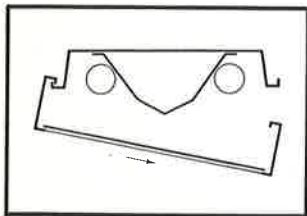
Replaces

PL 1725/1

FEATURES

The Linsomatic version provides all the advantages of the standard Finesse range, such as:-

- Shallow depth – 89mm – makes an alternative to a recessed luminaire.
- Easy to install and maintain, thus saving money.
- Fashionable appearance for new buildings and modern conversions.
- Sheet metal reflector completely conceals control gear, fixing holes and wiring.
- Side returns on batten body marry with returned edges on controller to give support along the full length of the luminaire.
- Although positively held, the controller is easily disengaged by lifting and tilting the controller, and moving it bodily towards the body of the luminaire. The opposite edge then clears the body, and the controller hinges down to permit hands-free lamp changing.



■ In addition, the Linsomatic prismatic controller permits wider spacing between luminaires, giving economic, aesthetic and lighting benefits (see leaflet PL 1608).

Luminaire: Made in Great Britain and West Germany.

SPECIFICATION

Type compliance with BS 4533 Ordinary Indoor Class I.

To specify state:

Surface luminaire for two 65W 1500mm lamps, with prismatic controller, suitable for a spacing/height ratio (transverse) of up to 2,25 and to have widespread light distribution, similar to Philips WideSpread Linsomatic TLP Acrylic Series A7925TLP.

MATERIALS & FINISH

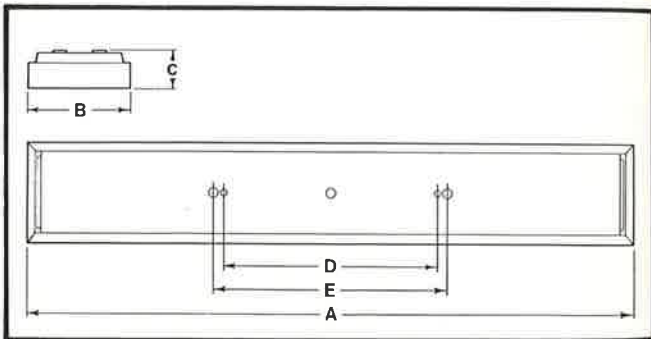
Batten: Sheet steel body, Durawhite stoved finish, with light grey medium-impact polystyrene end caps.

Controller: Linsomatic prismatic acrylic sheet; acrylic side and end panels with linear prisms.

RANGE OF OPERATION

240V 50Hz.

Normal indoor conditions.



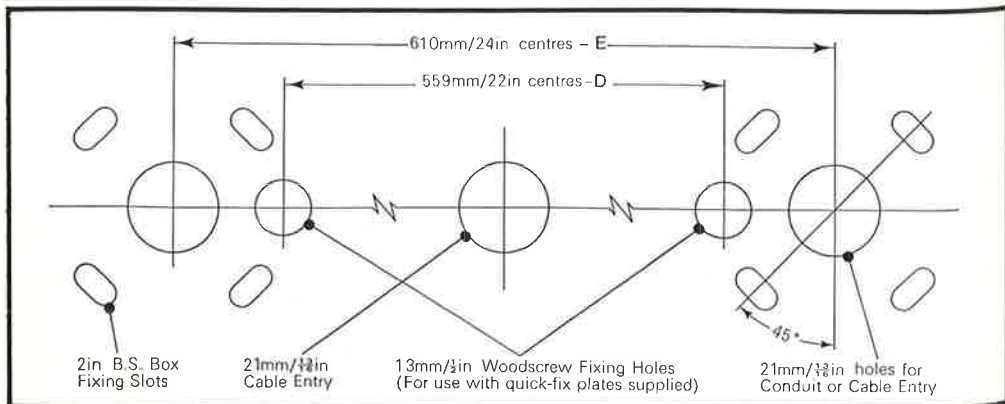
DIMENSIONS & WEIGHTS

Catalogue No.		Weight complete with lamps (kg/lb)	Overall length A	Overall width B	Overall depth C
Batten only	Prismatic controller only				
A1705S	A7925TLP	10.4/22.9	1580mm	258mm	90mm
A1706X	A7926TLP	—	1851mm	258mm	90mm

ELECTRICAL DATA

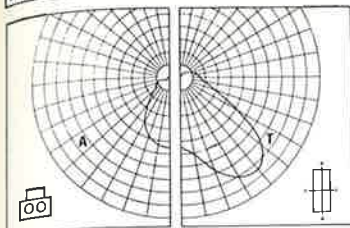
Batten Cat. No.	Rating	Catalogue Nos.		Circuit Watts (running)	Circuit Current (Amperes)
		Ballast	Capacitor		
A1705S	2 x 65W 1500mm (5ft) switch start	2 x BCS65	2 x 5 mfd 10% 250V	154	0.68
A1706X	2 x 85W 1800mm (6ft) starterless	2 x BBXIC 85	2 x 8.4 mfd 5% 440V	192	0.92

FIXING CENTRES



PHOTOMETRIC DATA**FINESSE WIDE SPREAD**TWO LAMP WITH TLP CONTROLLER
A7925 TLP

Mounting: CEILING



CIE Flux Number

244148

SHR MAX (Square) 1.25
SHR MAX TR (Transverse) 2.25ULORL .08
DLORL .50
LORL .58
Multiply by each Service
Correction Factor**Glare Data (IES)**Flux Fraction Ratio .16
ACG Classification ACG6
For RI = 2.5 at SHR = NOM B25
Luminous Area (sq cm)
65W
4050**Service Correction Factors**

		65W 1500mm			
Rating Factor		1.00			
Amalgam Factor		1.13			
Ballast Lumen Factor SS		0.99			
Ballast Lumen Factor XS		0.95			

Utilization Factors UF (F)

SHR NOM 1.25

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	29	34	38	40	44	47	48	51	52
	30		25	30	34	37	41	44	46	49	50
	10		22	27	31	34	38	42	44	47	49
50	50	10	27	32	36	38	42	44	46	48	49
	30		24	28	33	35	39	42	44	46	48
	10		21	26	30	33	37	40	42	45	47
30	50	10	26	30	34	36	40	42	43	45	47
	30		23	27	31	34	37	40	42	44	46
	10		20	25	29	31	35	38	40	43	44
0	0	0	19	23	27	29	33	35	37	39	41

Utilization Factors UF (F)

SHR 2.25 TR × 1.25 AX

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	-	-	40	42	46	48	50	52	53
	30		-	-	36	39	43	45	47	50	51
	10		-	-	34	37	40	43	45	48	50
50	50	10	-	-	38	40	43	46	47	49	50
	30		-	-	35	38	41	43	45	47	49
	10		-	-	32	35	39	41	43	46	47
30	50	10	-	-	36	38	41	43	45	46	48
	30		-	-	33	36	39	41	43	45	46
	10		-	-	31	34	37	40	41	44	45
0	0	0	-	-	29	32	35	37	38	40	42

Measured: BS 5225 Part 1 1975 Calculated: I.E.S. TR 2 and TR 10 Test No: A821 Dated: 77.09.06

Photoset direct from Photometer tape output.

ORDERING DATA

Catalogue Nos.	Batten only	Controller only	Description	Packing quantity
A1705S			Finesse battens	1
		A7925TLP	Linsomatic prismatic controller	1

Lamps should be ordered separately.

Please order in the form given in the following example:

50 Philips Finesse battens A1705S.

50 Philips Linsomatic prismatic controllers A7925TLP

Recommended lamp types:

All Philips lamps of appropriate rating may be used in this luminaire. In order to optimise the efficiency of the WideSpread design, however, it is recommended that Colour 84 lamps of the TLH type be used. These triphosphor lamps combine high light output with a high colour rendering index, and contain an amalgam to maintain efficiency at elevated temperatures.

CI/SIB	(63.1)
UDC	696.6:628.972

2

WIDESPREAD TCS 429

Mirror Controller Luminaire

WideSpread: a family of high technology luminaires with widespread intensity distribution, offering greater economy and better visual conditions.

Two- and three-lamp luminaires for fluorescent lamps

An advanced range of WideSpread surface-mounted luminaires of high LOR with low brightness and controlled light distribution, permitting extended spacing between luminaires.

RANGE

TCS 429/265/S Luminaire for two 65W 1500mm (5ft) lamps, complete with mirror controller and control gear.

TCS 429/365/S Three-lamp version of the above.

Other non-standard ratings available (in economical order quantities).

Also available in recessed version for special projects.

APPLICATIONS

- Offices
- Shops and department stores
- Banking halls
- Showrooms
- Laboratories
- Assembly and lecture areas

A specially designed mirror reflector system spreads the light to provide economic and comfortable seeing conditions.

TCS 429/265/S Two-lamp luminaire inset-

TCS 429/365/S Three-lamp luminaire

Handbook Ref.

1.25/3

To reorder this Data Sheet quote 9.79 PL 1726/1

Replaces

PL 1726

FLUORESCENT LUMINAIRE



FEATURES

- Shallow – 100mm – the control gear is mounted along the side of the luminaire.
- Aluminium mirror controller system, specially designed to spread the light without glare.
- High light output ratio gives operational efficiency and economy.
- Mirror controller hinges downwards to facilitate lamp changing.
- The TCS mirror controller system permits wider spacing between luminaires, giving economic, aesthetic and lighting benefits (see Data Sheet PL1608).

MATERIALS & FINISH

Body: Sheet steel, white finish.
Mirror controller: Aluminium alloy with semi-specular reflecting finish; white painted aluminium cross louvres.

RANGE OF OPERATION

240V 50Hz.
 Normal indoor conditions.

SPECIFICATION

Type compliance with BS 4533 2.2
 Ordinary Indoor Class I.

To specify state:

Surface luminaire for 2 (or 3) fluorescent lamps, with mirror controller. To have an LOR of at least 0.69, to be suitable for an SHR (transverse) of up to 2.25 and to have widespread light distribution. Substantially as Philips TCS 429.

LIMITING GLARE INDEX

BZ Classification is based on Direct Ratio, and can lead to an inappropriate value of Glare Index, especially with luminaires of non-conventional light distribution. A BZ Classification for glare calculations, based on luminance distribution, can be obtained via the CIE Interim System (IES Code App.7). For TCS 429 luminaires, this Classification is BZ 2.

Key to Illustration

- 1 Luminaire end plate with top knockout.
- 2 Slip-fix plates(4).
- 3 Mains entry aperture.
- 4 3-Way terminal block for solid conductors.
- 5 Brackets for suspension rods.
- 6 Suspension rods (2).
- 7 Earth continuity lead for mirror controller.

DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Cat. No. Luminaire, including controller	Rating	Overall length (mm) A	Overall width (mm) B	Overall depth (mm) C	Fixing centres (mm) D	Weight with lamps (kg/lb)
TCS 429/265/S	2 x 65W 1500mm (5ft)	1560	312	100	1000	8.2/18.06
TCS 429/365/S	3 x 65W 1500mm (5ft)	1560	468	100	1000	13.8/30.40

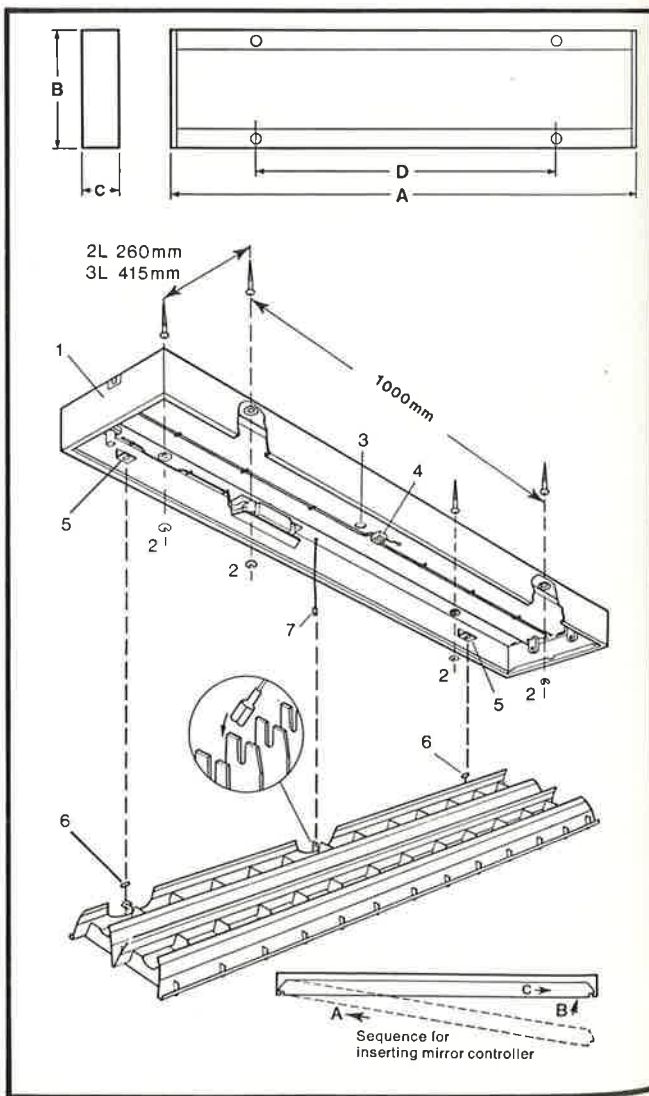
Electrical data

Catalogue No. Luminaire, including controller	Circuit Watts (running)	Circuit current (amperes)
TCS 429/265/S	154	0.73
TCS 429/365/S	241	1.25

Harmonic content

On a balanced 3-phase, 4-wire supply, the current in the neutral conductor does not exceed 3 x 25% of that in any line conductor.

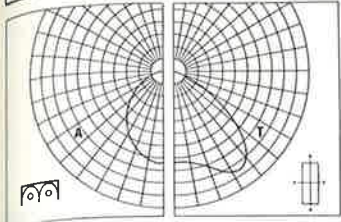
All information quoted relates to average luminaires on a 240V 50Hz supply at 25°C.



PHOTOMETRIC DATA

TCS 429 WIDE SPREAD

TWO LAMP REFLECTOR TCS 429 265S
Mounting: CEILING



CIE Flux Number 366169

SHR MAX (Square) 1.50
SHR MAX TR (Transverse) 2.25

ULORL .00
DLORL .70
LORL .70
Multiply by each Service Correction Factor

Glare Data (IES)

Flux Fraction Ratio 0
ACG Classification 0
For Ri = 2.5 at SHR = NOM ACG6 BZ3
Luminous Area (sq cm) 65W 4050

Measured: BS 5225 Part 1 1975 Calculated: I.E.S. TR 2 and TR 10 Test No: A764 Dated: 77.05.18

Service Correction Factors

	65W 1500mm			
Rating Factor	1.00			
Amalgam Factor	1.04			
Ballast Lumen Factor SS	0.99			
Ballast Lumen Factor XS	0.95			

Utilization Factors UF (F)

SHR NOM 1.50

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	43	48	53	56	61	63	65	67	69
	30		39	44	49	53	58	61	63	65	68
	10		35	41	46	50	55	58	61	64	66
50	50	10	42	47	52	55	59	62	64	66	68
	30		38	44	49	52	57	60	62	64	67
	10		35	41	46	50	54	58	60	63	65
30	50	10	41	46	51	54	58	61	62	64	66
	30		38	43	48	51	56	59	61	63	65
	10		35	40	46	49	54	57	59	62	64
0	0	0	34	39	44	48	52	55	57	60	63

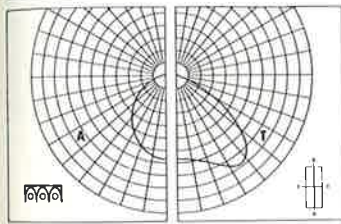
Utilization Factors UF (F)

SHR 2.25 TR x 1.50 AX

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	-	-	56	59	62	65	66	68	69
	30		-	-	52	55	60	62	64	67	68
	10		-	-	49	53	57	60	62	65	67
50	50	10	-	-	55	57	61	63	65	67	68
	30		-	-	52	55	59	61	63	65	67
	10		-	-	49	52	57	60	61	64	66
30	50	10	-	-	54	56	60	62	64	65	67
	30		-	-	51	54	58	60	62	64	66
	10		-	-	49	52	56	59	61	63	65
0	0	0	-	-	47	51	55	57	59	61	63

TCS 429 WIDE SPREAD

THREE LAMP REFLECTOR TCS 429 365S
Mounting: CEILING



CIE Flux Number 345967

SHR MAX (Square) 1.50
SHR MAX TR (Transverse) 2.25

ULORL .00
DLORL .69
LORL .69
Multiply by each Service Correction Factor

Glare Data (IES)

Flux Fraction Ratio 0
ACG Classification 0
For Ri = 2.5 at SHR = NOM ACG6 BZ3
Luminous Area (sq cm) 65W 4498

Service Correction Factors

	65W 1500mm			
Rating Factor	1.00			
Amalgam Factor	1.04			
Ballast Lumen Factor SS	0.99			
Ballast Lumen Factor XS	0.95			

Utilization Factors UF (F)

SHR NOM 1.50

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	42	47	52	55	59	62	64	66	68
	30		37	43	48	52	56	59	62	64	67
	10		34	39	45	49	54	57	60	62	65
50	50	10	41	46	51	54	58	61	63	65	67
	30		37	42	47	51	55	58	61	63	66
	10		34	39	44	48	53	56	59	62	64
30	50	10	40	45	50	53	57	59	61	63	65
	30		37	42	47	50	55	57	60	62	64
	10		34	39	44	48	53	56	58	61	63
0	0	0	33	38	43	46	51	54	56	59	62

Utilization Factors UF (F)

SHR 2.25 TR x 1.50 AX

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	-	-	54	57	61	63	65	67	68
	30		-	-	51	54	58	61	63	65	67
	10		-	-	48	51	56	59	61	64	66
50	50	10	-	-	53	56	60	62	64	66	67
	30		-	-	50	53	58	60	62	64	66
	10		-	-	48	51	56	58	60	63	65
30	50	10	-	-	52	55	59	61	62	64	66
	30		-	-	50	53	57	59	61	63	65
	10		-	-	47	51	55	58	59	62	64
0	0	0	-	-	46	49	54	56	58	60	62

Measured: BS 5225 Part 1 1975 Calculated: I.E.S. TR 2 and TR 10 Test No: A765 Dated: 77.05.18

Photoset direct from Photometer tape output.

ORDERING DATA

Philips Catalogue No.	Description	Packing Quantity
TCS 429/265/S	2 lamp 65W 1500mm surface mounted luminaire	1
TCS 429/365/S	3 lamp 65W 1500mm surface mounted luminaire	1
Replacement spares		
BTP 65L25	240V 50Hz ballast	1
H1651	440V 5·0 mfd 5% capacitor	1

Lamps should be ordered separately.

Please order in the form given in the following example:
50 Philips luminaires TCS 429/265/S

Recommended lamp types

All Philips lamps of appropriate rating may be used in this luminaire. In order to optimise the efficiency of the WideSpread design, however, it is recommended that Colour 84 lamps of the TLH type be used. These triphosphor lamps combine high light output with a high colour rendering index, and contain an amalgam to maintain efficiency at elevated temperatures.

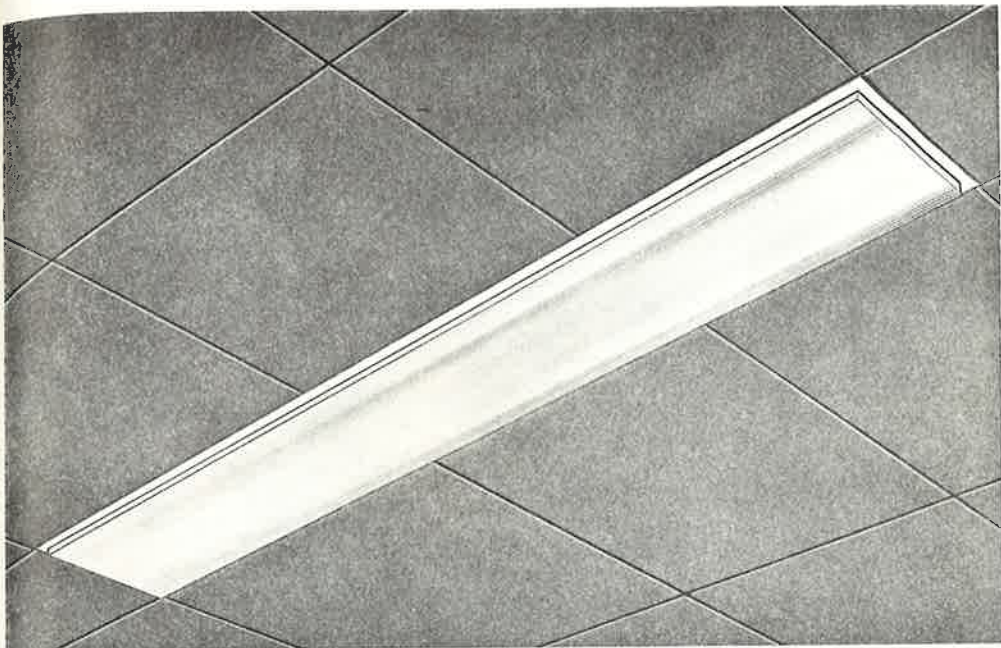
Luminaire: Made in Holland.

CI/SIB	(63.1)
UDC	696.6:628.972

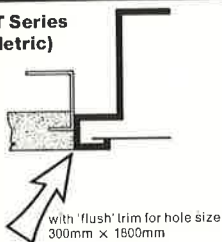
2

WIDESPREAD FT PLANNER

With Linsomatic controller



FT Series (Metric)



with 'flush' trim for hole size
300mm x 1800mm

Wide Spread: a family of high technology luminaires with 'spread' intensity distribution, offering greater economy and better visual conditions.

300mm wide recessed luminaire for fluorescent lamps

A recessed luminaire, suitable for mounting into a 300mm module suspended ceiling. The Linsomatic prismatic controller makes it possible to extend the spacing between luminaires.

RANGE

FT318/TLP/265/S – flush trim
1800mm x 300mm recessed luminaire housing 2 x 65W 1500mm (5ft) lamps. 2 x 85W 1800mm (6ft) available to special order (for cross-noggins not over 25mm).

TLPC318 – 1800mm x 300mm prismatic controller for above.

APPLICATIONS

Suitable for use in commercial premises wherever a suspended ceiling of the concealed suspension type is appropriate, such as:-

- Offices
- Shops and department stores
- Corridors
- Banking halls
- Showrooms
- Assembly or lecture areas.

Since it effectively spreads the light over a wide area, the Linsomatic prismatic controller enables luminaires to be used at extended spacings between rows.

FLUORESCENT LUMINAIRE

Handbook Ref.

1.25/4

To reorder this Data Sheet quote 9.79 PL1727/2

Replaces PL1727/1

FEATURES

The luminaire provides all the advantages of the 300mm wide Planner series such as:-

■ Versatile fixing – it can be suspended from the structural ceiling or supported on an adequately strong suspended ceiling using bearer supports.

■ Fits into a 300mm x 1800mm aperture with the flange flush with the underside of the ceiling.

■ The control gear is mounted direct to the housing to allow rapid installation. The circuit is switch start. In addition, the Linsomatic prismatic controller permits wider spacing between rows and gives economic, aesthetic and lighting benefits (see Leaflet PL 1608).

MATERIALS & FINISH

Luminaire: Sheet steel, Durawhite stoved finish.

Controller: Clear acrylic sheet, with prisms moulded during manufacture. Side extrusions in opal acrylic; all joints mitred and cemented.

Control gear: Mounted direct to housing.

SPECIFICATION

Type compliance with BS 4533-2.2 Ordinary Indoor Class I (electrical)

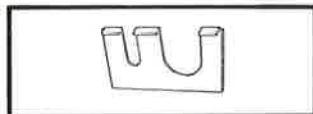
To specify state:

Recessed 1800mm x 300mm luminaire for two 65W lamps, with acrylic prismatic controller. To be suitable for a spacing height ratio (transverse) of up to 2.25, and to have a 'spread' light distribution. Substantially as Philips FT Planner with Linsomatic prismatic controller.

FIXING ACCESSORIES

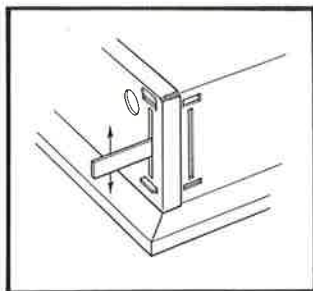
(optional extras)

Suspension plate set – Cat. No. SP1



A set of four dual-purpose suspension plates for use with either 20mm ($\frac{3}{4}$ in.) conduit or 6mm ($\frac{1}{4}$ in.) rods fixed to the structural ceiling (four per luminaire).

Adjustable snap-fix bearer support set – Cat. No. BS1



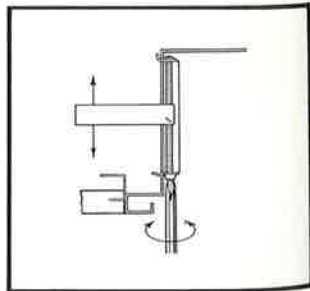
A set of four bearer supports that are snap-fixed into position from inside the housing. The projecting arms bear on the support members of the suspended ceiling.

RANGE OF OPERATION

240V 50Hz.

Normal indoor conditions.

Note: Luminaires may only be fixed to suspended ceilings of adequate strength, and it is therefore necessary to check in advance with the ceiling manufacturer or ceiling erector that the luminaires will be adequately supported, and that the ceiling members are suited to the bearer supports.



Adjusting screws give fine adjustment for lining up the trim with the underside of the ceiling.

DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Dimensions & Weights

Catalogue Numbers		Rating	Over flanges Length	Width	Over body Length		Height above face	Weight with lamps (kg/lb)
Luminaire with control gear	Controller				Width	Width		
FT318/TLP/265/S	TLPC318	2 x 65W 1500mm (5ft)	1798mm	298mm	1746mm	248mm	140mm	15 1/33 2

Electrical data

Catalogue Numbers		Circuit Watts (running)	Circuit current (amperes)	Minimum Power Factor
Ballast (fitted)	Capacitor (fitted)			
BCS65 (one per lamp)	H1650 (5 mfd)	154	0.68	0.90 lagging

Harmonic content

On a balanced 3-phase, 4-wire supply, the current in the neutral conductor does not exceed 3 x 25% of that in any line conductor. All information quoted relates to average luminaires on a 240V 50Hz supply at 25°C.



Caters Food Store in Swansea using new 65W Colour 83 lamps in Special Project luminaires.



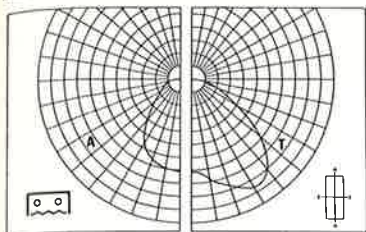
W.H. Smith in Brighton using White 35 lamps in attractive 'WideSpread' Zonalux luminaires.

PHOTOMETRIC DATA

PLANNER FT METRIC

300MM WIDE SPREAD
TWO LAMP CONTROLLER TLPC 318

Mounting: CEILING



CIE Flux Number 254246

SHR MAX	(Square)	1.65
SHR MAX TR	(Transverse)	2.25

ULORL	.00	Multiply by each Service Correction Factor
DLORL	.54	
LORL	.54	

Glare Data (IES)

Flux Fraction Ratio	0
ACG Classification	ACG6
For RI = 2.5 at SHR = NOM	BZ4
Luminous Area (sq cm)	
65W	85W
4425	4425

Measured: BS 5225 Part 1 1975 Calculated: I.E.S. TR 2 and TR 10 Test No: A768 Dated: 77.02.20

Photoset direct from Photometer tape output.

Service Correction Factors

	65W 1500mm	85W 1800mm		
Rating Factor	1.05	1.00		
Amalgam Factor	1.13			
Ballast Lumen Factor SS	0.99			
Ballast Lumen Factor XS	0.95	0.96		

Utilization Factors UF (F)

SHR NOM 1.50

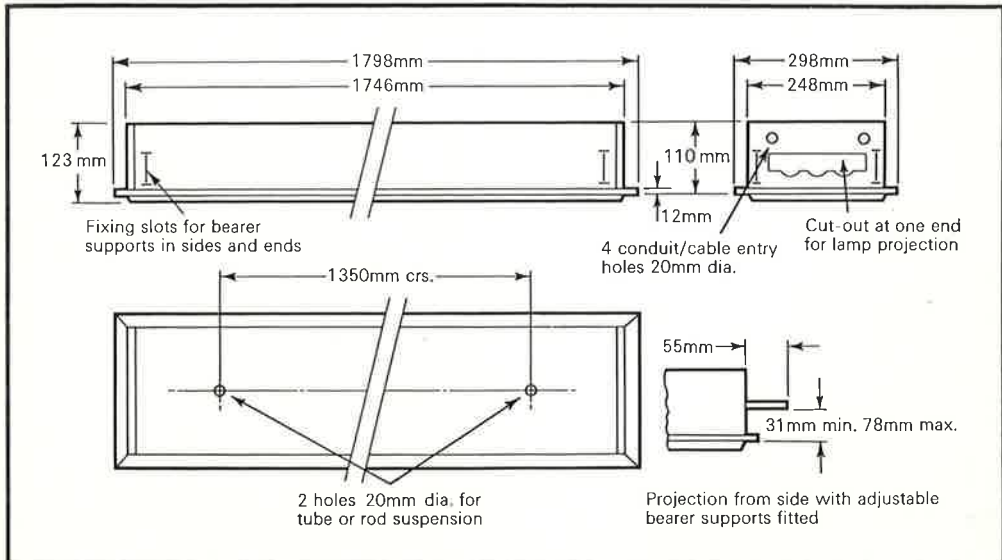
Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	32	35	39	41	45	47	48	50	52
	30		28	32	36	38	42	44	46	48	50
	10		25	29	33	36	39	42	44	46	49
50	50	10	31	35	38	40	44	46	47	49	51
	30		28	31	35	38	41	43	45	47	49
	10		25	29	33	35	39	42	43	46	48
30	50	10	30	34	37	39	43	44	46	48	49
	30		27	31	35	37	40	43	44	46	48
	10		25	29	32	35	39	41	43	45	47
0	0	0	24	28	31	34	37	40	41	44	46

Utilization Factors UF (F)

SHR 2.25 TR x 1.50 AX

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	-	-	41	43	46	48	49	51	52
	30		-	-	38	40	43	45	47	49	50
	10		-	-	35	38	41	43	45	47	49
50	50	10	-	-	40	42	45	47	48	50	51
	30		-	-	37	39	43	45	46	48	49
	10		-	-	35	37	41	43	44	47	48
30	50	10	-	-	39	41	44	46	47	48	50
	30		-	-	37	39	42	44	45	47	48
	10		-	-	35	37	40	42	44	46	47
0	0	0	-	-	34	36	39	41	43	45	46

DIMENSIONS & FIXING



Note: For installation, at least 125mm clearance should be allowed for above the lower surface of suspended ceilings.

ORDERING DATA

Cat. No.	Description	Packing quantity
FT318/TLP/265/S	Luminaire body only (c/w gear) 2 x 65W	One per box
TLPC318	Linsomatic controller	Two per box
Optional accessories		
SP1	Suspension plates (two per luminaire)	Sets of four
BS1	Adjustable bearer support set (four per luminaire)	Sets of four

Lamps should be ordered separately.

Please order in the form given in the following example, in multiples of the packing quantity:-

50 Philips luminaire bodies FT318/TLP/265/S

50 Philips Linsomatic controllers TLPC318

25 Philips suspension plate sets SP1

Recommended lamp types.

All Philips lamps of appropriate rating may be used in this luminaire. In order to optimise the efficiency of the WideSpread design, however, it is recommended that Colour 84 lamps of the TLH type be used (65W lamps available only). These triphosphor lamps combine high light output with a high colour rendering index, and contain an amalgam to maintain efficiency at elevated temperatures. TLH lamps are for switch start circuits only.

Luminaire: Made in Great Britain

Controller: Made in West Germany.

CI/SfB
(63.1)

UDC
696.6:628.972

2

WIDESPREAD ET PLANNER

with
Acrylic Linsomatic Controller

WideSpread: a family of high technology luminaires with widespread intensity distribution, offering greater economy and better visual conditions.

**Recessed luminaire for
fluorescent lamps, for
exposed-tee ceilings,
1200 x 600mm**

A recessed luminaire suitable for use in exposed-tee suspended ceiling systems. The Linsomatic prismatic controller makes it possible to extend the spacing between luminaires.

RANGE

ET 612/440/S ET Planner recessed luminaire complete with control gear, taking 4 x 40W 1200mm (4ft) lamps, suitable for 1200mm x 600mm exposed-tee ceilings of adequate strength.

TLEPC 612 Linsomatic Prismatic controller for the above.

APPLICATIONS

Suitable for use in commercial premises wherever an exposed-tee suspended ceiling is appropriate, such as:-

- Offices
- Shops and department stores
- Banking halls
- Showrooms
- Assembly or lecture areas.

Since it effectively spreads the light over a wide area, the Linsomatic prismatic controller enables a reduced number of luminaires to be used at wide spacings.



Handbook Ref.

1.2.5/5

To reorder this Data Sheet quote 10.79:PL1728/2

Replaces PL1728/1

FLUORESCENT LUMINAIRE

FEATURES

The luminaire provides all the advantages of the standard ET Planner, such as:-

- The body of the luminaire sits on the ceiling structure itself – fixing is easy and costs of installation reduced.
- Luminaires can be fixed after the ceiling is erected, to suit the layout of the floor area.
- Luminaires run in the same direction as the main tee-bar supports.
- Luminaires can be fixed without cutting into the main supports and can be repositioned if the floor area alters.
- The body is supported along its full length, giving built-in security.
- Inner and outer lamps are wired as to two separate fused terminal blocks joined by a removable link. This gives the facility for half/full switching.
- The controller is installed from beneath and simply lies on the tee-bar flats. Spring catches position it easily in the aperture and permit panels to be hinged downwards for lamp changing.

In addition the Linsomatic prismatic controller permits wider spacing between luminaires, giving economic, aesthetic and lighting benefits (see Leaflet PL 1608).

MATERIALS & FINISH

Controller: Clear acrylic sheet, with prisms moulded during manufacture, with plated locating clips and hinges.

Control gear: Mounted on a central hinged and detachable panel.

SPECIFICATION

■Type compliance with BS 4533 2.2 Ordinary Indoor Class I.

To specify state:

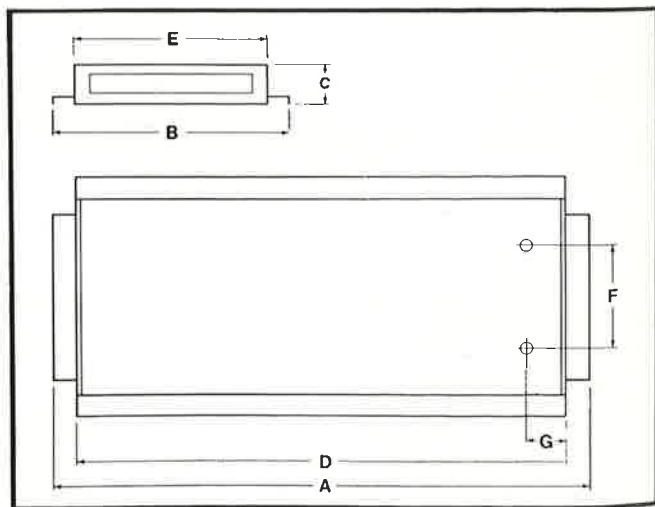
Recessed luminaire for exposed-tee ceilings, with separate prismatic controller, to be suitable for a spacing/height ratio (transverse) of at least 2.0, and to have widespread light distribution. Substantially as Philips ET Planner with acrylic Linsomatic controller.

RANGE OF OPERATION

240V 50Hz.

Normal indoor conditions.

For exposed tee ceilings of "tee" height not less than 38mm in both directions and of tee face width of 24/25mm.



DIMENSIONS & WEIGHT

Rating	Dimensions (mm/in)		C	D	E	F	G	Weight with Lamps (kg/lb)
	A	B						
4 x 40W 1200mm (4ft)	1272/50.08	620/24.41	76/3.0	1173/46.18	558/21.97	280/11.02	140/5.51	15.5/34.1

Notes:-Centralising tags on the side flanges of luminaire bodies are arranged to give positive location on the main tee-bars of ceilings.
Minimum ceiling clearance 135mm.

ELECTRICAL DATA

Catalogue Nos. Ballast	Starter	Capacitor	Circuit Watts (running)	Circuit current (amperes)
BCS 40	S10/(K 3001)	H1635	204	1.0

Harmonic content

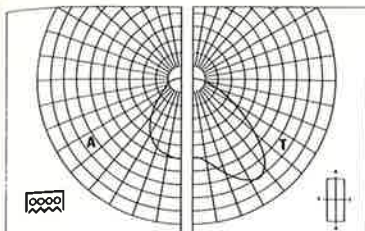
On a balanced 3-phase, 4-wire supply, the current in the neutral conductor does not exceed 3 x 25% of that in any line conductor. All information quoted relates to average luminaires on a 240V 50Hz supply at 25°C.

PHOTOMETRIC DATA

PLANNER ET METRIC

600MM WIDE CONTROLLER FOUR LAMP TLEPC 612

Mounting: CEILING



CIE Flux Number

264451

SHR MAX	(Square)	1.50
SHR MAX TR	(Transverse)	2.30

ULORL	.00	Multiply by each Service Correction Factor
DLORL	.53	
LORL	.53	

Glare Data (IES)

Flux Fraction Ratio	0
ACG Classification	ACG6
For RI = 2.5 at SHR = NOM	BZ4
Luminous Area (sq cm)	
40W	
6036	

Service Correction Factors

	40W 1200mm			
Rating Factor	1.00			
Amalgam Factor	1.15			
Ballast Lumen Factor SS	1.00			
Ballast Lumen Factor XS				

Utilization Factors UF (F)

SHR NOM 1.50

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	32	36	39	43	45	47	48	50	52
	30		28	32	36	40	42	45	46	48	50
	10		26	29	33	38	40	43	45	47	49
50	50	10	31	35	38	42	44	46	47	49	50
	30		28	32	35	40	42	44	45	48	49
	10		26	29	33	38	40	42	44	46	48
30	50	10	30	34	37	41	43	45	46	48	49
	30		28	31	35	39	41	43	45	47	49
	10		25	29	33	37	39	42	43	46	48
0	0	0	25	28	32	36	38	40	42	44	46

Utilization Factors UF (F)

SHR 2.30 TR × 1.25

AX

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	-	-	40	43	46	48	49	51	52
	30		-	-	37	40	43	46	47	49	50
	10		-	-	35	38	41	44	45	48	49
50	50	10	-	-	40	42	45	47	48	49	50
	30		-	-	37	39	43	45	46	48	49
	10		-	-	35	37	41	43	45	47	48
30	50	10	-	-	39	41	44	46	47	48	49
	30		-	-	36	39	42	44	45	47	49
	10		-	-	35	37	41	43	44	46	48
0	0	0	-	-	34	36	39	41	43	45	46

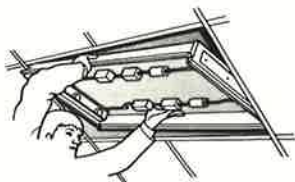
Measured: BS 5225 Part 1 1975 Calculated: I.E.S. TR 2 and TR 10

Test No: A735

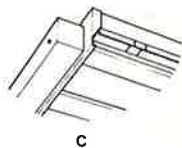
Dated: 77.04.07

Photoset direct from Photometer tape output.

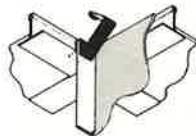
SIMPLE INSTALLATION



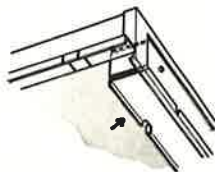
A. The luminaire, supplied with the lampholder boxes collapsed into the body, is offered into the ceiling aperture. When the side flanges are properly located on the main tee-bars, the lampholder boxes are pushed outwards into the working position.



B. End view of an installed luminaire, showing how the side flanges engage with the main tee-bar ceiling supports. The controller panel can be seen resting on the tee-bar flats.



C. Detail of a luminaire, showing a side flange and a lampholder box in the operating position.

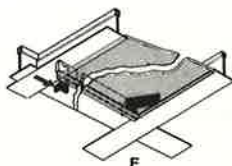


A

D. The controller panel is hung vertically on the cross-tee flats on the ends of the two spring clips.

D

E. The panel is swung into the horizontal position and is pressed forwards against the spring clips by means of the lock tabs until the lip of the panel clears the cross-tee. The panel is therefore firmly secured by the lock tabs against spring pressure from the clips.



E



B

1. For use only with 25mm wide grid tee section.
2. Module dimensions of grid centres must be to ±1mm tolerance.

ORDERING DATA

Description	Catalogue Number	Packing quantity
Planner luminaire	ET 612/440/S	1
Linsomatic controller	TLEPC 612	2

Lamps should be ordered separately.

Please order in the form given in the following example, in multiples of the packing quantity:

50 Philips Planner luminaires ET 612/440/S.

50 Philips Linsomatic controllers TLEPC 612.

INSTALLER'S IMPORTANT NOTE

Ceiling opening sizes are critical to satisfactory fitting of the controller. It is essential to ensure that the nett ceiling opening sizes for the luminaires are not GREATER than 1200 × 600 nom: 1176 × 576 mm.

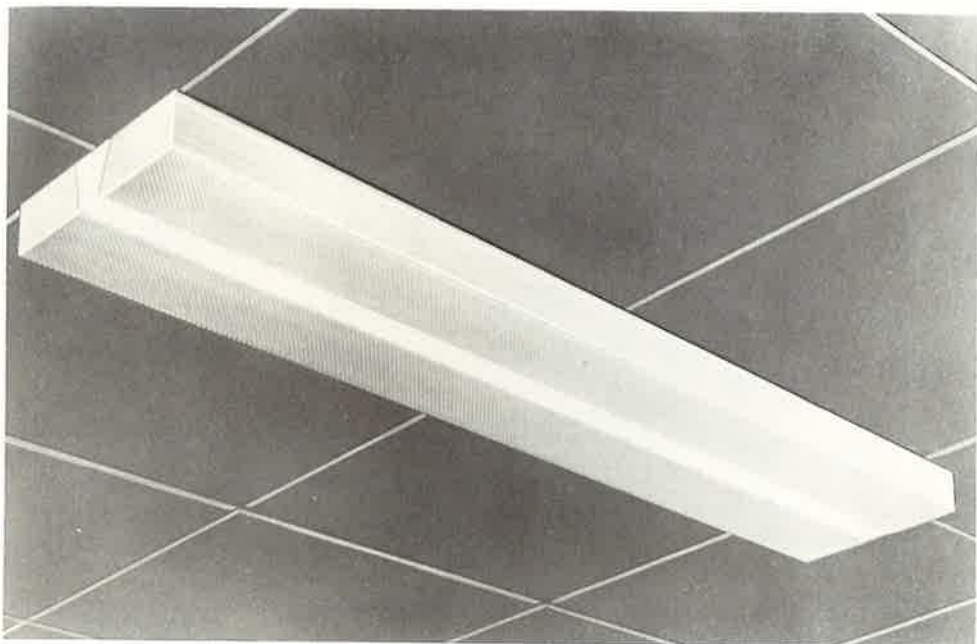
Luminaire: Made in Great Britain
Controller: Made in Great Britain and
West Germany

CI/SIB	(63.1)
UDC	696.6:628.972

2

WIDESPREAD ZONALUX

Surface luminaires with
acrylic prismatic controllers



ZX12/240PCI/S

WideSpread: a family of high technology luminaires with 'spread' intensity distribution, offering greater economy and better visual conditions than ordinary luminaires.

A range of shallow surface luminaires with clear acrylic controllers for indoor installations. One-piece prismatic controllers have prismatic end caps and central opal stripe to enhance appearance. Controllers are gasketed to exclude dirt and dust.

RANGE

2-lamp 40W 1200mm (4ft) switchstart
2-lamp 65W 1500mm (5ft) switchstart
2-lamp 85W 1800mm (6ft) starterless (SRS)

Suitable for individual mounting, or continuous mounting.
2 x 65W and 2 x 85W ratings are also available as plug-in versions for use with Featureline trunking.

APPLICATIONS

Suitable for most indoor installations such as:-

- Boardrooms
- Offices
- Banking halls
- Shops and department stores

Although bold in appearance to suit spacious premises such as banks, the luminaires are shallow, making them also suitable for modern premises with low ceilings.

Handbook Ref.

1.25/6

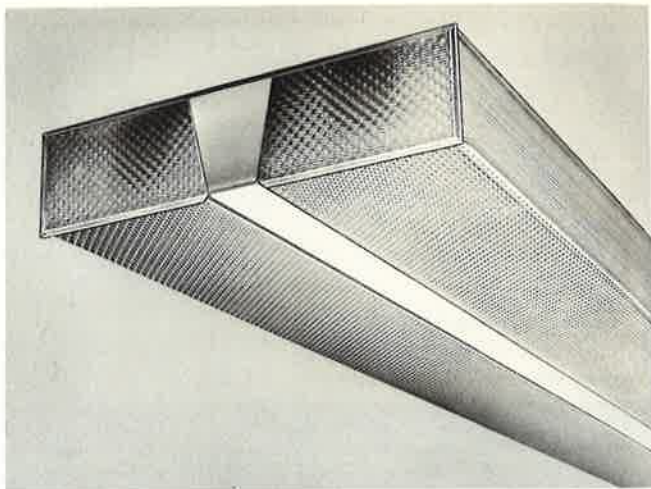
To reorder this data sheet quote 9.79 PL 1854/1

Replaces

PL 1854

FEATURES

- Shallow depth (75mm/2.95in.) permits use with modern, low ceilings and provides an alternative to a recessed luminaire.
- Easy to install and maintain.
- Two-tone acrylic controller combines distinguished appearance with high light output and glare control.
- Wide spacing makes possible reduced number of rows
- Gasket sealing of controller to body ensures a high maintenance factor.
- The controller is supported along its full length, and hinges down on either side to simplify lamp changing.
- Suitable for individual or continuous mounting. When luminaires are mounted continuously, individual controllers are easily removed for lamp changing.
- Optional controller spacers make a neat join between luminaires mounted end-to-end.



MATERIALS & FINISH

Batten: Sheet steel body. Durawhite stoved finish.

Control gear: Low-loss ballasts attached with nuts and studs, and fused terminal block with capacity for 2.5mm² cable in each way. Control gear and wiring are concealed by internal reflector.

Controller and end caps: Clear acrylic extruded controller with internal linear prisms on sides. Base contains central opal stripe co-extruded with well-defined pyramid prismatic base. Matching injection-moulded end caps are pre-attached.

SPECIFICATION

- Type compliance with BS 4533 2.2
- Ordinary Indoor Class I

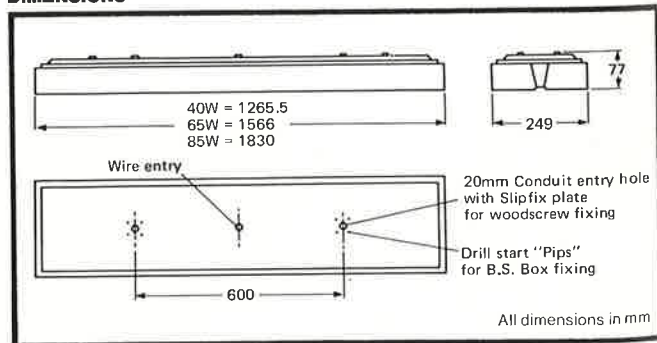
To specify state:

Two-lamp surface-mounted luminaires for fluorescent lamps, complete with acrylic controller, and with overall depth less than 76mm. Substantially as Philips Zonalux.

RANGE OF OPERATION

240V 50Hz. Normal indoor conditions.

DIMENSIONS



DIMENSIONS & WEIGHTS

Catalogue Numbers			Dimensions (mm)			Fixing Centres (mm)	Weight (kg)
Complete Luminaire	Batten Only	Controller Only	Length	Width	Depth		
ZX12/240PC/S	ZX12/240S	ZPC12	1265.5	249	75	600	5.8
ZX15/265PC/S	ZX15/265S	ZPC15	1566	249	75	600	8.4
ZX18/285PC/X	ZX18/285X	ZPC18	1830	249	75	600	9.2

Continuous mounting

A spacer, ZSP1, is available to make a neat join between continuously-mounted controllers. It is not possible to through-wire continuous runs.

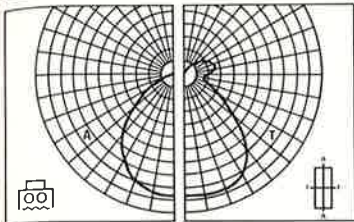
Individual mounting

Zonalux luminaires can be close-mounted to the ceiling by BS box, using the drill starts provided. Cable entry is central, and conduit tube suspensions/wood screw fixings, using slipfix plates provided, are at 600mm centres.

PHOTOMETRIC DATA

ZONALUX PRISMATIC 2 LAMP

ACRYLIC	PRISMATIC	CONTROLLER
Mounting: SUSPENDED		



CIE Flux Number 284450

SHR MAX	(Square)	1.69
SHR MAX TR	(Transverse)	1.91

ULORL	.13	Multiply by each Service Correction Factor
DLORL	.53	
LORL	.66	

Glare Data (IES)

Flux Fraction Ratio	.25	
ACG Classification	ACG5	
For RI = 2 at SHR = NOM	BZ4	
Luminous Area (sq cm)		
40W	65W	85W
3950	4650	6200

Measured:	BS 5225 Part 1 1975
Calculated:	I.E.S. TR 2 and TR 10
Test No:	B079
Dated:	78.11.08

Photoset direct from Photometer tape output.

Service Correction Factors

	mm	40W 1200mm	65W 1500mm	85W 1800mm	mm
Rating Factor		1.05	1.00	0.97	
Amalgam Factor		1.12	1.13		
Ballast Lumen Factor SS		1.00	0.99		
Ballast Lumen Factor XS				0.96	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	37	41	45	48	52	54	56	58	60
	30		33	37	42	44	48	51	54	56	58
	10		30	34	39	42	46	49	51	54	57
50	50	10	35	39	43	45	48	51	53	54	56
	30		31	35	40	42	46	48	51	53	55
	10		29	33	37	40	44	46	49	51	53
30	50	10	33	37	40	42	45	47	49	51	52
	30		30	34	38	40	43	46	48	49	51
	10		28	31	35	38	41	44	46	48	50
0	0	0	25	29	32	34	38	40	42	43	46

Multiply by each Service Correction Factor

ELECTRICAL DATA

Rating	Ballast Catalogue No.	Capacitor	Total Circuit Watts	Circuit current (A)	Min/um Power factor
2 x 40W 1200mm (4ft) SS	2 x BCS40	2 x 3.5 mfd 10% 250V	104	0.46	0.9
2 x 65W 1500mm (5ft) SS	2 x BCS65	2 x 5.5 mfd 10% 250V	154	0.68	0.9
2 x 85W 1800mm (6ft) XS	2 x BBXK85	2 x 8.4 mfd 5% 250V	192	0.92	0.9

All information quoted relates to average luminaires on a 240V 50Hz supply at 25°C.
 All control gear is designed to have an adequately low harmonic content. On a balanced 3-phase 4-wire supply, the current in the neutral does not exceed 3 x 25% of that in any line conductor.

ORDERING DATA

Catalogue No.	Description	Batten only	Controller only
ZX12/240PC/S	2 x 40W 1200mm (4ft) SS	ZX12/240S	ZPC12
ZX15/265PC/S	2 x 65W 1500mm (5ft) SS	ZX15/265S	ZPC15
ZX18/285PC/X	2 x 85W 1800mm (6ft) XS	ZX18/285X	ZPC18
TZX/265PC/S*	2 x 65W 1500mm (5ft) SS Plug-in	TZX265S	ZPC15
TZX/285PC/S*	2 x 85W 1800mm (6ft) XS Plug-in	TZX285S	ZPC18

*plug-in versions M.O.Q. 50

Optional accessory

ZSP1 Spacer for continuous mounting

Please order in the form given in the following example, in multiples of the packing quantity:-

20 Philips Zonalux luminaires ZX15/265PC/S

20 Philips Zonalux spacers ZSP1

Note that lamps should be ordered separately.

Packing quantities

Battens: Individually packed.

Controllers: Individually packed.

Spacers: 5

Made in UK.

SPECIAL PROJECT LUMINAIRES

TCS429

PL1796

Page

141

Non Stock

Special versions of standard stock luminaire types can be supplied to special order.

Typical deviations from standard include variations in:—

Operating voltage e.g. 220V

Operating frequency e.g. 60Hz

Light regulation (Dimmable) Control Gear

Special fixing arrangements

Electrical connections (e.g. large terminal blocks, flying leads etc.)

A guide to MINIMUM order quantities follows, but availability depends on technical feasibility and production economics. Enquiries to your local Lighting Sales Desk

Description	M.O.Q.
Streamlite	500
Feature	250
Featureline Trunking	100
Featureline Luminaires	200
Finesse	100
Polyprism	100
Planner	100
TCS429 Mirror Luminaires	50

Modifications to all Philips standard luminaires are possible subject to the above conditions. Please enquire.

Custom Made

A number of High Output optical systems have been designed to fit into custom made metal work to suit a particular installation.

Types available are:—

Description	M.O.Q.
TZR: High Intensity Low Brightness	100
TCS: Batwing Mirror System	100
CRYSTAL LOUVRE: Air Handling	
Prismatic Louvres	100

Special Design

Individual designs to Customer's own needs and specifications can be undertaken subject to M.O.Q.

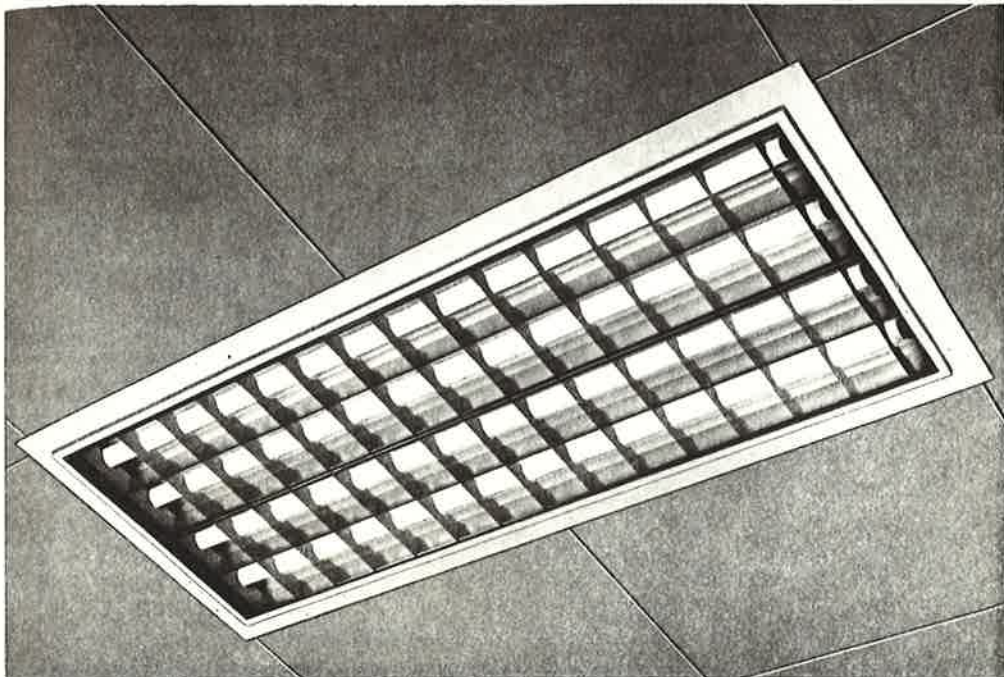
CI/SIB
(63.1)

UDC
696.6:628.972

TCS 429

Custom-made product -
built to special order

3



Recessed fluorescent luminaires with WideSpread TCS 429 mirror reflectors and, when required, integral facilities for airhandling.

An advanced range of recessed luminaires which combine high LOR with low brightness. Mirror reflectors spread the light to permit extended transverse spacing between luminaires. Installed as single luminaires or in continuous lines with infill spacer boxes for use between the luminaires to carry services such as ventilation, sound, standby lighting, fire detection and control, and time indication.

RANGE

Made in one, two, three and four lamp versions, in ratings of 40W 1200mm (4ft), 65W 1500mm (5ft), 85W 1800mm (6ft), 85W 2400mm (8ft) and 125W 2400mm (8ft). Luminaires are supplied complete with mirror controllers and associated control gear.

Spacer boxes are supplied with optional air extract grille or air diffuser panels, straight or right-angle stub duct attachments and cover blanking plates. An end plate for end-of-run or island luminaire use is available.

APPLICATIONS

For use wherever a recessed luminaire with low glare, WideSpread light distribution and optional air handling facility is appropriate, in situations such as:-

- Offices
- Shops and department stores
- Banking halls
- Showrooms
- Laboratories
- Assembly and lecture areas

Handbook Ref.

1.3.1

To reorder this data sheet quote

5.78 PL 1796

Replaces

NEW

FEATURES

- Fully recessed into ceiling to give clean, uncluttered appearance.
- Aluminium mirror reflector system, specially designed to spread the light without glare, gives comfortable seeing conditions and permits the use of fewer luminaires, giving considerable savings in installation, maintenance and running costs.

- Air extract spigots or slots for air handling with positive or negative pressure plenum systems; keep lamps and control gear cool for efficient operation.
- Infill spacer boxes permit simple installation of services such as ventilation, sound, standby lighting, fire detection and control, and time indication.

- Separate circuits on three- and four-lamp versions permit different levels of lighting to be selected according to circumstances.
- Luminaires are tailor-made to suit ceiling detail.

Dimensions

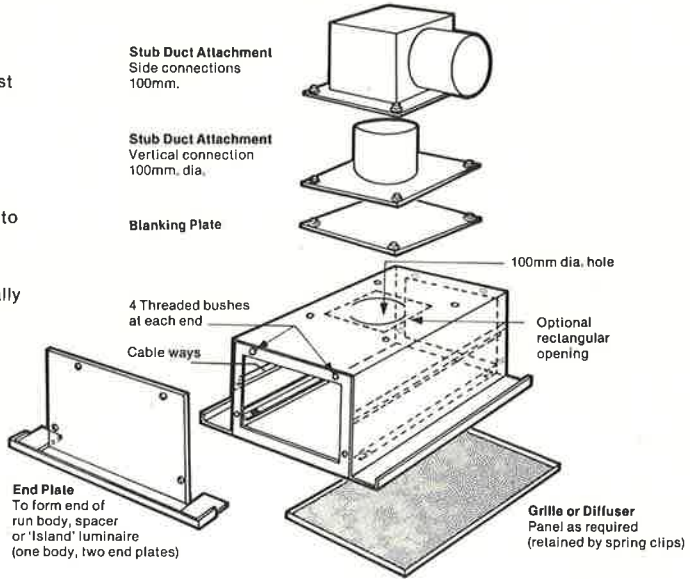
SPACER BOXES

Arranged for:

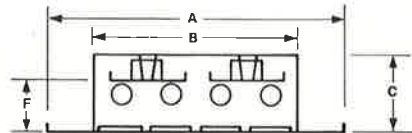
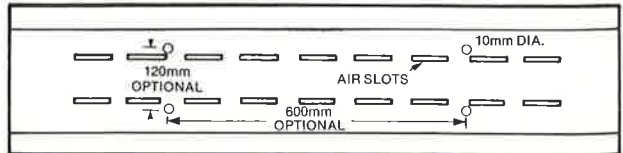
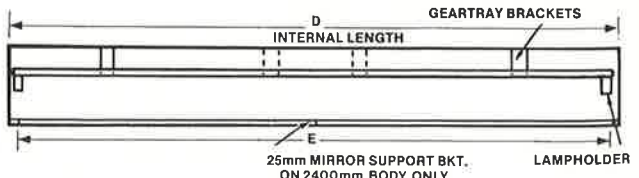
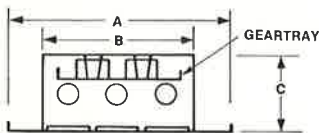
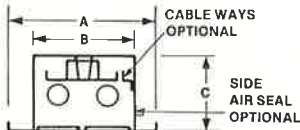
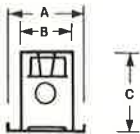
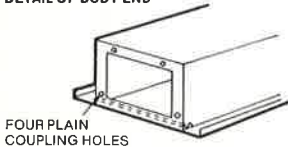
- Air Supply or Exhaust
- Sound Equipment
- Smoke Detection
- Standby Lighting
- Time Indication
- Sprinklers

Sectional Dimensions to suit Luminaire Bodies.

Lengths to suit run dimensions but basically in units of 300mm.



DETAIL OF BODY END

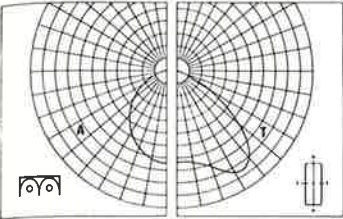


PHOTOMETRIC DATA

Since this product is built to customer's specification, the data given below is representative only and does not allow for air handling slots, or other design variations peculiar to an installation.

TCS 429 WIDE SPREAD

TWO LAMP REFLECTOR	TCS 429 265S
Mounting: CEILING	



CIE Flux Number 366169

SHR MAX (Square)	1.50
SHR MAX TR (Transverse)	2.25

ULORL .00	Multiply by each Service Correction Factor
DLORL .70	
LORL .70	

Glare Data (IES)

Flux Fraction Ratio	0
ACG Classification	ACG6
For RI = 2.5 at SHR = NOM	BZ3
Luminous Area (sq cm)	
65W	
4050	

Service Correction Factors

	65W 1500mm		
Rating Factor	1.00		
Amalgam Factor	1.04		
Ballast Lumen Factor SS	0.99		
Ballast Lumen Factor XS	0.95		

Utilization Factors UF (F)

SHR NOM 1.50

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	43	48	53	56	61	63	65	67	69
	30		39	44	49	53	58	61	63	65	68
	10		35	41	46	50	55	58	61	64	66
50	50	10	42	47	52	55	59	62	64	66	68
	30		38	44	49	52	57	60	62	64	67
	10		35	41	46	50	54	58	60	63	65
30	50	10	41	46	51	54	58	61	62	64	66
	30		38	43	48	51	56	59	61	63	65
	10		35	40	46	49	54	57	59	62	64
0	0	0	34	39	44	48	52	55	57	60	63

Utilization Factors UF (F)

SHR 2.25 TR × 1.50

AX

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	-	-	56	59	62	65	66	68	69
	30		-	-	52	55	60	62	64	67	68
	10		-	-	49	53	57	60	62	65	67
50	50	10	-	-	55	57	61	63	65	67	68
	30		-	-	52	55	59	61	63	65	67
	10		-	-	49	52	57	60	61	64	66
30	50	10	-	-	54	56	60	62	64	65	67
	30		-	-	51	54	58	60	62	64	66
	10		-	-	49	52	56	59	61	63	65
0	0	0	-	-	47	51	55	57	59	61	63

Measured: BS 5225 Part 1 1975 Calculated: I.E.S. TR 2 and TR 10

Test No: A764

Dated: 77.05.18

Photoset direct from Photometer tape output.

DIMENSIONS & WEIGHTS

Rating	Dimensions (mm)						Weight with lamps (kg)
	A	B	C	D	E	F	
1 × 40W 1200mm (4ft)	225	127	145	1285	1234	75	10.4
2 × 40W 1200mm (4ft)	380	283	145	1285	1234	75	13.6
3 × 40W 1200mm (4ft)	540	439	145	1285	1234	75	18.3
4 × 40W 1200mm (4ft)	695	596	145	1285	1234	75	23.7
1 × 65W 1500mm (5ft)	225	127	145	1595	1543	75	11.7
2 × 65W 1500mm (5ft)	380	283	145	1595	1543	75	15.4
3 × 65W 1500mm (5ft)	540	439	145	1595	1543	75	20.8
4 × 65W 1500mm (5ft)	695	596	145	1595	1543	75	27.2
1 × 85W 1800mm (6ft)	225	127	145	1797	1767	75	13.1
2 × 85W 1800mm (6ft)	380	283	145	1797	1767	75	17.6
3 × 85W 1800mm (6ft)	540	439	145	1797	1767	75	23.8
4 × 85W 1800mm (6ft)	695	596	145	1797	1767	75	31.1
1 × 85 or 125W 2400mm (8ft)	225	127	145	2545	2493	75	24.5
2 × 85 or 125W 2400mm (8ft)	380	283	145	2545	2493	75	27.9
3 × 85 or 125W 2400mm (8ft)	540	439	145	2545	2493	75	32.9
4 × 85 or 125W 2400mm (8ft)	695	596	145	2545	2493	75	36.3

Note:—The Philips TCS429 system is supplied custom-made for each installation. The dimensions above are given for guidance only, and it is necessary for customers to specify exact dimensions at the time of ordering.

RANGE OF OPERATION

240V 50Hz, normal indoor conditions.

Other voltages and frequencies to order.

SPECIFICATION

■ Type compliance with BS 4533 2.2 Ordinary Indoor Class I.

To specify state:

Recessed luminaire for 1 (2) (3) (4) fluorescent lamp(s), with mirror reflector. To have an LOR of at least 0.70, to be suitable for an SHR (transverse) of at least 2.0, and to have 'batwing' light distribution. Substantially as Philips TCS 429.

MATERIALS & FINISH

Mirror reflector: Aluminium alloy with semi-specular reflecting finish; white painted aluminium cross louvres.

Luminaire bodies: Sheet steel, white stove enamel (other colours and finishes are available to order).

ELECTRICAL DATA

Gear tray capacity	Circuit	Typical electrical characteristics		
		Circuit Waits Running	Circuit Current Amperes	Minimum Power Factor
1 x 40W 1200mm (4ft)	Switchstart	51	0.23	0.85
2 x 40W 1200mm (4ft)	Switchstart	103	0.46	0.85
1 x 65W 1500mm (5ft)	Switchstart	77	0.34	0.85
2 x 65W 1500mm (5ft)	Switchstart	154	0.68	0.85
1 x 85W 1800mm (6ft)	Starterless	96	0.46	0.90
2 x 85W 1800mm (6ft)	Starterless	192	0.92	0.90
1 x 85W 2400mm (8ft)	Starterless	102	0.46	0.90
2 x 85W 2400mm (8ft)	Starterless	204	0.92	0.90
1 x 125W 2400mm (8ft)	Starterless	152	0.65	0.90
2 x 125W 2400mm (8ft)	Starterless	304	1.30	0.90

Notes:

Luminaires with three or four lampways carry two gear trays that can be independently switched.

On a balanced 3-phase, 4-wire supply, the current in the neutral conductor does not exceed 3 x 25% of that in any line conductor.

All information quoted relates to average luminaires on a 240V 50Hz supply at 25°C.

ORDERING DATA

Since Philips custom-made products are built to individual requirements, no stock is held and details such as product dimensions are finalised before manufacture. Enquiries for custom-made products should be directed to the Special Products Division, at the address on this leaflet.

Made in Great Britain.

- C = Control Gear
- L = Fluorescent Lamp
- M = Mirror System
- H = Housing
- S = Air Extract Spigot

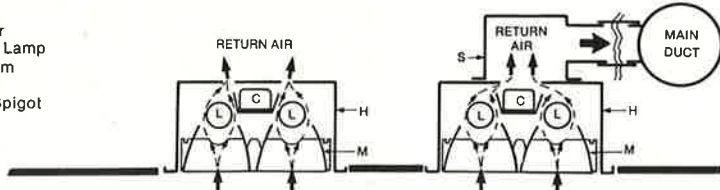


Diagram 1: showing movement of return air through the Luminaire to a negative pressure plenum.

Diagram 2: showing movement of return air through the Luminaire to be extracted by ducts as in a positive pressure plenum system.

Note: Luminaire and duct should be insulated.

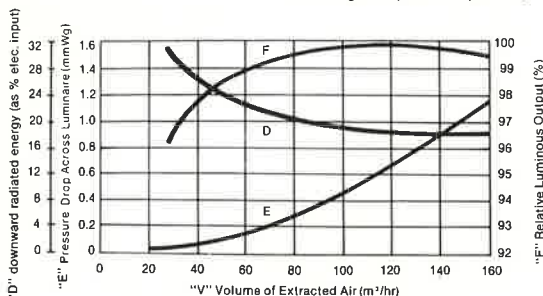


Diagram 3: Air Handling Characteristics Calorimetric Performance (Typical)

Performance shown in diagram is for typical twin fittings — for others use factors shown below:—

- 1 LAMP Ex 0.5 Dx 1.0 Fx 1.0 Vx 0.5
- 2 LAMP Ex 1.0 Dx 1.0 Fx 1.0 Vx 1.0
- 3 LAMP Ex 1.5 Dx 1.0 Fx 1.0 Vx 1.5
- 4 LAMP Ex 2.0 Dx 1.0 Fx 1.0 Vx 2.0

Diagram 4: luminous flux as a function of the ambient air temperature around fluorescent lamps.

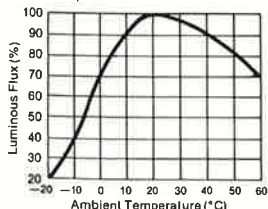
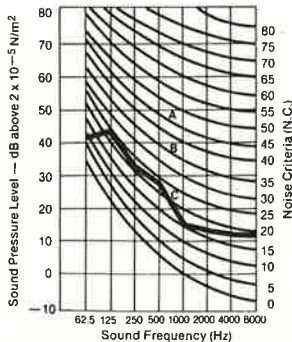


Diagram 5: Noise Level Characteristics

- A. Admissible Noise Level for Landscaped Offices.
- B. Admissible Noise Level for Cellular Offices.
- C. Typical Noise Curve for Philips Low Brightness Air Handling Luminaire.



INDUSTRIAL FLUORESCENT LUMINAIRES

Page

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Streamlite Popular Angle Reflectors	PL1715	155
Feature Trough Reflectors	PL1720/1	157
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Litebeam Flanged Trunking	PL1294/1	187

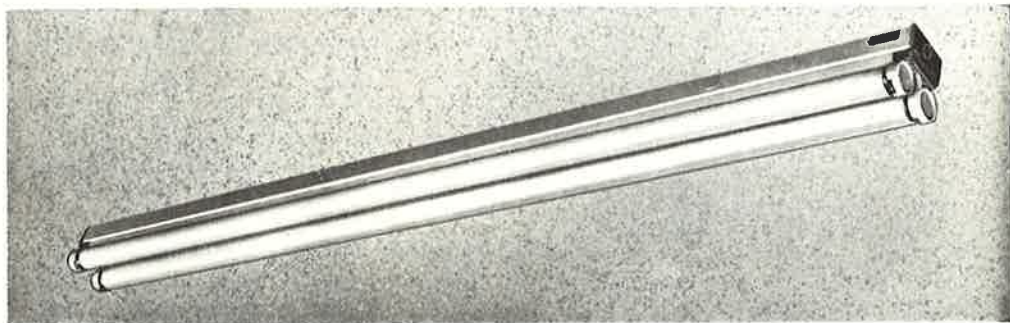
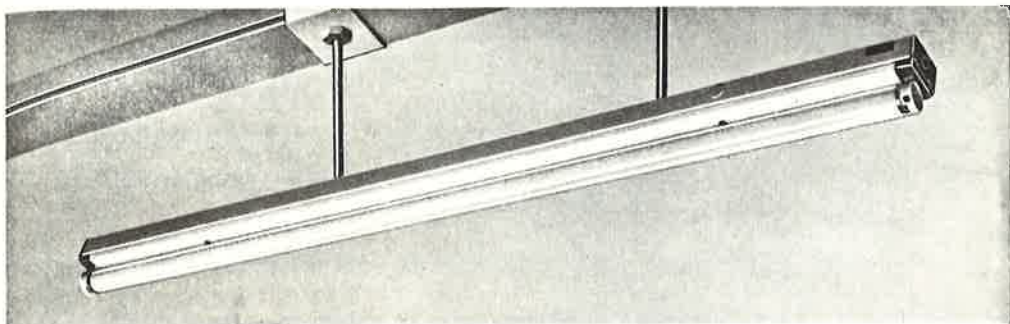
CI/SIB
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696.6:628.972

STREAMLITE POPULAR

5

General-purpose luminaires
for fluorescent lamps



Streamlite luminaires may be used as battens, with trough or angle reflectors for industrial use, or with diffusers or prismatic controllers for commercial applications.

The battens are attractively finished in white metalwork with mid-grey, rebated end caps.

125W 2400mm(8ft) packs are available in switchstart versions, or fitted with Philips E start ES06 electronic starters and low-loss ballasts.

RANGE

All available with one or two lamps.

Battens only:

40W 1200mm (4ft) switchstart
65W 1500mm (5ft) switchstart and starterless
85W 1800mm (6ft) starterless
125W 2400mm (8ft) switchstart

Packs with White 35 lamp(s):

20W 600mm (2ft) switchstart
40W 1200mm (4ft) switchstart
65W 1500mm (5ft) switchstart
85W 1800mm (6ft) starterless
125W 2400mm (8ft) switchstart
125W 2400mm(8ft) electronic start

APPLICATIONS

For use in normal indoor situations such as:-

- Small or large offices
- Shops and departmental stores
- Corridors
- Stock and store rooms
- Canteens
- Workshops

FLUORESCENT LUMINAIRE

Handbook Ref.

2.21

To reorder this data sheet quote

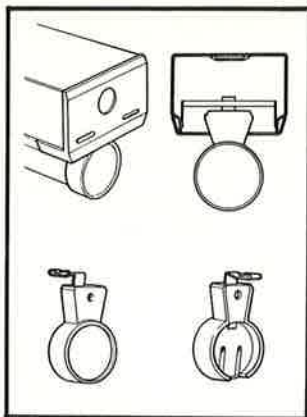
9,79 PL 1713/3

Replaces

PL1713/2

FEATURES

- Easily mounted on to a standard BS box which it covers completely.
- End caps feature 20mm ($\frac{3}{4}$ in.) knockouts for end conduit terminations and peg-and-socket locations to align luminaires mounted end-to-end.
- Low-loss ballasts are firmly attached with nuts and studs for efficient heat transfer. Terminals provide positive connections, with no screws to come loose.
- The steel channel and cover plate are Durawhite stoved finish for long service and retention of reflective properties.
- Miniature two-contact starter switches have tough insulated canisters and are neatly located in the side of the channel. In two-lamp luminaires, each starter switch is placed on the same side as the lamp it serves.
- PQ8E, PQ28E, SQ8E and SQ28E versions are fitted with Philips E start ES06 electronic starters to improve starting at low temperatures.



- Spring-mounted, injection-moulded lampholders are fixed in seconds, and one person can re-lamp a luminaire from one end. Lampholders of two-lamp luminaires are individually mounted, so that one lamp can be removed without disturbing the other, and are keyed to prevent accidental cross-over.

SPECIFICATION

- Type compliance with BS 4533 2.2 Class I ordinary indoor.

To specify state:

Switchstart/starterless types:-

Batten fluorescent lamp luminaires complying with BS 4533 2.2, with Durawhite finish, for metric and Imperial fixing, covering a BS box similar to Philips Streamlite.

Electronic start types:-

As above, but low-loss ballast and ES06 electronic starter.

MATERIALS & FINISH

Channels and cover plates: Sheet steel, Durawhite stoved finish.

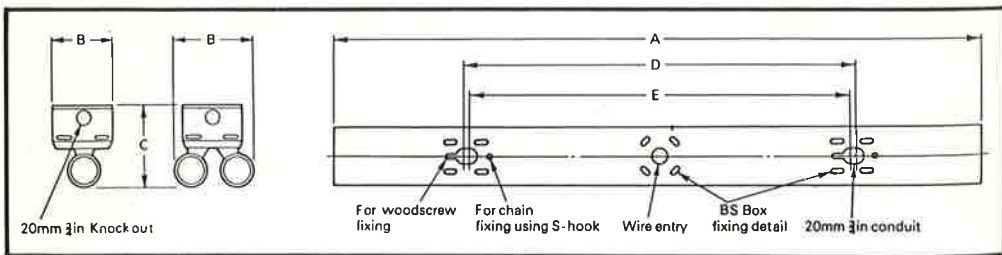
Channel end caps: Grey medium-impact polystyrene.

Sprung bi-pin lampholders: White urea mouldings fitted to plated spring steel supports.

RANGE OF OPERATION

240V 50Hz.

Normal indoor conditions.



DIMENSIONS, WEIGHTS & ELECTRICAL DATA

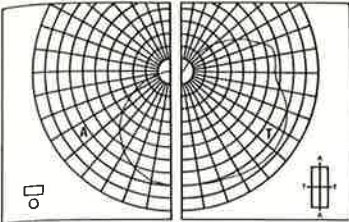
Catalogue numbers		Rating	Overall length (A) mm/in.	Fixing centres (E/D) mm/in.	Weight with Lamp(s) kg/lb.	Electrical characteristics		
Packs (battens with White 35 lampe)	Batten only types					Circuit Watts (running)	Circuit current (Amperes)	Minimum Power Factor
Switchstart types								
P2	—	1-lamp 20W 600mm (2ft)	624/24-6	460/18	2-0/4-4	30-0	0-37	0-33
P22	—	2-lamp 20W 600mm (2ft)	624/24-6	460/18	3-9/7-8	51-5	0-23	0-85
P4	S4	1-lamp 40W 1200mm (4ft)	1234/48-6	600/24	3-0/6-6	51-5	0-23	0-85
P24	S24	2-lamp 40W 1200mm (4ft)	1234/48-6	600/24	4-3/9-5	103	0-46	0-85
P5	S5	1-lamp 65W 1500mm (5ft)	1534/60-5	600/24	4-2/9-4	77	0-34	0-85
P25	S25	2-lamp 65W 1500mm (5ft)	1534/60-5	600/24	6-6/14-5	154	0-68	0-85
P8	S8	1-lamp 125W 2400mm (8ft)	2409/95	1200/48	5-4/11-9	137	0-94	0-66 LDG
P28	S28	2-lamp 125W 2400mm (8ft)	2409/95	1200/48	8-4/18-5	276	1-88	0-66 LDG
Electronic start types								
PQ8E	SQ8E	1-lamp 125W 2400mm (8ft)	2409/95	1200/48	5-4/11-9	137	0-94	0-65 LDG
PQ28E	SQ28E	2-lamp 125W 2400mm (8ft)	2409/95	1200/48	8-4/18-5	276	1-88	0-65 LDG
Starterless types								
—	SQ5	1-lamp 65W 1500mm (5ft)	1534/60-5	600/24	4-4/9-7	77	0-33	0-9
—	SQ25	2-lamp 65W 1500mm (5ft)	1534/60-5	600/24	6-8/15-0	154	0-66	0-9
PQ6	SQ6	1-lamp 85W 1800mm (6ft)	1800/71	600/24	4-6/10-1	96	0-46	0-9
PQ26	SQ26	2-lamp 85W 1800mm (6ft)	1800/71	600/24	7-1/15-6	192	0-92	0-9

Overall width (B): (one lamp) 76mm (3in.)
(two lamps) 98mm (3-8in.)

Overall depth (C): 100mm (4in.)

PHOTOMETRIC DATA STREAMLITE BATTEN 1 LAMP

BATTEN	WITHOUT	ATTACHMENT
Mounting	SUSPENDED	



CIE Flux Number 213955

SHR MAX	(Square)	2.00
SHR MAX TR	(Transverse)	2.67

ULORL	.24	Multiply by each Service Correction Factor
DLORL	.67	
LORL	.91	

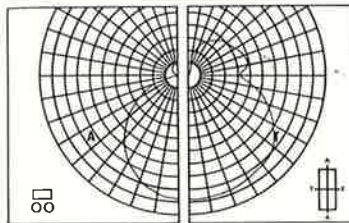
Glare Data (IES)

Flux Fraction Ratio	.36			
ACG Classification	ACG2			
For RI = 2.5 at SHR = NOM	BZ6			
Luminous Area (sq cm)				
20W	40W	65W	85W	125W
450	900	1100	1300	1750

Measured	BS 5225 Part 1 1975
Calculated	I.E.S. TR 2 and TR 10
Test No	A612
Dated:	76.08.26

STREAMLITE BATTEN 2 LAMP

BATTEN	WITHOUT	ATTACHMENT
Mounting	SUSPENDED	



CIE Flux Number 234256

SHR MAX	(Square)	1.86
SHR MAX TR	(Transverse)	2.35

ULORL	.28	Multiply by each Service Correction Factor
DLORL	.65	
LORL	.93	

Glare Data (IES)

Flux Fraction Ratio	.43			
ACG Classification	ACG2			
For RI = 2.5 at SHR = NOM	BZ6			
Luminous Area (sq cm)				
20W	40W	65W	85W	125W
600	1150	1450	1750	2300

Measured	BS 5225 Part 1 1975
Calculated	I.E.S. TR 2 and TR 10
Test No	A617
Dated:	76.09.01

Photoset direct from Photometer tape output

Service Correction Factors

	20W 600 mm	40W 1200 mm	65W 1500 mm	85W 1800 mm	125W 2400 mm
Rating Factor	1.00	1.00	1.00	1.00	1.00
Amalgam Factor		1.00	1.00		
Ballast Lumen Factor SS	0.98	1.00	0.99		0.98
Ballast Lumen Factor XS			0.95	0.96	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	42	47	52	56	62	66	69	73	75
	30		35	40	45	49	56	60	64	68	72
	10		31	35	40	44	51	56	59	65	68
	50	10	38	42	47	51	56	60	63	66	69
50	50	10	33	37	41	45	51	55	58	63	66
	30		29	32	37	41	47	52	55	60	63
	10		25	29	33	37	41	47	50	55	58
	50	10	30	34	38	42	47	51	53	57	60
30	50	10	27	30	34	38	43	47	50	55	58
	30		23	25	29	32	37	40	43	47	49
	10										
	0	0	0								

Multiply by each Service Correction Factor

Service Correction Factors

	20W 600 mm	40W 1200mm	65W 1500mm	85W 1800mm	125W 2400mm
Rating Factor	1.00	1.00	1.00	1.00	1.00
Amalgam Factor		1.00	1.00		
Ballast Lumen Factor SS	0.98	1.00	0.99		0.98
Ballast Lumen Factor XS			0.95	0.96	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	45	50	55	59	65	69	72	76	78
	30		39	43	49	53	60	64	67	72	75
	10		34	38	44	48	55	60	63	68	72
	50	10	41	45	50	54	59	62	65	68	71
50	50	10	36	40	45	49	54	58	61	65	68
	30		32	36	40	45	51	55	58	63	66
	10		28	31	35	39	42	45	48	52	54
	50	10	33	36	41	44	49	53	56	59	62
30	50	10	30	33	37	41	46	50	53	57	60
	30		26	28	31	35	39	42	45	48	51
	10										
	0	0	0								

Multiply by each Service Correction Factor

CIRCUIT COMPONENTS

Catalogue number	Ballast catalogue number	Starter catalogue number	Capacitor
Switchstart			
P2	BCS20	S10	none
P22	BCS40	2 x S2	3.5 mfd 10% 250V
P4, S4	BCS40	S10	3.5 mfd 10% 250V
P24, S24	2 x BCS40	2 x S10	2 x 3.5 mfd 10% 250V
P5, S5	BCS65	S10	5.5 mfd 10% 250V
P25, S25	2 x BCS65	2 x S10	2 x 5.5 mfd 10% 250V
P8, S8	BBS125	S18	7.2 mfd 5% 440V
P28, S28	2 x BBS125	2 x S18	2 x 7.2 mfd 5% 440V
Electronic start			
PQ8E	1 x BBE125	ES06	7.2 mfd 5% 440V
PQ28E	2 x BBE125	ES06	7.2 mfd 5% 440V
SQ8E	1 x BBE125	ES06	7.2 mfd 5% 440V
SQ28E	2 x BBE125	ES06	7.2 mfd 5% 440V
Starterless			
SQ5	BBX65	none	8.4 mfd 5% 250V
SQ25	2 x BBX65	none	2 x 8.4 mfd 5% 250V
PQ6, SQ6	BBXK85	none	8.4 mfd 5% 250V
PQ26, SQ26	2 x BBXK85	none	2 x 8.4 mfd 5% 250V



ORDERING DATA

Rating	Circuit	Catalogue Number	
		Peck (battens with White 35 lamps)	Battens only
1-lamp 20W 600mm (2ft)	Switch	P2	—
2-lamp 20W 600mm (2ft)	Switch	P22	—
1-lamp 40W 1200mm (4ft)	Switch	P4	S4
2-lamp 40W 1200mm (4ft)	Switch	P24	S24
1-lamp 65W 1500mm (5ft)	Switch	P5	S5
1-lamp 65W 1500mm (5ft)	Starterless	—	SQ5
2-lamp 65W 1500mm (5ft)	Switch	P25	S25
2-lamp 65W 1500mm (5ft)	Starterless	—	SQ25
1-lamp 85W 1800mm (6ft)	Starterless	PQ6	SQ6
2-lamp 85W 1800mm (6ft)	Starterless	PQ26	SQ26
1-lamp 125W 2400mm (8ft)	Switch	P8	S8
2-lamp 125W 2400mm (8ft)	Switch	P28	S28
1-lamp 125W 2400mm (8ft)	E start	PQ8E	SQ8E
2-lamp 125W 2400mm (8ft)	E start	PQ28E	SQ28E

Battens and packs are supplied packed individually.

Please order in the form given in the following example:
50 Philips luminaires SQ25.

Made in Great Britain.

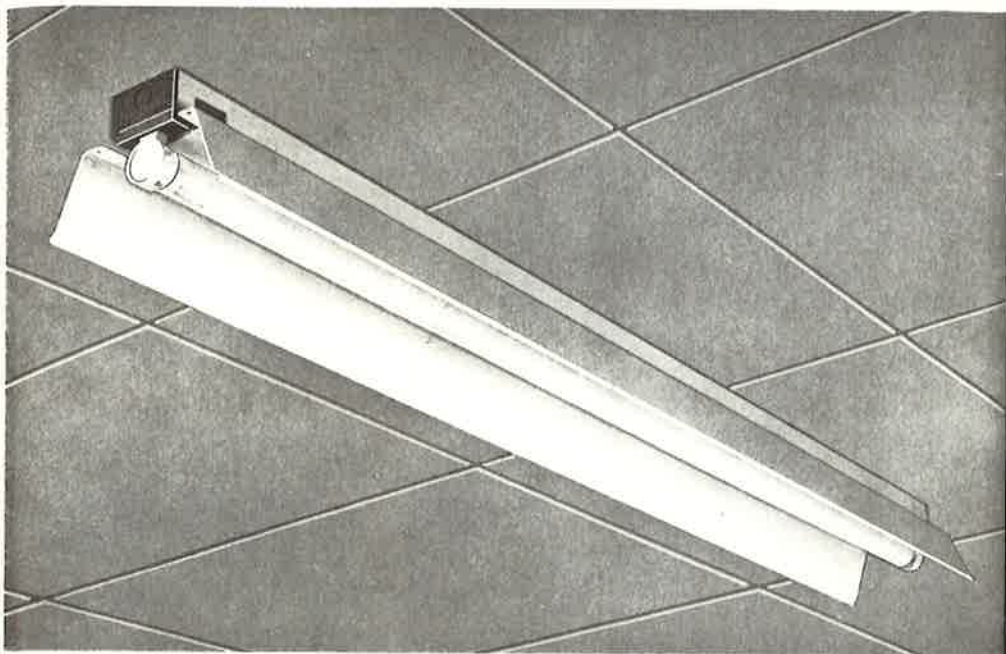
CI/SIB
(63.1)

UDC
696.6:628.972

5

STREAMLITE POPULAR

Trough Reflectors & Optional Wireguards



The Durawhite stoved finish open-ended trough reflectors are easily fitted to the Streamlite Popular battens. One width fits both one- and two-lamp versions. Slots give a small amount of upward light, and clips are available to make a neat join between reflectors mounted end-to-end.

Optional wireguards made from stout galvanised steel are available for certain starterless ratings only.

RANGE

Trough reflectors are available to fit one- and two-lamp versions of the Streamlite range of battens and packs in sizes 1200mm (4ft), 1500mm (5ft), 1800mm (6ft) and 2400mm (8ft). Wireguards can be supplied for 1500mm (5ft) and 1800mm (6ft) reflectors mounted on starterless luminaires only.

APPLICATIONS

- Factories
- Workshops and repair areas
- Instrument reading areas
- Stock and store rooms.

The wireguard provides additional protection in areas where the lamp may be exposed to damage.

FLUORESCENT LUMINAIRE

Handbook Ref.

2.2.1/1

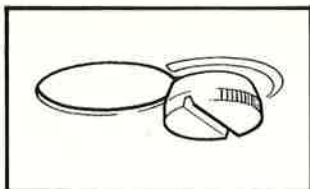
To reorder this Data Sheet quote 9.79 PL 1714/1

Replaces

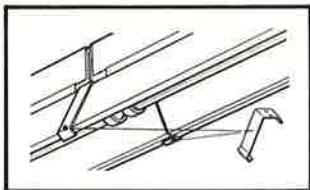
PL 1714

FEATURES

- High-quality Durawhite stoved finish for high reflectance and long service life.
- Keyhole slot fixing for easy attachment, with detent for positive location once the fixing screws have been tightened.
- Upward light slots to reduce 'tunnel' effect.
- Optional clips to give a simple, neat join between reflectors mounted end-to-end (Type RJ1).
- Optional wireguards for additional protection of lamp.
- Wireguards cannot be fitted to luminaires mounted end-to-end.
- 125W versions now also in E start.



Keyhole fitting



Type RJ1 clip

MATERIALS & FINISH

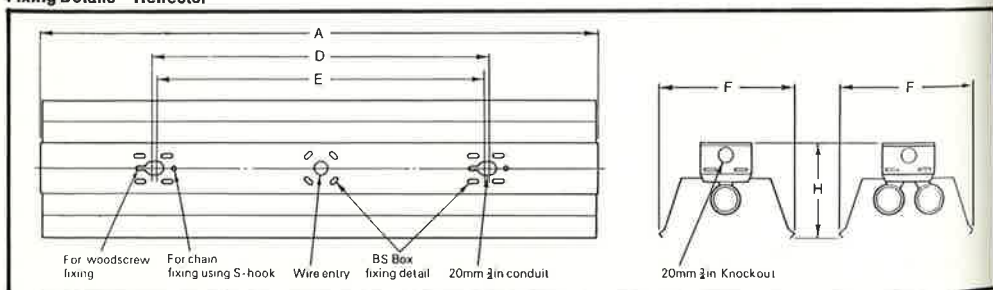
Reflector: Sheet steel, Durawhite stoved finish.

Reflector joining clip: Sheet steel, Durawhite stoved finish.

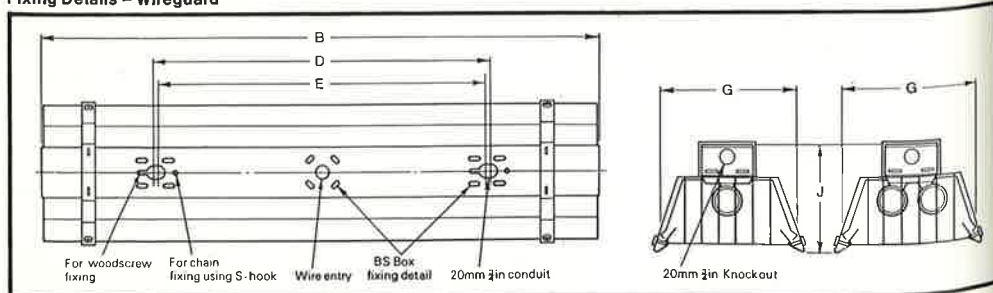
Wireguard: Mild steel wire, galvanised.

Wireguard fixing bracket: Sheet steel, Durawhite stoved finish.

Fixing Details – Reflector



Fixing Details – Wireguard



DIMENSIONS & WEIGHTS

Pack (batten with White 35 lamp)	Catalogue numbers			Wire-guard	Weight with lamps & reflector (kg/lb)	Weight with lamp(s) reflector & wireguard (kg/lb)	Overall length		Fixing centres (E/D) (mm/in.)
	Batten only	Slotted open-end reflector	With reflector (A) (mm/in.)				With reflector & wireguard (B) (mm/in.)		
P4	S4	R4	—	—	4-9/10-8	—	1234/48-6	—	600/24
P24	S24	R4	—	—	6-7/14-7	—	1234/48-6	—	600/24
P5	S5	R5	—	—	6-6/14-5	—	1534/60-4	—	600/24
—	SQ5	R5	G5	—	6-7/14-7	8-4/18-5	1534/60-4	1549/60-9	600/24
P25	S25	R5	—	—	9-0/19-8	—	1534/60-4	—	600/24
—	SQ25	R5	G5	—	9-2/20-2	10-5/23-1	1534/60-4	1549/60-9	600/24
PQ6	SQ6	R6	G6	—	7-5/16-5	9-3/20-5	1800/71	1815/71-5	600/24
PQ26	SQ26	R6	G6	—	10-0/22-0	11-4/25-1	1800/71	1815/71-5	600/24
P8	S8	R8	—	—	9-3/20-5	—	2409/95	—	1200/48
P28	S28	R8	—	—	12-3/27-1	—	2409/95	—	1200/48
—	SQ8E	R8	—	—	9-3/20-5	—	2409/95	—	1200/48
—	SQ28E	R8	—	—	12-3/27-1	—	2409/95	—	1200/48

All types:

Width with reflector (F) 190mm (7-5in.)
Width with reflector and wireguard (G) 223mm (8-8in.)

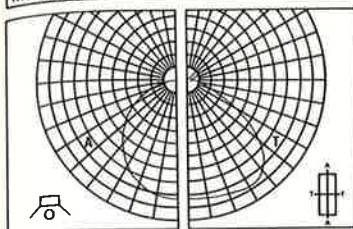
Depth with reflector (H) 132mm (5-2in.)
Depth with reflector and wireguard (J) 147mm (5-8in.)

PHOTOMETRIC DATA

STREAMLITE REFLECTOR 1 LAMP

WITH REFLECTOR

Mounting: SUSPENDED



CIE Flux Number 356276

SHR MAX (Square) 1.92
SHR MAX TR (Transverse) 2.27

ULORL .05
DLORL .79
LORL .84

Multiply by each Service Correction Factor

Glare Data (IES)

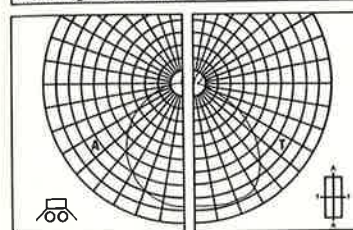
Flux Fraction Ratio .06
ACG Classification ACG1
For RI = 2.5 at SHR = NOM BZ4
Luminous Area (sq cm)
40W 65W 85W 125W
2200 2750 3300 4400

Measured: BS 5225 Part 1 1975
Calculated: I.E.S. TR 2 and TR 10
Test No: A614 Dated: 76.08.26

STREAMLITE REFLECTOR 2 LAMP

WITH REFLECTOR

Mounting: SUSPENDED



CIE Flux Number 356072

SHR MAX (Square) 1.74
SHR MAX TR (Transverse) 1.99

ULORL .08
DLORL .74
LORL .82

Multiply by each Service Correction Factor

Glare Data (IES)

Flux Fraction Ratio .11
ACG Classification ACG1
For RI = 2.5 at SHR = NOM BZ4
Luminous Area (sq cm)
40W 65W 85W 125W
2200 2750 3300 4400

Measured: BS 5225 Part 1 1975
Calculated: I.E.S. TR 2 and TR 10
Test No: A618 Dated: 76.09.01

Photoset direct from Photometer tape output.

Service Correction Factors

	40W 1200 mm	65W 1500 mm	85W 1800 mm	125W 2400 mm
Rating Factor	1.00	1.00	1.00	1.00
Amalgam Factor		1.09		
Ballast Lumen Factor SS	1.00	0.99		0.98
Ballast Lumen Factor XS		0.95	0.96	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	51	55	60	64	69	73	75	78	80
	30		46	50	55	59	65	69	72	75	77
	10		42	46	51	55	62	66	69	73	75
50	50	10	50	53	58	62	67	70	72	75	77
	30		45	48	53	58	63	67	69	73	75
	10		42	45	50	54	60	64	67	71	73
30	50	10	48	52	56	60	65	68	70	73	74
	30		44	47	52	56	62	65	67	71	73
	10		41	44	49	53	59	63	65	69	71
0	0	0	39	42	47	51	56	60	62	66	68

Multiply by each Service Correction Factor

Service Correction Factors

	40W 1200 mm	65W 1500 mm	85W 1800 mm	125W 2400 mm
Rating Factor	1.00	1.00	1.00	1.00
Amalgam Factor		1.11		
Ballast Lumen Factor SS	1.00	0.99		0.98
Ballast Lumen Factor XS		0.95	0.96	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	45	53	58	61	67	70	72	75	77
	30		39	48	53	57	62	66	69	73	75
	10		35	44	49	53	59	63	66	70	73
50	50	10	43	51	55	59	64	67	69	72	74
	30		38	46	51	55	60	64	67	70	72
	10		34	43	48	52	57	61	64	68	70
30	50	10	41	49	53	56	61	64	66	69	71
	30		37	45	50	53	58	62	64	67	69
	10		34	42	47	50	56	59	62	66	68
0	0	0	31	39	44	47	52	56	59	62	64

Multiply by each Service Correction Factor

ORDERING DATA

Batten length	Catalogue number
Slotted open-end reflector	
1200mm (4ft)	R4
1500mm (5ft)	R5
1800mm (6ft)	R6
2400mm (8ft)	R8
Wireguards*	
1500mm (5ft)	G5
1800mm (6ft)	G6
Reflector joining clip	
—	RJ1

Packing quantities:

Reflectors — 5 per carton

Wireguards — 5 per carton

Reflector joining clip — To order.

*Starterless luminaires only

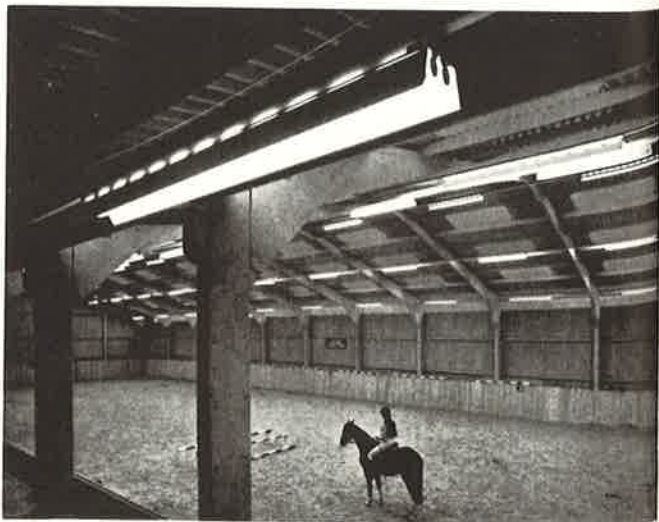
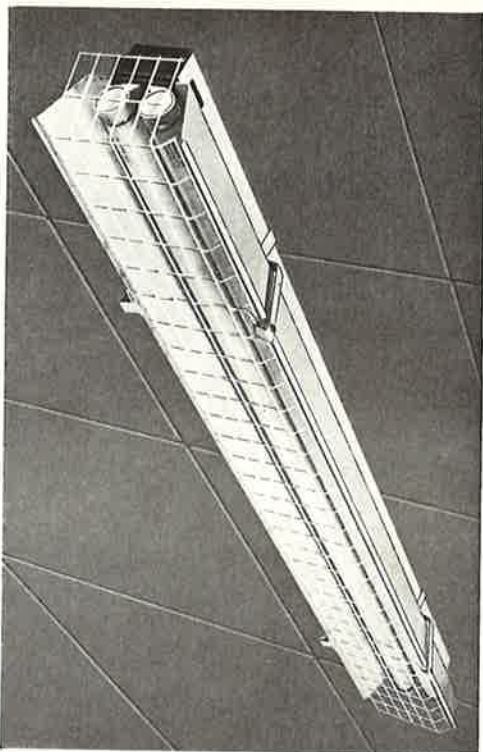
Please order in the form given in the following example, in multiples of the packing quantity:

50 Philips luminaires SQ6

50 Philips trough reflectors R6

50 Philips wireguards G6

50 Philips reflector joining clips RJ1.



Made in Great Britain.

C1/S1B
(63.1)

UDC
696.6:628.972

5

STREAMLITE POPULAR Angle Reflectors

Durawhite stoved finish open-end angle reflectors are made from sheet steel and are easily fitted to the Streamlite Popular battens to give an angled light distribution.

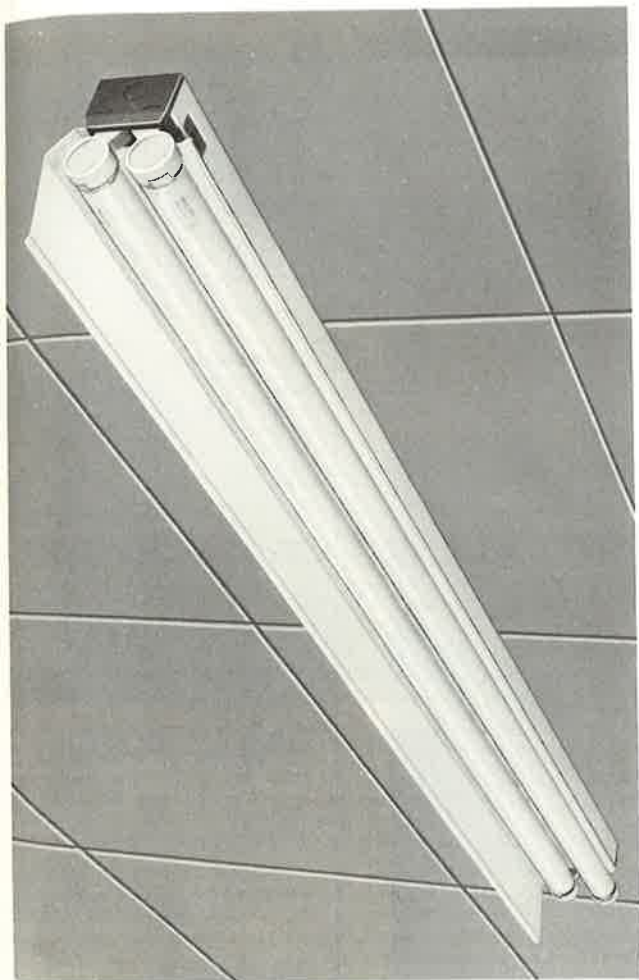
RANGE

Angle reflectors are available to fit the Streamlite range of battens and packs in sizes 1500mm (5ft), 1800mm (6ft) and 2400mm (8ft). One width fits both one- and two-lamp versions.

APPLICATIONS

For use in normal indoor situations of a commercial or industrial nature where an angled light distribution is required, such as:

- Lighting for blackboards or wall charts.
- Cabinet type instrument panels.
- Task lighting to supplement general lighting.



Handbook Ref.

2.2.1/2

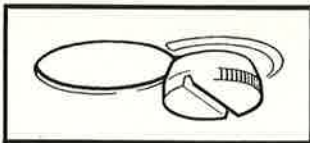
To reorder this Data Sheet quote 10.79 PL 1715 /1

Replaces PL 1715

FLUORESCENT LUMINAIRE

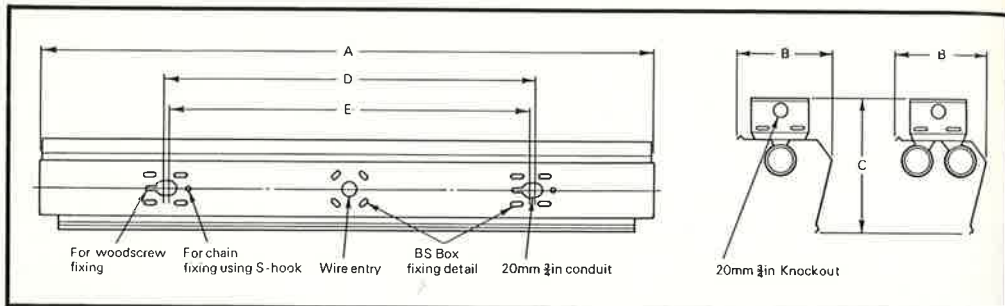
FEATURES

- High-quality Durawhite stoved finish for high reflectance and long service.
- Keyhole slot fixing for easy attachment, with detent for positive location once the fixing screws have been tightened.



MATERIALS & FINISH

Angle reflectors: Sheet steel, Durawhite stoved finish,



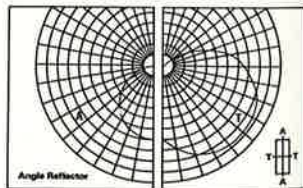
DIMENSIONS & WEIGHTS

Pack (batten with White 35 lamp)	Catalogue numbers		Weight with lamp(s) & reflector (kg/lb)	Overall length (A) (mm/in.)	Fixing centres (E/D) (mm/in.)
	Batten only	Open-end angle reflector			
P5	S5	AR5	6-1/13-4	1534/60-4	600/24
—	SQ5	AR5	6-3/13-9	1534/60-4	600/24
P25	S25	AR5	8-5/18-7	1534/60-4	600/24
—	SQ25	AR5	8-7/19-4	1534/60-4	600/24
PQ6	SQ6	AR6	6-8/15-0	1800/71	600/24
PQ26	SQ26	AR6	9-4/20-7	1800/71	600/24
P8	S8	AR8	8-4/18-5	2409/95	1200/48
P28	S28	AR8	11-4/25-1	2409/95	1200/48
—	SQ8E	AR8	8-4/18-5	2409/95	1200/48
—	SQ28E	AR8	11-4/25-1	2409/95	1200/48

All types: Overall width (B): 115mm (4-5in.) Overall depth (C): 170mm (6-7in.)



POLAR CURVES



ORDERING DATA

Batten length	Catalogue numbers	
	Batten	Reflector
1500mm (5ft)	P5/S5	AR5
1500mm (5ft)	SQ5	AR5
1500mm (5ft)	P25/S25	AR5
1500mm (5ft)	SQ25	AR5
1800mm (6ft)	PQ6/SQ6	AR6
1800mm (6ft)	PQ26/SQ26	AR6
2400mm (8ft)	P8/S8	AR8
2400mm (8ft)	P28/S28	AR8
2400mm (8ft)	SQ8E	AR8
2400mm (8ft)	SQ28E	AR8

Packing quantity - 5 per carton.

Please order in the form given in the following example, in multiples of the packing quantity:-

- 50 Philips Streamlite luminaires SQ26
- 50 Philips angle reflectors AR6

Made in Great Britain

CI/SIB

(63.1)

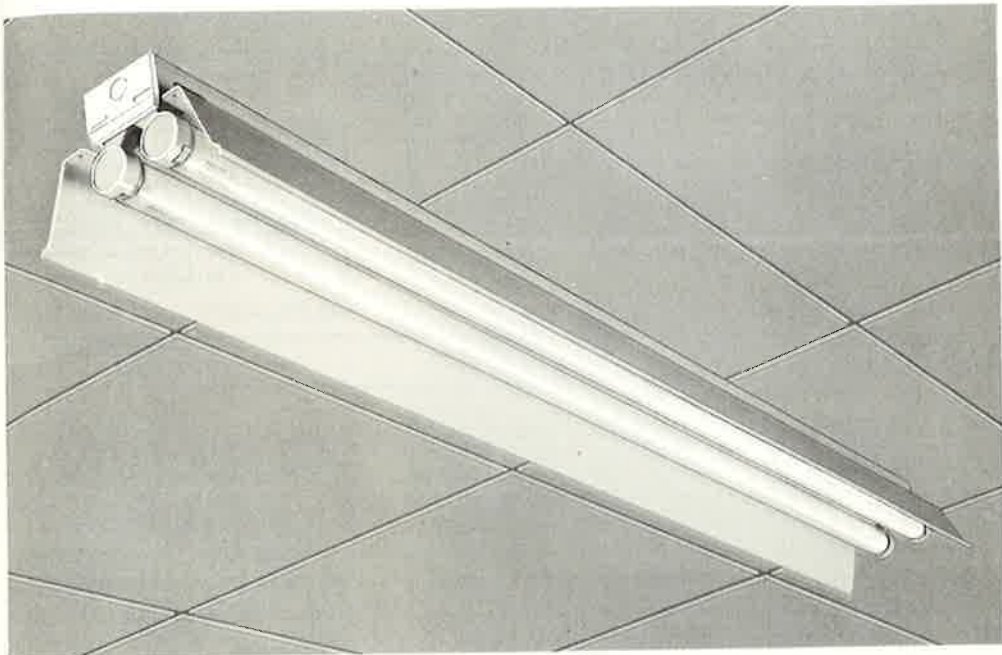
UDC

696.6:628.972

FEATURE Trough Reflectors

5

Including information on optional wire guards available for certain ratings only.



The Durawhite stoved open-ended trough reflectors are easily fitted to the high-quality Feature battens. One width fits both one- and two-lamp versions. Slots give a small amount of upward light, and clips are available to make a neat join between reflectors mounted end-to-end.

Optional wire guards are made from stout galvanised steel wire.

RANGE

Trough reflectors are available to fit one- and two-lamp versions of the Feature range in sizes 1200mm (4ft), 1500mm (5ft), 1800mm (6ft) and 2400mm (8ft). Wire guards can be supplied for the 1500mm (5ft) and 1800mm (6ft) luminaires only.

APPLICATIONS

For use in normal indoor applications of an industrial or utility nature, such as:

- Factories
- Workshops and repair areas
- Instrument reading areas
- Stock and store rooms.

The wire guard provides additional protection in areas where the lamp may be exposed to damage.

FLUORESCENT LUMINAIRE

Handbook Ref.

2.214

To reorder this data sheet quote

9.79 PL1720/1

Replaces

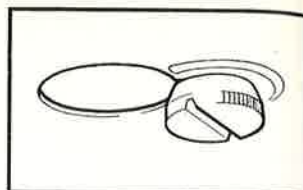
PL1720

FEATURES

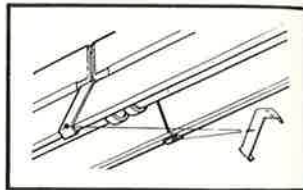
- High-quality Durawhite stoved finish for high reflectance and long service.
- Keyhole slot fixing for easy attachment, with detent for positive location once the fixing screws have been tightened.
- Upward light slots to reduce 'tunnel' effect.
- Optional clips to give a simple, light-tight seal between reflectors mounted end-to-end. (Type RJ1).
- Optional wireguards for additional protection of lamp. Wireguards cannot be fitted to luminaires mounted end-to-end.
- 125W versions of Feature in E start.

MATERIALS & FINISH

- Reflector:** Sheet steel, Durawhite stoved finish.
- Reflector joining clip:** Sheet steel, Durawhite stoved finish.
- Wireguard:** Mild steel wire, galvanised.
- Wireguard fixing bracket:** Sheet steel, Durawhite stoved finish.

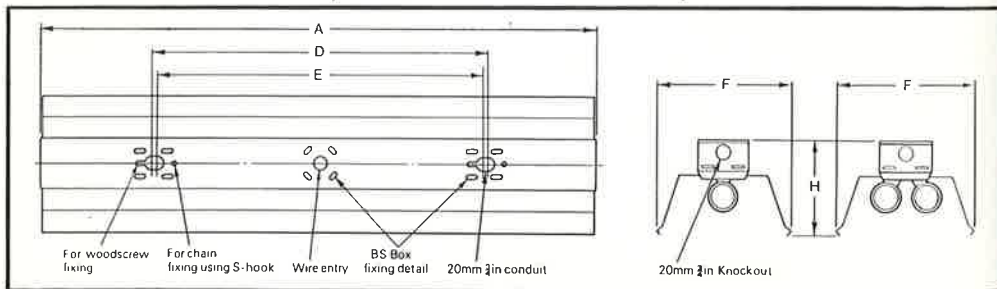


Key slot fitting

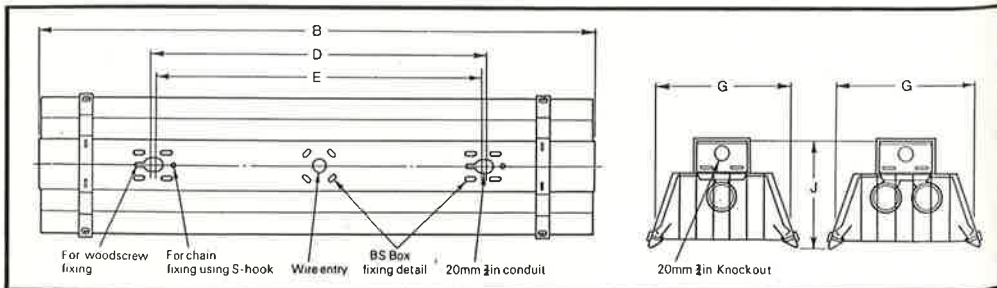


Type RJ1 clip

Fixing Details – Reflector



Fixing Details – Wireguard



DIMENSIONS & WEIGHTS

Batten only	Catalogue numbers			Weight with lamp(s) & reflector (kg/lb)	Weight with lamp(s) & wire guard (kg/lb)	Overall length		Fixing centres (mm/in.) D/E
	Slotted open-end reflector only	Wire guard only				With reflector (mm/in.) A	With reflector & wire guard (mm/in.) B	
FSQ4	R4	—	5-3/11-7	—	1234/48-6	—	600/24	
FSQ24	R4	—	7-7/16-9	—	1234/48-6	—	600/24	
FSQ5	R5	G5	6-7/14-8	8-4/18-5	1534/60-4	1549/60-9	600/24	
FSQ25	R5	G5	9-2/20-3	10-5/23-1	1534/60-4	1549/60-9	600/24	
FSQ6	R6	G6	7-5/16-5	9-3/20-5	1800/71	1815/71-5	600/24	
FSQ26	R6	G6	10-0/22-0	11-4/25-1	1800/71	1815/71-5	600/24	
FSQ85	R8	G8	10-4/22-9	12-8/28-1	2409/95	2424/95-5	1200/48	
FSQ285	R8	G8	14-1/30-9	16-5/36-3	2409/95	2424/95-5	1200/48	
FSQ8E	R8	G8	11-2/24-7	13-6/29-9	2409/95	2424/95-5	1200/48	
FSQ28E	R8	G8	15-9/35-2	18-3/40-26	2409/95	2424/95-5	1200/48	

Width with reflector (one or two lamps) F: 190/7-48

Width with reflector and wireguard (one or two lamps) G: 223/8-78

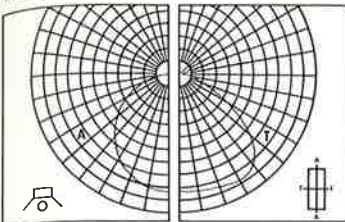
Depth with reflector H: 132/5-20

Depth with reflector and wireguard J: 147/5-78

PHOTOMETRIC DATA

FEATURE 1 LAMP

WITH REFLECTOR
Mounting: SUSPENDED



CIE Flux Number 356276

SHR MAX (Square)	1.92
SHR MAX TR (Transverse)	2.27

ULORL .05	Multiply by each Service Correction Factor
DLORL .79	
LORL .84	

Glare Data (IES)

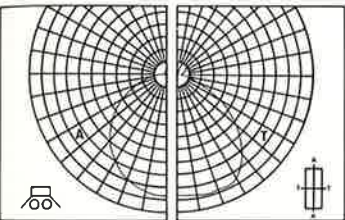
Flux Fraction Ratio	.06
ACG Classification	ACG1
For RI = 2.5 at SHR = NOM	BZ4

Luminous Area (sq cm)				
40W	65W	85W	85W	125W
2200	2750	3300	4400	4400

Measured: BS 5225 Part 1 1975
Calculated: I.E.S. TR 2 and TR 10
Test No: A614 Dated: 76.08.26

FEATURE 2 LAMP

WITH REFLECTOR
Mounting: SUSPENDED



CIE Flux Number 356072

SHR MAX (Square)	1.74
SHR MAX TR (Transverse)	1.99

ULORL .08	Multiply by each Service Correction Factor
DLORL .74	
LORL .82	

Glare Data (IES)

Flux Fraction Ratio	.11
ACG Classification	ACG1
For RI = 2.5 at SHR = NOM	BZ4

Luminous Area (sq cm)				
40W	65W	85W	85W	125W
2200	2750	3300	4400	4400

Measured: BS 5225 Part 1 1975
Calculated: I.E.S. TR 2 and TR 10
Test No: A618 Dated: 77.09.01

Service Correction Factors

	40W 1200mm	65W 1500mm	85W 1800mm	85W 2400mm	125W 2400mm
Rating Factor	1.00	1.00	1.00	1.00	1.00
Amalgam Factor					
Ballast Lumen Factor SS					
Ballast Lumen Factor XS	1.02	0.95	0.96	0.99	1.00

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	51	55	60	64	69	73	75	78	80
	30		46	50	55	59	65	69	72	75	77
	10		42	46	51	55	62	66	69	73	75
50	50	10	50	53	58	62	67	70	72	75	77
	30		45	48	53	58	63	67	69	73	75
	10		42	45	50	54	60	64	67	71	73
30	50	10	48	52	56	60	65	68	70	73	74
	30		44	47	52	56	62	65	67	71	73
	10		41	44	49	53	59	63	65	69	71
0	0	0	39	42	47	54	56	60	62	66	68

Multiply by each Service Correction Factor

Service Correction Factors

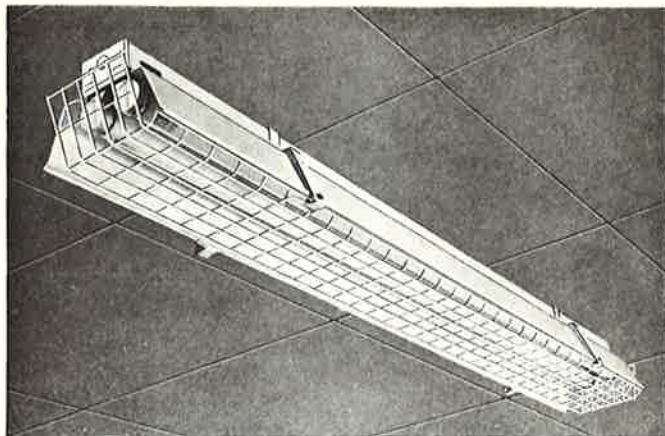
	40W 1200mm	65W 1500mm	85W 1800mm	85W 2400mm	125W 2400mm
Rating Factor	1.00	1.00	1.00	1.00	1.00
Amalgam Factor					
Ballast Lumen Factor SS					
Ballast Lumen Factor XS	1.02	0.95	0.96	0.99	1.00

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	45	53	58	61	67	70	72	75	77
	30		39	48	53	57	62	66	69	73	75
	10		35	44	49	53	59	63	66	70	73
50	50	10	43	51	55	59	64	67	69	72	74
	30		38	46	51	55	60	64	67	70	72
	10		34	43	48	52	57	61	64	68	70
30	50	10	41	49	53	56	61	64	66	69	71
	30		37	45	50	53	58	62	64	67	69
	10		34	42	47	50	56	59	62	66	68
0	0	0	31	39	44	47	52	56	59	62	64

Multiply by each Service Correction Factor

5



ORDERING DATA

Description	Catalogue numbers		
	Batten only	Slotted open-end reflector only	Wire guard only
1 x 40W 1200mm (4ft)	FSQ4	R4	—
2 x 40W 1200mm (4ft)	FSQ24	R4	—
1 x 65W 1500mm (5ft)	FSQ5	R5	G5
2 x 65W 1500mm (5ft)	FSQ25	R5	G5
1 x 85W 1800mm (6ft)	FSQ6	R6	G6
2 x 85W 1800mm (6ft)	FSQ26	R6	G6
1 x 85W 2400mm (8ft)	FSQ85	R8	G8
2 x 85W 2400mm (8ft)	FSQ285	R8	G8
1 x 125W 2400mm (8ft)	FSQ8E	R8	G8
2 x 125W 2400mm (8ft)	FSQ28E	R8	G8
Reflector joining clip (optional)	RJ1		

Please order in the form given in the following example, in multiples of the packing quantities:-

50 Philips Feature luminaires FSQ25.

50 Philips slotted open-end reflector R5.

50 Philips wire guards G5.

50 Philips reflector joining clips RJ1 (optional for end-to-end mounting).

Packing quantities:

Battens: individually packed.

Reflectors: 5 per carton.

Wire guards: 5 per carton.

Reflector joining clips: packed to order.

Made in UK



FIRE!
USE EXIT 5

*J.O. Pierson, garment manufacturer,
found improved lighting in
Featureline luminaires with Colour
84 lamps.*

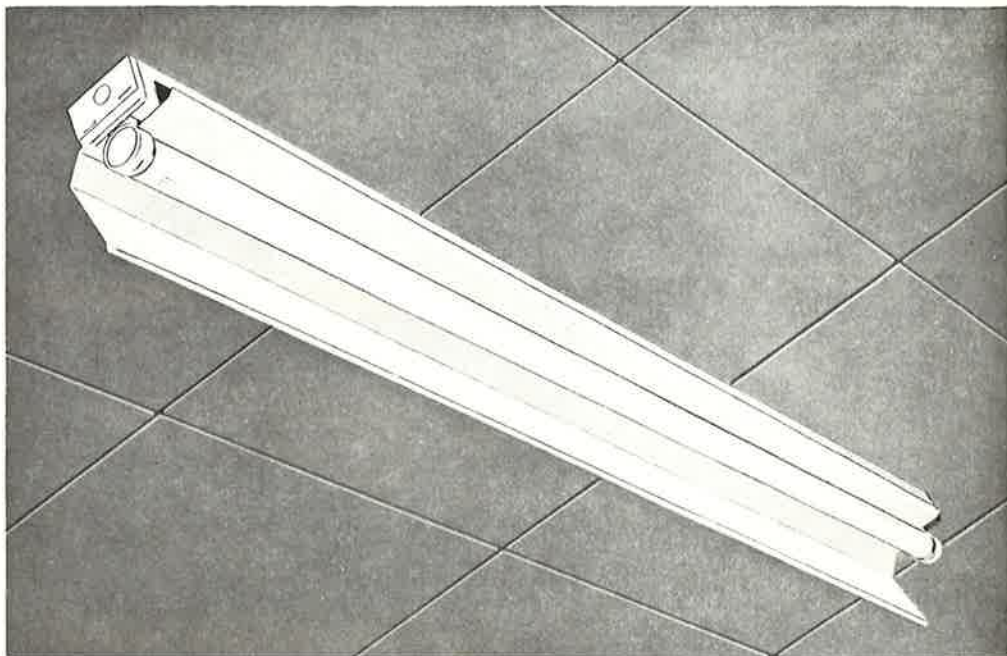


J. Soanes & Son (Poultry Processors) found Commando GP fittings with acrylic sleeves, using Colour 84 lamps, tough enough to withstand frequent 'hosing downs' during cleaning.

CI/SIB	(63.1)
UDC	696.6:628.972

5

FEATURE Angle Reflectors



Durawhite stoved finish open-end angle reflectors are made from sheet steel and are easily fitted to the high-quality Feature battens to give an angled light distribution.

RANGE

Angle reflectors are available to fit the Feature range of battens and packs in sizes 1500mm (5ft), 1800mm (6ft) and 2400mm (8ft). One width fits both one- and two-lamp versions.

APPLICATIONS

For use in normal indoor situations of a commercial or industrial nature where an angled light distribution is required, such as:-

- Lighting for blackboards or wall charts.
- Cabinet type instrument panels.
- Task lighting where general lighting is not adequate.

FLUORESCENT LUMINAIRE

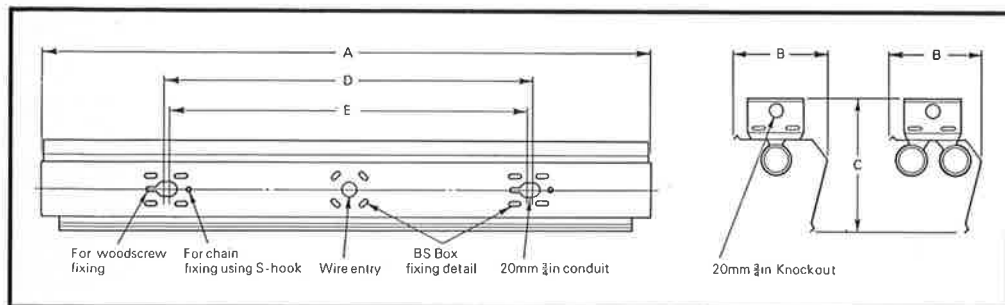
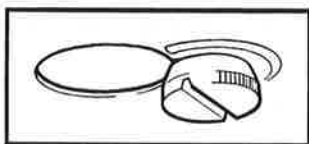
Handbook Ref.	2.21/5
To reorder this data sheet quote	9.79 PL1721/2
Replaces	PL1721

FEATURES

- High-quality Durawhite finish for high reflectance and long service life.
- Keyhole slot fixing for easy attachment, with detent for positive location once the fixing screws have been tightened.
- 125W versions of Feature in E start.

MATERIALS & FINISH

Angle reflectors: Sheet steel, Durawhite stoved finish.



DIMENSIONS & WEIGHTS

Batten only	Catalogue Nos. Open-end angle reflector only	Weight with lamp(s) & reflector (kg/lb)	Overall length (A) (mm/in.)	Fixing centres (E/D) (mm/in.)
FSQ5	AR5	6.3/13.8	1534/60.4	600/24
FSQ25	AR5	8.7/19.2	1534/60.4	600/24
FSQ6	AR6	6.8/15.1	1800/71	600/24
FSQ26	AR6	9.4/20.8	1800/71	600/24
FSQ85	AR8	9.5/20.9	2409/95	1200/48
FSQ285	AR8	13.2/28.9	2409/95	1200/48
FSQ8E	AR8	10.3/22.7	2409/95	1200/48
FSQ28E	AR8	15.0/33.1	2409/95	1200/48

All types:

Overall width B: 115mm (4.5in.)

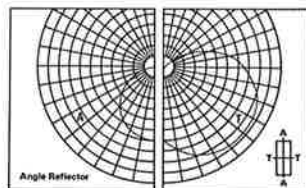
Overall depth C: 170mm (6.7in.)

ORDERING DATA

Description	Catalogue Numbers	
	Batten only	Open-end angle reflector only
1 x 65W 1500mm (5ft)	FSQ5	AR5
2 x 65W 1500mm (5ft)	FSQ25	AR5
1 x 85W 1800mm (6ft)	FSQ6	AR6
2 x 85W 1800mm (6ft)	FSQ26	AR6
1 x 85W 2400mm (8ft)	FSQ85	AR8
2 x 85W 2400mm (8ft)	FSQ285	AR8
1 x 125W 2400mm (8ft)	FSQ8E	AR8
2 x 125W 2400mm (8ft)	FSQ28E	AR8

Please order in the form given in the following example, in multiples of the pack size:-
50 Philips Feature luminaires FSQ285.
50 Philips open-end angle reflectors AR8.

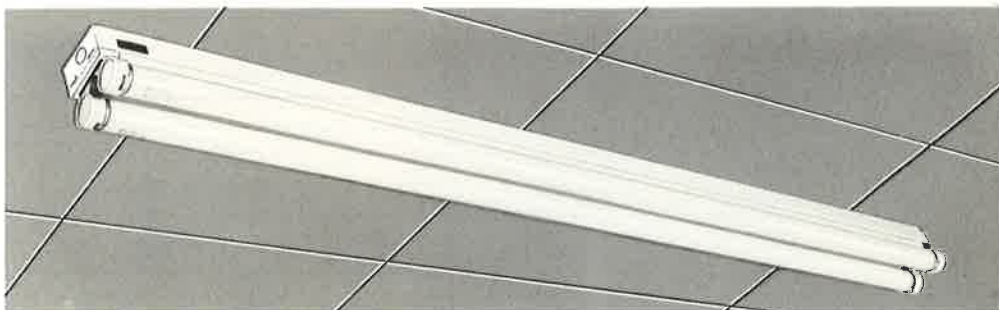
POLAR CURVES



Made in Great Britain

CI/SIB	(63.1)
UDC	696.6 : 628.972

FEATURE



High-quality Luminaires for Fluorescent Lamps

Feature high quality fused luminaires may be used as Battens, with Trough or Angle Reflectors for industrial use, or with Diffusers or Prismatic Controllers for commercial applications. The Battens are attractively finished in Durawhite stoved finish with white chamfered end caps.

RANGE

One- and two-lamp batten luminaires in:

1200mm (4ft), 1500mm (5ft), 1800mm (6ft) and 2400mm (8ft) sizes. 2400mm (8ft) ratings available in electronic "E start"

All battens are supplied fitted with low-loss control gear.

Full details of the attachment can be found in Data Sheets:

PL 1720 Trough Reflectors
PL 1721 Angled Reflectors
PL 1722 Opal Diffuser
PL 1723 Prismatic Controller

APPLICATIONS

For use in any normal indoor situation such as:-

- Small or large offices
- Shops and departmental stores
- Corridors
- Stock and store rooms
- Canteens
- Workshops

Handbook Ref.	2.2.1/6
To reorder this data sheet quote	9.79 PL1719/2
Replaces	PL1719/1

FEATURES

- Easily mounted onto a standard BS box, which it covers completely.
- The channel and cover plates are finished in Durawhite stoved finish for long service life and retention of reflective properties.
- Attractively chamfered end caps feature 20mm (3/4 in.) knockouts for end conduit terminations.
- Spring-mounted, injection-moulded lampholders are fixed in seconds, and one person can re-lamp a luminaire from one end. Lampholders of two-lamp luminaires are individually mounted, so that one lamp can be removed without disturbing the other, and are keyed to prevent accidental cross-over.
- Low-loss starterless control gear conserves energy.
- Each batten is provided with a 3-way terminal block of 2 x 2.5mm² section cable capacity, and a side-mounted fuse. Internal wiring is held by cleats, and additional cleats are provided down one side for contractors' wiring.
- 125W versions of Feature in "E start".

MATERIALS & FINISH

Channels and cover plates: Sheet steel, Durawhite stoved finish.

Channel end caps: White medium-impact polystyrene.

Sprung bi-pin lampholders: White urea mouldings fitted to plated spring steel supports.

SPECIFICATION

- Type compliance with BS 4533 2.2 Class I Ordinary Indoor.

To specify state:

Batten fluorescent lamp luminaires complying with BS 4533 2.2, with Durawhite stoved finish, fuse and starterless control gear, covering a BS box, similar to Philips Feature luminaires.

RANGE OF OPERATION

- 240V 50Hz.
- Normal indoor conditions.

CIRCUIT COMPONENTS

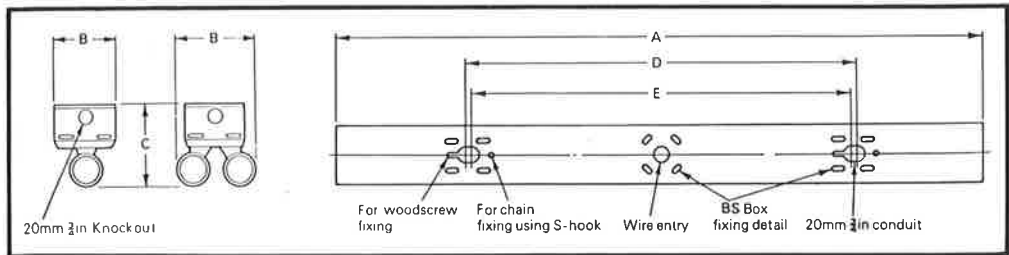
Catalogue numbers		Capacitor part numbers	Capacitor (dry film type)
Batten	Ballast		
FSQ4	BBX40	H1655	5.5mfd ±5% (250V)
FSQ24	2 x BBX40		2 x 5.5mfd ±5% (250V)
FSQ5	BBX65	H1684	8.4mfd ±5% (250V)
FSQ25	2 x BBX65		2 x 8.4mfd ±5% (250V)
FSQ6	BBXK85		8.4mfd ±5% (250V)
FSQ26	2 x BBXK85		2 x 8.4mfd ±5% (250V)
FSQ85	BBX85	H1650/1	5.0mfd ±5% (440V)
FSQ285	2 x BBX85		2 x 5.0mfd ±5% (440V)
FSQ8E	1 x BBE125*	H1672	7.2mfd ±5% (440V)
FSQ28E	2 x BBE125*	H1672	2 x 7.2mfd ±5% (440V)

*With ES06 electronic starters see data sheet PL 1785/1

Harmonic content

Third harmonic content will not normally exceed 45% for 40W-85W 1800mm and 2400mm 125W ratings, or 30% for 2400mm 85W ratings, measured in the neutral of a balanced 3-phase 4-wire supply. Divide by three for equivalent single-phase values.

All information quoted relates to average luminaires on a 240V 50Hz supply at 25°C.



DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Catalogue number	Rating	Overall length A (mm/in.)	Fixing centres (mm/in.)	Weight with lamp(s) (kg/lb)	Electrical characteristics		
					Circuit Watts (running)	Circuit current (Amperes)	Minimum power factor
Starterless types							
FSQ4	1 lamp 40W 1200mm (4ft)	1234/48-6	600/24	3-4/7-5	55	0.25	0.9
FSQ24	2 lamp 40W 1200mm (4ft)	1234/48-6	600/24	5-8/12-7	110	0.5	0.9
FSQ5	1 lamp 65W 1500mm (5ft)	1534/60-5	600/24	4-4/9-6	82	0.4	0.9
FSQ25	2 lamp 65W 1500mm (5ft)	1534/60-5	600/24	6-8/15-0	164	0.8	0.9
FSQ6	1 lamp 85W 1800mm (6ft)	1800/71	600/24	4-6/10-0	100	0.5	0.9
FSQ26	2 lamp 85W 1800mm (6ft)	1800/71	600/24	7-1/15-6	200	1.0	0.9
FSQ85	1 lamp 85W 2400mm (8ft)	2409/95	1200/48	6-5/14-3	105	0.5	0.9
FSQ285	2 lamp 85W 2400mm (8ft)	2409/95	1200/48	10-2/22-3	210	1.0	0.9
Electronic start types							
FSQ8E	1 lamp 125W 2400mm (8ft)	2409/95	1200/48	5-4/11-9	137	0.94	0.66 LDG
FSQ28E	2 lamp 125W 2400mm (8ft)	2409/95	1200/48	8-4/18-5	276	1.98	0.66 LDG

Overall width: One lamp 76mm (3 in.)

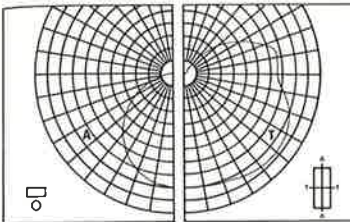
Two lamp 98mm (3 8/16 in.)

Overall depth (all luminaires): 100mm (4 in.)

PHOTOMETRIC DATA

FEATURE 1 LAMP

BATTEN	WITHOUT	ATTACHMENT
Mounting: SUSPENDED		



CIE Flux Number 213955

SHR MAX	(Square)	2.00
SHR MAX TR	(Transverse)	2.67

ULORL	.24	Multiply by each Service Correction Factor
DLORL	.67	
LORL	.91	

Glare Data (IES)

Flux Fraction Ratio	.36			
ACG Classification	ACG2			
For RI = 2.5 at SHR = NOM	BZ6			
Luminous Area (sq cm)				
40W	65W	85W	85W	125W
900	1100	1300	1750	1750

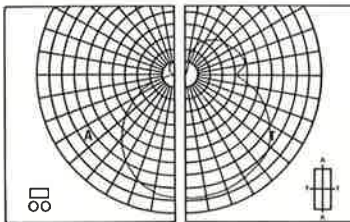
Measured: BS 5225 Part 1 1975

Calculated: I.E.S. TR 2 and TR 10

Test No: A612 Dated: 76.08.26

FEATURE 2 LAMP

BATTEN	WITHOUT	ATTACHMENT
Mounting: SUSPENDED		



CIE Flux Number 234256

SHR MAX	(Square)	1.86
SHR MAX TR	(Transverse)	2.35

ULORL	.28	Multiply by each Service Correction Factor
DLORL	.65	
LORL	.93	

Glare Data (IES)

Flux Fraction Ratio	.43			
ACG Classification	ACG2			
For RI = 2.5 at SHR = NOM	BZ6			
Luminous Area (sq cm)				
40W	65W	85W	85W	125W
1150	1450	1750	2300	2300

Measured: BS 5225 Part 1 1975

Calculated: I.E.S. TR 2 and TR 10

Test No: A617 Dated: 76.09.01

Photoset direct from Photometer tape output.

Service Correction Factors

	40W 1200mm	65W 1500mm	85W 1800mm	85W 2400mm	125W 2400mm
Rating Factor	1.00	1.00	1.00	1.00	1.00
Amalgam Factor		1.00			
Ballast Lumen Factor SS					
Ballast Lumen Factor XS	1.02	0.95	0.96	0.99	1.00

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	42	47	52	56	62	66	69	73	75
	30		35	40	45	49	56	60	64	68	72
	10		31	35	40	44	51	56	59	65	68
50	50	10	38	42	47	51	56	60	63	66	69
	30		33	37	41	45	51	55	58	63	66
	10		29	32	37	41	47	52	55	60	63
30	50	10	35	39	43	46	51	54	57	60	62
	30		31	34	38	42	47	51	53	57	60
	10		27	30	34	38	43	47	50	55	58
0	0	0	23	25	29	32	37	40	43	47	49

Multiply by each Service Correction Factor

Service Correction Factors

	40W 1200mm	65W 1500mm	85W 1800mm	85W 2400mm	125W 2400mm
Rating Factor	1.00	1.00	1.00	1.00	1.00
Amalgam Factor		1.00			
Ballast Lumen Factor SS					
Ballast Lumen Factor XS	1.02	0.95	0.96	0.99	1.00

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	45	50	55	59	65	69	72	76	78
	30		39	43	49	53	60	64	67	72	75
	10		34	38	44	48	55	60	63	68	72
50	50	10	41	45	50	54	59	62	65	68	71
	30		36	40	45	49	54	58	61	65	68
	10		32	36	40	45	51	55	58	63	66
30	50	10	38	41	45	48	53	56	59	62	64
	30		33	36	41	44	49	53	56	59	62
	10		30	33	37	41	46	50	53	57	60
0	0	0	26	28	31	35	39	42	45	48	51

Multiply by each Service Correction Factor

ORDERING DATA

Catalogue Number	Rating	Circuit
F SQ4	1 x 40W 1200mm (4ft)	Starterless
F SQ24	2 x 40W 1200mm (4ft)	Starterless
F SQ5	1 x 65W 1500mm (5ft)	Starterless
F SQ25	2 x 65W 1500mm (5ft)	Starterless
F SQ6	1 x 85W 1800mm (6ft)	Starterless
F SQ26	2 x 85W 1800mm (6ft)	Starterless
F SQ85	1 x 85W 2400mm (8ft)	Starterless
F SQ285	2 x 85W 2400mm (8ft)	Starterless
F SQ8E	1 x 125W 2400mm (8ft)	Electronic "E Start"
F SQ28E	2 x 125W 2400mm (8ft)	Electronic "E Start"

All battens are supplied packed individually.

Lamps should be ordered separately.

Please order as in the form given in the following example:

50 Philips F SQ25 fluorescent luminaires

Made in Great Britain

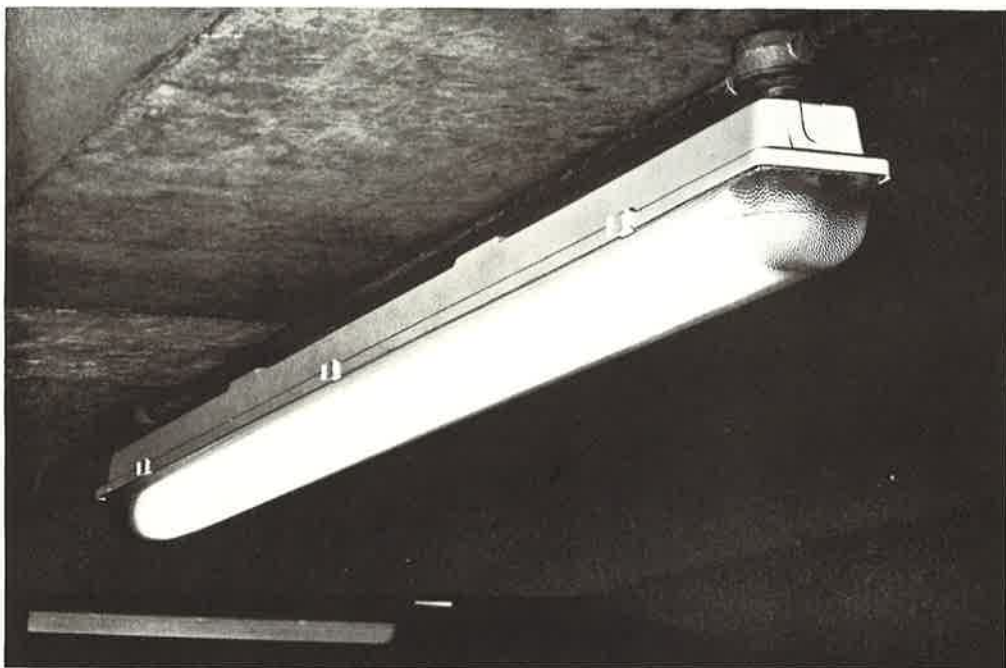
CI/SIB (63.8)

UDC 696.6 : 628.978

PROTECTOR KOMBIPAK

5

Enclosed luminaire complete with housing, cover, control gear, lamp(s) and fixing screws.



For use in exacting environments (IP23)

The enclosure extends the uses of fluorescent lighting to include indoor applications of a more exacting nature than normally encountered in commerce and light industry, and also suits some outdoor applications. The luminaire is supplied as a KombiPak, complete with lamp(s) and fixing screws.

RANGE

PK5 – Protector KombiPak complete with 1 x 65W 1500mm White 35 lamp.
PK25 – Protector KombiPak complete with 2 x 65W 1500mm White 35 lamps.
PK6 – Protector KombiPak complete with 1 x 85W 1800mm White 35 lamp.
PK26 – Protector KombiPak complete with 2 x 85W 1800mm White 35 lamps.
All luminaires are complete with control gear, and have starterless (SRS) circuits.

APPLICATIONS

The Protector KombiPak is suitable for many indoor locations where dirt, moisture or some corrosive vapours are present. It can be used in food processing areas where it is required that lamps are protected against accidental damage, and outdoors in semi-exposed situations such as parking buildings, loading bays and under canopies.

NOTE:—The luminaire is not suitable for use in flammable atmospheres (Zone 1, Zone 2).

Handbook Ref.

2.2.2

To reorder this Data Sheet quote

10.79 PL 1894

Replaces

NEW

FLUORESCENT LUMINAIRE

FEATURES

- One-piece resin-impregnated glassfibre top housing for strength, corrosion resistance and light weight.
- Drill starts are provided internally for fixing, and knockouts for conduit and cable entry. The absence of grommets and bungs maintains integrity, and all entries are sealed until required for use.
- One-piece clear acrylic moulded cover with internal pin-spot markings to give a pleasing appearance.
- Positive sealing between top housing and cover by means of a gasket fitted into a water-shedding U-section in the top housing.
- Cover securely retained by six snap-fix fastenings attached to top housing.
- Choice of fixing methods to suit application. Each Protector KombiPak is supplied with conduit sealing kits and two 1½ in No. 8 woodscrews.
- All Philips KombiPaks are supplied as complete lighting kits, with lamps and accessories needed for installation.

MATERIALS & FINISH

- Top housing:** Grey resin-impregnated glass-fibre one-piece pressure moulding with acetal fasteners and polyurethane gasket.
- Cover:** Clear acrylic one-piece moulding with internal pin-spot design.
- Control gear:** Low-loss starterless ballast and dry film capacitor mounted in top housing.
- Sprung bi-pin lampholders:** White urea mouldings on plated steel supports.

SPECIFICATION

- Type compliance with BS 4533 2.2 Class I.
- Resin-impregnated glass-fibre moulding with clear acrylic cover, with the Degree of Protection IP 23.

To specify state:

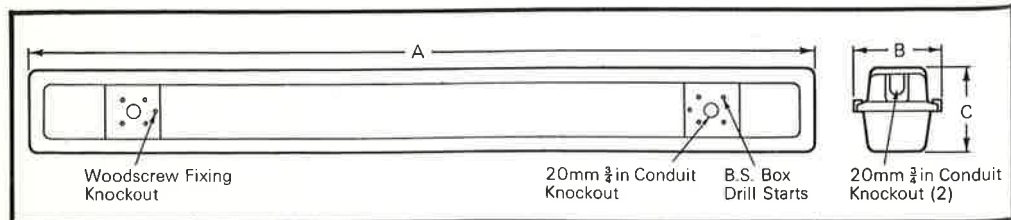
Fluorescent luminaire with semi-resonant start control gear and enclosure to IP 23, the diffuser portion to be acrylic and the fasteners to be non-metallic. To be supplied as a complete kit, with lamp and fixing screws. Similar to Philips Protector KombiPak.

RANGE OF OPERATION

240V 50Hz, over the ambient temperature range -5°C to 25°C (single lamp 30°C), with occasional increases not exceeding 5°C. Conditions of dirt or water requiring the degree of Protection IP23.

ELECTRICAL DATA

Catalogue No.	Rating	Circuit Watts (running)	Circuit Current (A)	Minimum Power Factor	Ballast Cat. No.	Capacitor Cat. No.	Capacitor Rating
PK5	1 × 65W 1500mm (5ft)	82	0.4	0.9	BBX65	H.1684	8.4mfd ±5% 250V
PK25	2 × 65W 1500mm (5ft)	164	0.8	0.9	2 × BBX65	2 × H.1684	
PK6	1 × 85W 1800mm (6ft)	100	0.5	0.9	BBXK85	H.1684	
PK26	2 × 85W 1800mm (6ft)	200	1.0	0.9	2 × BBXK85	2 × H.1684	



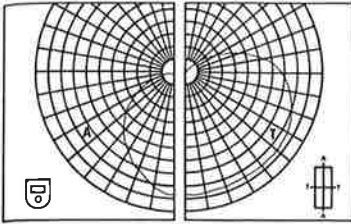
DIMENSIONS & WEIGHTS

Catalogue No.	Overall Length A (mm)	Overall Width B (mm)	Overall Depth C (mm)	Length D (mm)	Length E (mm)	Weight complete with lamp(s) kg/lb
PK5	1610	122	125	600	530	5.9/13.00
PK25	1610	164	125	600	530	8.3/18.3
PK6	1844	122	125	600	530	7.3/16.06
PK26	1844	164	125	600	530	10.0/22.00

PHOTOMETRIC DATA
PROTECTOR KOMBIPAK 1 LAMP

WITH NARROW PROTECTOR
 ENCLOSURE

Mounting: SUSPENDED



CIE Flux Number 193548

SHR MAX (Square)	1.85
SHR MAX TR (Transverse)	2.50

ULORL .14	Multiply by each Service Correction Factor
DLORL .59	
LORL .73	

Glare Data (IES)

Flux Fraction Ratio .24
 ACG Classification ACG2
 For RI = 2.5 at SHR = NOM BZ6

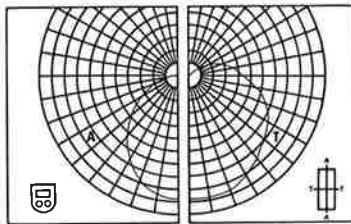
Luminous Area (sq cm)
 65W
 1964

Measured: BS 5225 Part 1 1975
 Calculated: I.E.S. TR 2 and TR 10
 Test No: A613 Dated: 76.08.26

PROTECTOR KOMBIPAK 2 LAMP

WITH WIDE PROTECTOR
 ENCLOSURE

Mounting: SUSPENDED



CIE Flux Number 203647

SHR MAX (Square)	1.72
SHR MAX TR (Transverse)	2.11

ULORL .09	Multiply by each Service Correction Factor
DLORL .55	
LORL .64	

Glare Data (IES)

Flux Fraction Ratio .16
 ACG Classification ACG2
 For RI = 2.5 at SHR = NOM BZ6

Luminous Area (sq cm)
 65W
 2640

Measured: BS 5225 Part 1 1975
 Calculated: I.E.S. TR 2 and TR 10
 Test No: A620 Dated: 76.09.02

Service Correction Factors

		65W 1500 mm	85W 1800 mm	
Rating Factor		1.00	1.00	
Amalgam Factor				
Ballast Lumen Factor SS				
Ballast Lumen Factor XS		0.95	0.96	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	35	38	42	46	50	54	56	59	62
	30		29	33	37	40	46	49	52	56	58
	10		25	28	32	36	41	45	48	53	56
50	50	10	32	35	39	42	47	50	52	55	57
	30		28	31	34	38	43	46	49	52	55
	10		24	27	31	34	39	43	46	49	52
30	50	10	30	33	36	39	43	46	48	51	53
	30		26	29	32	35	40	43	45	49	51
	10		23	25	29	32	37	40	43	46	49
0	0	0	21	22	25	28	32	35	38	41	44

Multiply by each Service Correction Factor

Service Correction Factors

		65W 1500mm	85W 1800mm	
Rating Factor		1.00	1.00	
Amalgam Factor				
Ballast Lumen Factor SS				
Ballast Lumen Factor XS		0.95	0.96	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	10	31	35	39	42	46	49	51	54	56
	30		26	30	35	38	42	46	48	51	54
	10		23	27	31	34	39	42	45	49	52
50	50	10	29	33	37	40	44	46	48	51	53
	30		25	29	33	36	40	43	46	49	51
	10		22	26	30	33	37	41	43	46	49
30	50	10	28	31	35	37	41	44	46	48	50
	30		24	28	31	34	38	41	43	46	48
	10		21	25	29	32	36	39	41	44	47
0	0	0	19	22	26	29	32	35	38	40	43

Multiply by each Service Correction Factor



ORDERING DATA

Catalogue No.	Description
PK5	Protector KombiPak complete with 1 x 65W 1500mm White 35 lamp
PK25	Protector KombiPak complete with 2 x 65W 1500mm White 35 lamps
PK6	Protector KombiPak complete with 1 x 85W 1800mm White 35 lamp
PK26	Protector KombiPak complete with 2 x 85W 1800mm White 35 lamps
Spares	
A5016	Clear acrylic cover for PK5
A5107	Clear acrylic cover for PK25
A5108	Clear acrylic cover for PK6
A5109	Clear acrylic cover for PK26
MCFE 65/80W/35	Spare lamp for PK5, PK25
MCFE 75/85W/35	Spare lamp for PK6, PK26

Made in Great Britain.

CI/SIB
(63.8)

UDC
696.6:628.978

COMMANDO -GP-

5

Philips International
Type TMW062

Corrosion Resistant Fluorescent Luminaires - Category of Protection IP55

Philips Commando -GP- luminaires are intended for use in arduous conditions for which normal batten luminaires would not be suitable, but where there is no hazard requiring luminaires which are 'Flameproof' or 'Type N'.

RANGE

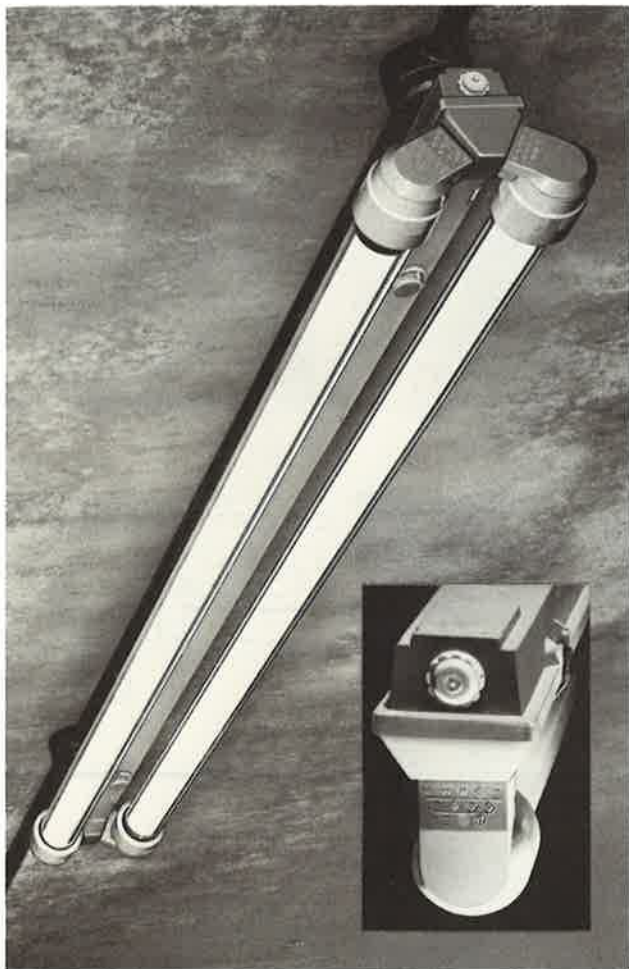
Standard Commando -GP- luminaires in 3 ratings
65W 1500mm (5ft) 1-Lamp
65W 1500mm (5ft) 2-Lamp
20W 600mm (2ft) 1-Lamp

APPLICATIONS

Possible applications include:

- Loading bays
- Multi-storey car parks
- Bottling plant
- Laundries
- Food processing
- Outbuildings
- Industrial kitchens
- Bakeries
- Furniture factories
- Chemical works
- Garage forecourts
- Bus terminals
- Tunnels/underpasses

and other applications where dust, moisture or corrosion can be a problem.



Handbook Ref.

2.2.2/1

To reorder this data sheet quote 9.79 PL 1242/2

Replaces

PL 1242/1

PROTECTED LUMINAIRES

FEATURES

Careful choice of materials ensures a non-corrodible luminaire, to give long service in arduous conditions.

- Glassfibre reinforced polyester body with neoprene gasket. The GRP body is durable, will not corrode and needs no painting.
- Corrosion-resistant stainless steel clips ensure a tight seal and are easily closed by hand.

Designed to simplify and to speed installation

- The lightweight GRP top housing is mounted first and fixed by two screws using the quick fix devices supplied.
- Alternatively an eye bolt suspension kit A2437 is available.
- Class II (Double Insulated) means two-core cable is used. No EARTH is necessary for the luminaire resulting in fewer connections – cheaper and easier installation.
- Two support straps take the weight of the lower housing, leaving both hands free to make internal cable connections.
- The two body halves are tightly clamped together by the stainless steel spring clips that are easily closed by hand. A lever tool is necessary when unfastening (safety feature).
- Single piece lamp seals. All parts are fixed together to form a single component. Gives tight seal around each end of lamp.
- Commando -GP- luminaires are particularly suited for use with Philips Reflectalite, the fluorescent lamp with an internal reflector. This reflector, which is not affected by dust settlement or tarnish, leads to improved maintenance of the illumination level.
- Protective clear over-tubes also available. These give extra protection to lamps if required e.g. where food is being processed. Also permit lower temperature operation e.g. protection against cold winds under canopies.

MATERIALS & FINISH

Housing: Glass fibre re-inforced polyester shells, light grey
Fixing Clips: Stainless steel
Gasket for housing: Neoprene
Lampholders: Urea formaldehyde
Over sleeves: Acrylic (clear) with protective metal inserts and GRP/Neoprene sealing rings.

SPECIFICATION

- Type compliance with BS4533 2.2 and with IEC 162.
- Degree of Protection category IP55, Protected against ingress of fine dust (and larger) and against jets of water from all directions, as defined in BS4533.
- Class II electrical protection (double insulated).
- ∇ symbol, Luminaire may be mounted on wooden surfaces.

To specify state:

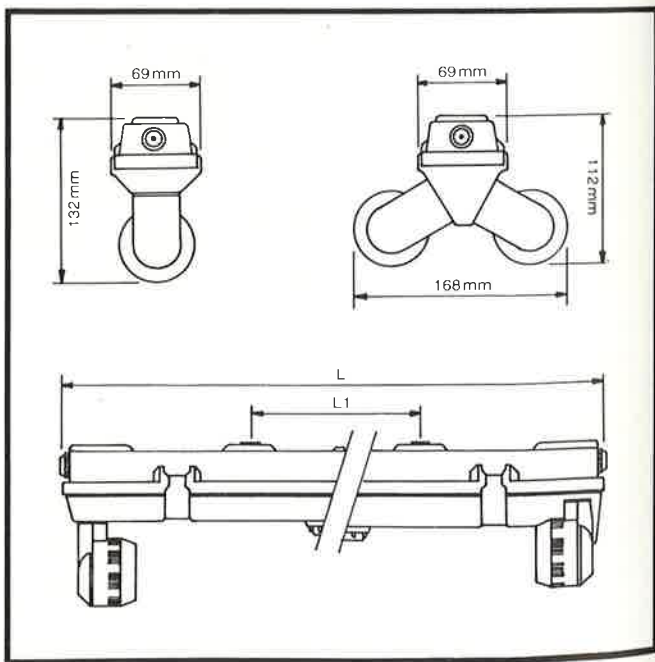
- Fluorescent lamp luminaire for arduous conditions, with GRP body, similar to Philips Commando-GP. The luminaire shall comply with IEC 162, and shall meet requirements for IP55, Class II Electrical, and ∇ symbol.

RANGE OF OPERATION

Supply Voltage: for 240V 50Hz supplies subject to statutory tolerances.

Earthing: Commando -GP- has Class II electrical protection and an earth lead is not required. Electrical conduit, if used, may be of the insulating type.

Ambient Temperature: Normal service life relates to operation in a 25°C ambient. Higher ambients, up to 35°C, are acceptable, but with some reduction in performance. Luminaires without over tubes operate down to 0°C, and with over tubes down to minus 5°C, Philips MCFE or MCFRE (Reflectalite) lamps should be used (i.e. types with silicone coating).



DIMENSIONS, WEIGHTS AND ELECTRICAL DATA

Cat No.	Rating	Dimensions mm		Weight	Electrical Characteristics		Minimum Power Factor
		L	L ₁		Circuit Watts (Running)	Circuit Current (Amperes)	
A2430/S	1-Lamp 65W 1500mm (5ft)	1560	1250	3.5kg (8 lbs)	75	0.4	0.95
A2431/S	2-Lamp 65W 1500mm (5ft)	1560	1250	4.9kg (11 lbs)	150	0.8	0.95
A2432/S	1-Lamp 20W 600mm (2ft)	650	340	1.8kg (4 lbs)	30	0.37	0.50 Lagging

20mm conduit hole in each end. Double diaphragm cable gland suitable for 7-8mm dia cable.

PHOTOMETRIC DATA

Utilisation factors

One lamp corrosion resistant batten

Room Index	Floor 10%							
	Ceiling 70%			Ceiling 50%			Ceiling 30%	
	50%	Walls 30%	10%	50%	Walls 30%	10%	30%	Walls 10%
6	.31	.24	.20	.27	.22	.18	.19	.16
8	.38	.32	.27	.33	.28	.25	.25	.21
1.0	.42	.37	.32	.38	.33	.29	.29	.26
1.25	.48	.42	.37	.43	.37	.33	.33	.29
1.5	.52	.46	.41	.46	.41	.37	.36	.33
2.0	.57	.52	.47	.51	.46	.42	.40	.37
2.5	.61	.57	.52	.54	.50	.46	.43	.41
3.0	.64	.60	.56	.57	.53	.50	.46	.44
4.0	.68	.64	.60	.60	.57	.54	.50	.47
5.0	.70	.67	.64	.66	.59	.57	.52	.50

LOR 88% LOR UP 34% LOR DOWN 54%

BZ7 UFF .39 DFF .61 MAX SH RATIO 1.7

For twin lamp luminaires multiply UF or LOR's by 1.02

For overtube luminaires multiply UF or LOR's by 0.82

(N.B. For twin overtube factor will be 1.02 x 0.82)

One lamp corrosion resistant batten with reflector lamp

6	.39	.32	.27	.36	.30	.26	.29	.25
8	.48	.41	.36	.45	.39	.34	.37	.33
1.0	.54	.47	.42	.51	.45	.40	.43	.38
1.25	.59	.53	.47	.56	.50	.46	.47	.43
1.5	.64	.58	.53	.59	.54	.50	.51	.47
2.0	.70	.64	.59	.65	.60	.56	.56	.53
2.5	.74	.69	.65	.69	.65	.61	.60	.57
3.0	.77	.73	.68	.72	.68	.64	.63	.61
4.0	.81	.77	.73	.75	.72	.69	.67	.65
5.0	.84	.80	.77	.79	.75	.72	.70	.68

LOR 86% LOR UP 17% LOR DOWN 69%

BZ7 UFF .2 DFF .8 MAX SH RATIO 1.6

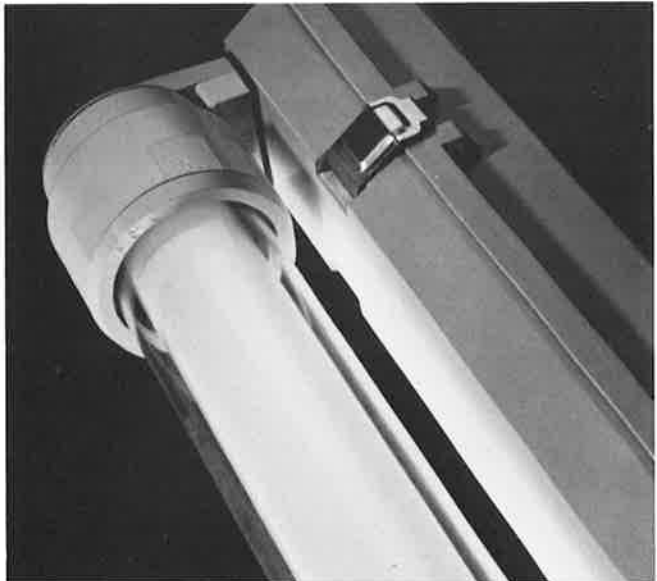
Use lumens as for non reflector lamps

For twin lamp luminaires multiply UF or LOR's by 1.02

For overtube luminaires multiply UF or LOR's by 0.82

(N.B. For twin overtube factor will be 1.02 x 0.82)

Commando · GP · Luminaire
showing overtube and lamp seals.



ORDERING DETAILS

Catalogue No.	Description	Packing Quantity
Battens		
A2430/S	1 lamp 65W 1500mm (5ft) switchstart batten	1
A2431/S	2 lamp 65W 1500mm (5ft) switchstart batten	1
A2432/S	1 lamp 20W 600mm (2ft) switchstart batten	1
Accessories		
A2434	Acrylic overtube set – 1500mm (5ft)	10
A2435	Acrylic overtube set – 600mm (2ft)	10
A2437	Eye bolt suspension kit (2 eye bolts, 4 washers, 2 nuts)	
Spare		
A2438	Spare lampholder assembly – suitable for 1 lamp and 2 lamp luminaires (2 assemblies per lampway required)	2
A2439	Spare stainless steel clips – set of 10 clips	10 sets
BTP 65 L25	65W switchstart ballast	1
S10	Starter switch	10

Please order in the form given in the following example, in multiples of the packing quantity:-

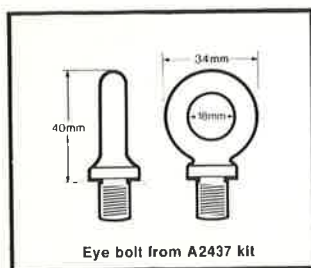
5 Philips Commando GP luminaires A2431/S
10 Philips overtube sets A2434

Note Lamps should be ordered separately.

Recommended lamp types –

Philips MCFE White 35 or Philips MCFRE Reflectalite White 35 for most applications of an industrial nature.

Philips Reflectalite lamps give a preferential distribution of light due to the internal reflector which covers approximately two-thirds of the inner surface and directs 90% of the light through the remaining 130° window.



For explanation of IP system see leaflet C.I.S. 38.

Lamps: Made in Great Britain

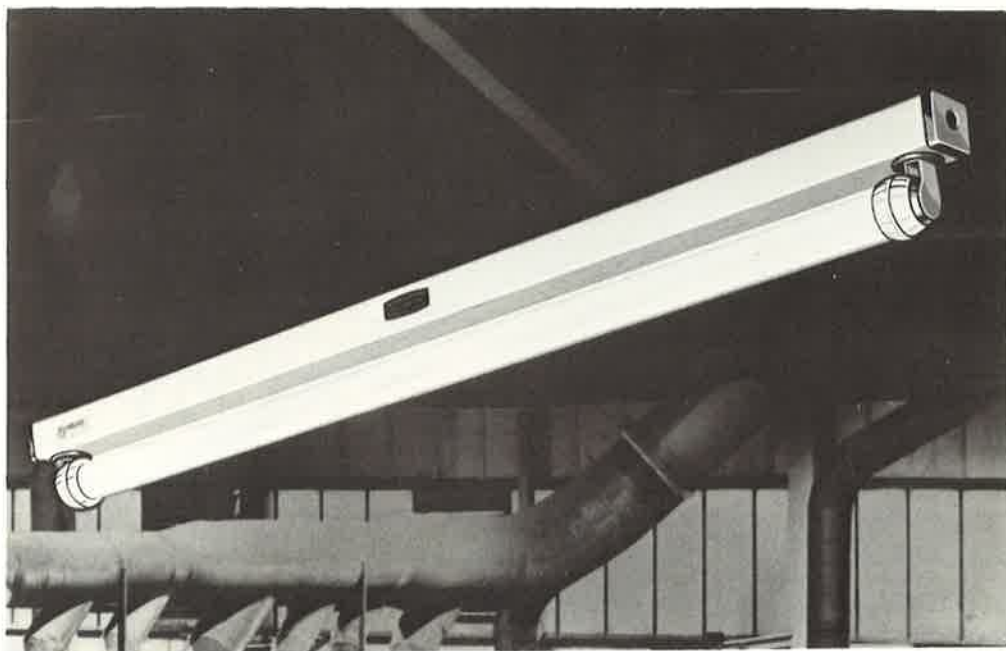
Luminaires: Made in West Germany

CI/SIB	(63.8)
UDC	696.6:628.978

5

COMMANDO

A2420 Series luminaire for Zone II



Sealed luminaires with protective finishes and enclosed to degree of protection IP55.

RANGE

A2420X 1 × 1500mm (5ft) starterless
A2421X 2 × 1500mm (5ft) starterless

APPLICATIONS

For Zone II. Also for use in arduous environments (e.g. where dust, water, steam or corrosive vapours may be present) in which normal luminaires would not be suitable, but where the Flameproof (Zone I) type is not required, such as:—

- Heavy industry
- Chemical and oil plants
- Laundries
- Food processing plants

PROTECTED LUMINAIRES

Handbook Ref.

2.2.2/2

To reorder this data sheet quote

3.78 PL 1821

Replaces

PL 8197/6

FEATURES

■ Backplate and coverplate fabricated from 0.8mm zinc-coated sheet steel, welded together to protect control gear from ingress of injurious or hazardous substances.

■ Luminaire assembly is sheathed in a seamless white PVC tube, sealed by h.f. welding at each end. Black nylon mouldings fit tightly over the ends of the assembly to enhance corrosion resistance and prevent foreign matter from entering luminaire.

■ Circular apertures at each end of the coverplate provide access for wiring; these are closed and sealed when the lampholder assemblies are inserted.

■ Lamps are protected by 50mm o.d. clear acrylic tubes (3mm wall thickness), which are retained by the lampholder assemblies.

■ Two terminal blocks, supplied connected in parallel and mounted one under each lampholder aperture, permit wiring to either end of the luminaire.

■ Approved for use in Zone II (BS CP 1003). Enclosure has the Degree of Protection IP55.

■ Lampholder contacts are fully shielded when the lamp is withdrawn; each lampholder rotor is indexed at 15° intervals to enable the light distribution from Reflectalite lamps (see Data Sheet PL 1762) to be directed as required.

■ Installed by means of mounting holes at each end of the backplate channel, normally covered by the PVC sheath. Alternatively, the luminaire may be suspended from optional plastic-coated steel brackets that are clamped around the channel at any reasonable spacing before inserting the lampholder assemblies.

MATERIALS & FINISH

Body: Zinc-coated sheet steel, 0.8 mm thick, welded together and sheathed in seamless white PVC, sealed by h.f. welding.

End caps: Black nylon mouldings.

Lampholders: White plastic; holders indexed every 15° to permit rotation of Reflectalite lamps. Contacts are fully shielded when the lamps are withdrawn.

Protective tubes for lamps: Clear acrylic, 50mm o.d., 3mm wall thickness.

SPECIFICATION

■ Designed and constructed in accordance with BS 4533 2.1 & 2.2; Control gear type compliance with BS 2818 and BS 4017.

■ Approved by H.M. Factory Inspectorate for use in Zone II as defined by BS Code of Practice CP 1003: 1964.

■ Enclosure has the Degree of Protection IP55.

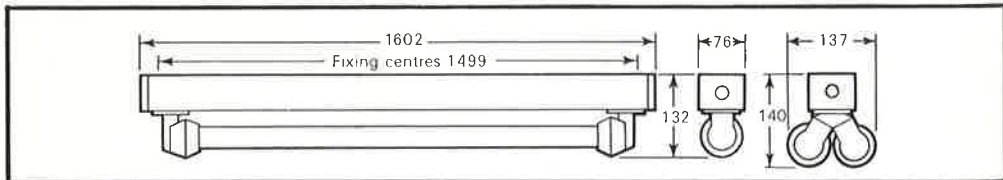
To specify state:

Fluorescent luminaire with starterless control gear, for use in Zone II areas. Constructed from PVC sheathed zinc-coated sheet steel. Enclosure to be of the Degree of Protection IP55. Similar to Phillips Commando Type A 2420X.

RANGE OF OPERATION

For indoor or outdoor use on 240V 50Hz supplies, in ambient temperatures from 1°C to 35°C. If the luminaire is to operate in ambient temperatures below 5°C, it is recommended that Phillips lamps types MCFA or MCFRA Reflectalite, fitted with an external earth strip for improved starting, be used.

DIMENSIONS



WEIGHTS & ELECTRICAL DATA

Catalogue No.	Rating	Luminaire Current (A)	Luminaire Watts	Weight (kg/lb)
A2420X	1 × 65W 1500mm (5ft)	0.4	77	6.5/14.3
A2421X	2 × 65W 1500mm (5ft)	0.8	154	10.2/22.4

ORDERING DATA

Cat. No.	Description	Packing quantity
A2420X	1 × 65W 1500mm (5ft)	Individually packed
A2421X	2 × 65W 1500mm (5ft)	Individually packed

Optional accessory

A2419	1 pair suspension brackets	Packed to order
-------	----------------------------	-----------------

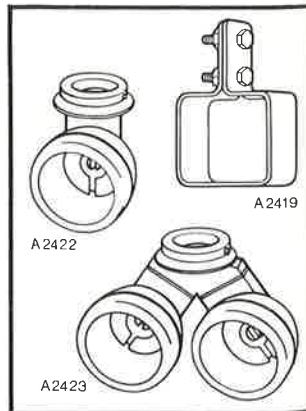
Spares

A2422	Spare lampholder assembly complete for A2420X	Packed to order
A2423	Spare lampholder assembly complete for A2421X	Packed to order
A2424	Spare 1500mm (5ft) acrylic tube for A2420X and A2421X	Packed to order

Note that lamps should be ordered separately.

Please order in the form given in the following example:
25 Phillips Commando Zone II luminaires A2421X.

OPTIONAL ACCESSORY & SPARES



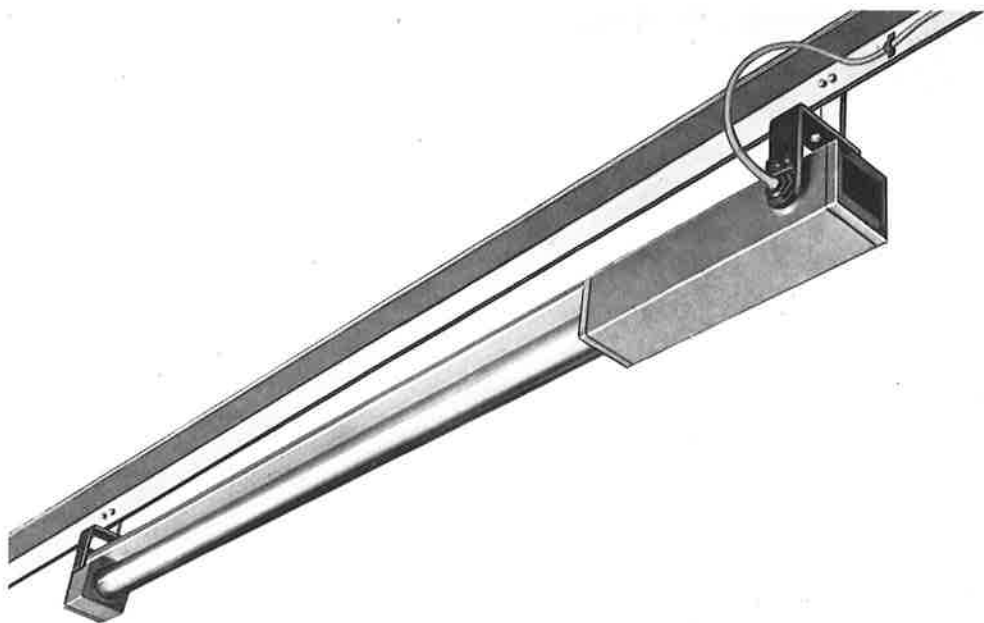
Made in Great Britain

CI/SIB	(63.8)
UDC	696.6:628.978

5

COMMANDO FLAMEPROOF fluorescent luminaire

Zone I IP65



A2480X

Fluorescent luminaire for Zone I, certified by BASEEFA, and with the Degree of Protection IP65.

RANGE

One lamp 65W 1500mm (5ft)
Two lamp 65W 1500mm (5ft)
Starterless control gear.

APPLICATIONS

For use in areas designated as Zone I, where flammable gases as listed in BS229 Groups II and III are present. Not for use in methane or coal gas (Group M) atmospheres.

PROTECTED LUMINAIRE

Handbook Ref.

2.2.3

To reorder this data sheet quote

6.79 PL1801/1

Replaces

PL1801

FEATURES

- Main components are strong die-castings of corrosion-resistant LM4 aluminium alloy.
- Quickly and easily installed; the suspension brackets are fitted first and the body of the luminaire is lifted up and hung in position.
- Simple to relamp from the 'small' end of the luminaire, which may be lowered to assist the operation.
- Two-lamp luminaires consist of two one-lamp luminaires on the same suspension brackets, supplied complete with interconnections.
- Easily wired; access to the terminal block is gained by removal of the spigot-type end cover and sealing gasket. The terminal block is of the clamp type, for live, neutral and earth, and is removable. Terminals have capacity for up to two 4mm² conductors. Cables enter the terminal chamber via swivel bushes incorporating a weatherproof sealing ring.

Note: Bushes are normally earthed via the outer of MI cable; the luminaire must be earthed by separate connection to the earth terminal.

- In cold conditions, MCFA or MCFRA lamps with external earth strip may be used for improved starting.
- Recommended for use with Philips Reflectalite (MCFRA) lamps. These give a preferential distribution of light due to the internal reflector which covers approximately two thirds of the inner surface and directs 90% of the light through the remaining 130° window. This increases the luminous intensity in the principal direction by a factor of about 1.8 over conventional lamps.

RANGE OF OPERATION

For indoor or outdoor use on 240V 50Hz supplies in ambient temperatures from 0°C to 35°C. For horizontal mounting only.

Note: Ensure that there is sufficient clearance for the luminaire to be swung vertically downwards for relamping.

WEIGHTS & ELECTRICAL DATA

Catalogue No.	Rating	Circuit Watts (running)	Circuit Current (amperes)	Weight (kg/lb)	Packing quantity
A2480X	1 x 65W 1500mm (5ft)	76W	0.4	15/33	1
A2481X	2 x 65W 1500mm (5ft)	152W	0.8	30/66	1

SPECIFICATION

- Class I electrical earth required.
- Complies with BS229: 1957 and BS889: 1965.
- Certified Flameproof by the British Approvals Service for Electrical Equipment in Flammable Atmospheres. Certificate of Assurance No. EX.71011. For use in Zone I hazardous areas Groups II and III.
- Enclosure has the Degree of Protection IP65.

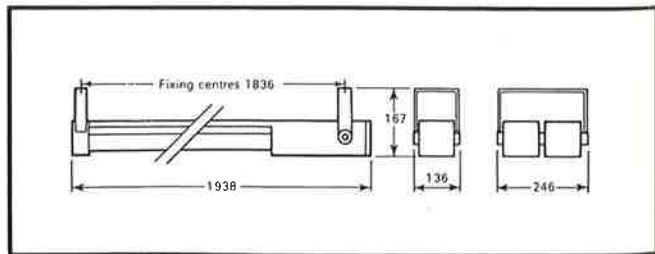
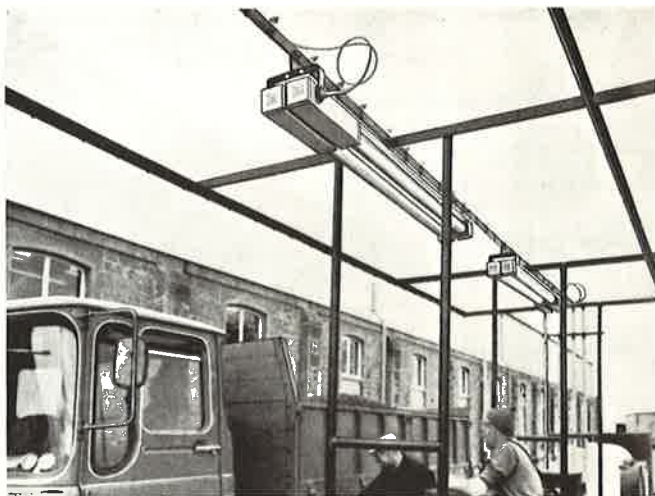
To specify state:

Fluorescent luminaire for use in Zone I hazardous areas, and with the Degree of Protection IP65. Similar to Philips Commando flameproof luminaires.

MATERIALS & FINISH

Body, glazing castings and end covers: Gravity die-castings, LM4 aluminium alloy to BS1490: 1970, stove-enamelled two-tone grey.

Protective sleeve for lamp: Borosilicate glass, cemented to glazing castings.



ORDERING DATA

Please order in the form given in the following example, in multiples of the packing quantity:

Philips Commando flameproof A2480X luminaires.

Lamps should be ordered separately.

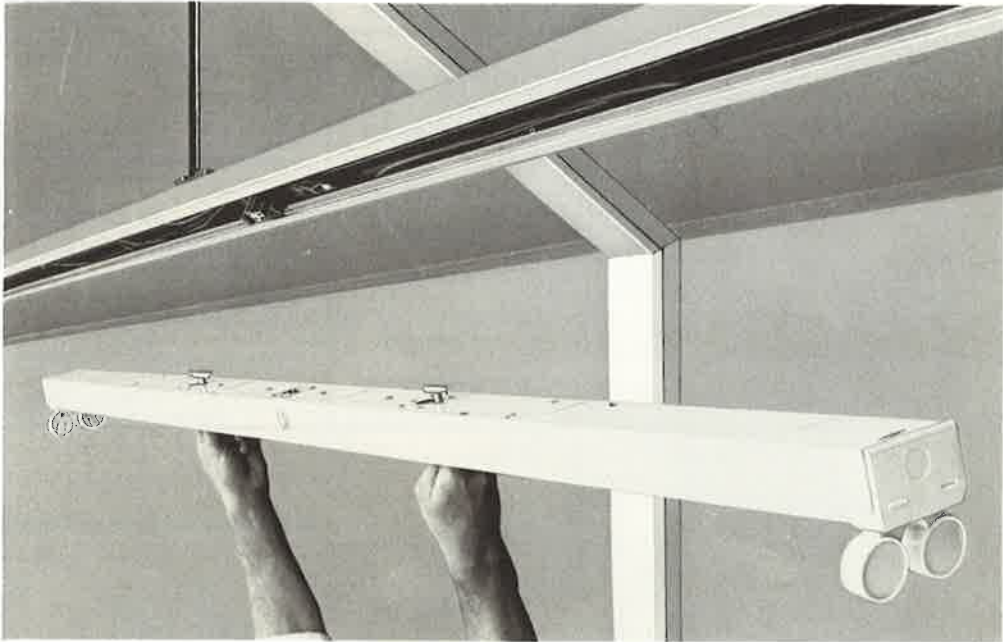
Made in Great Britain.

CI/SIB	(63.1)
UDC	696.6 : 628.972

FEATURELINE

Pre-wired trunking and lighting system with plug-in range of fluorescent luminaires

5



Pre-wired trunking system offering large-scale savings in installation time. Luminaires simply plug-in to the trunking system, which arrives complete with all wiring, connectors and luminaire sockets.

Luminaires can be quickly moved or replaced without re-wiring and with little disturbance to production process beneath.

RANGE

Lengths of pre-wired trunking (4.5m) with a range of accessories for installation in most situations. Tile hanger strips are available for use with the trunking recessed within suspended ceilings. Luminaires are available in one- and two-lamp switch-start versions in ratings:

- 65W 1500mm (5ft)
 - 125W 2400mm (8ft)
- and in one- or two-lamp starterless versions in ratings:
- 65W 1500mm (5ft)
 - 85W 1800mm (6ft)
 - 125W 2400mm (8ft)
- and in electronic start:
- 125W 2400mm (8ft)

APPLICATIONS

Industrial and commercial applications, such as:-

- Factories
- Warehouses
- Production and assembly shops
- Offices (in recessed or suspended form)
- Departmental stores (in recessed or suspended form)
- Public buildings
- Supermarkets

Handbook Ref.

2.2.4

To reorder this Data Sheet quote 9.79 PL1729/2

Replaces PL1729/1

FEATURES

- Each trunking length is pre-wired with 4mm² section (24A) cables, so reducing installation time and materials handling on site. Once trunking is erected, installation is in an advanced state, and can be left for easy connection of battens at a later date.
- Luminaires 'plug-in' to trunking. Each batten contains a special three-pin plug which locates with a socket recessed into the trunking mouth. Once plugged in, the luminaires are held by turning two latches. The socket can be moved up to 1.5m in either direction to allow positioning and repositioning of luminaires as required. There are two sockets per 4.5m trunking length, allowing for any position and spacing.
- Installation time is greatly reduced. Luminaires can be easily resited or removed without disturbance to wiring.
- Luminaires are earthed to a bush on the trunking body by means of an earth wire connected to the socket.
- 125W Battens available in E start.

The trunking is also available un-wired (TC2) for use with suitable luminaires other than Featureline battens. TC9 or TC10 assemblies provide suspension.

RANGE OF OPERATION

240V 50Hz.

Normal indoor conditions.

MATERIALS & FINISH

Batten channel: Sheet steel, Durawhite stoved finish.

Batten end caps: White medium-impact polystyrene.

Spring bi-pin lampholders: White urea mouldings fitted to plated spring steel supports.

Trunking: Cold-rolled mild steel, 1.2mm gauge, hot-dipped zinc coating.

Wiring: Two wires, 4mm² section (24A), PVC insulated and colour-coded for L and N, with push-in electrical connectors between trunking lengths.

Electrical socket with leads: Two wires, 1.5mm² section (13A), PVC insulated and colour-coded for L and N. The earth contact is connected to the trunking.

Electrical plug: Special 3-pin plug in luminaire. Earth contact makes first and breaks last.

Trunking spigot: Mild steel, 3mm gauge, hot-dipped zinc coating. Fastens with 8 screws.

Mechanical junctions: Die-cast aluminium, self-finish.

Trunking hanger: Mild steel, hot-dipped zinc coating.

Metal cover strip: Mild steel, hot-dipped zinc coating.

Plastic coverstrip: White PVC.

Tile hanger: Mild steel, Durawhite stoved finish.

Cover plates: Sheet steel, Durawhite stoved finish.

SPECIFICATION

Type compliance with BS 4533 2.2 where applicable and BS 4533 2.6 Ordinary Indoor Class I.

To specify state:

- Pre-wired trunking system equipped with 24A cable and with three-contact sockets with earthing studs to trunking body; plug-in battens of same cross section as trunking; similar to Philips Featureline trunking system.

INSTALLATION DATA

Featureline trunking can accommodate additional cables up to the maximum number shown in the table below, in compliance with IEE wiring regulations.

Cable size	No. of cables
4mm ²	16
6mm ²	14
10mm ²	8

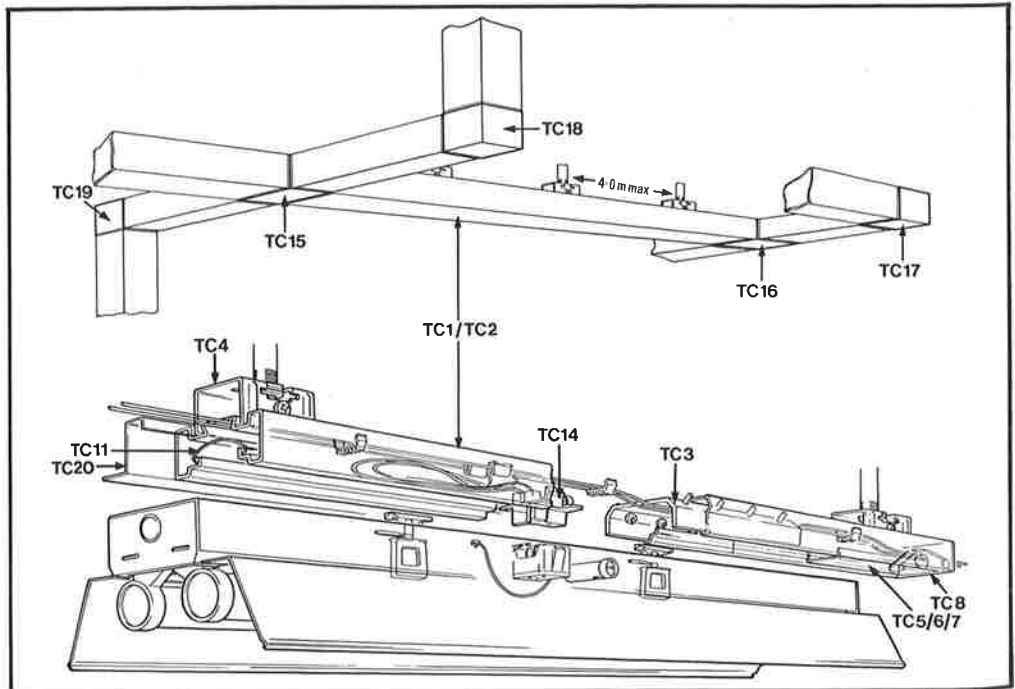
Wiring supplied is of 4mm² section (24A), and can supply the following number of lampways per single run of trunking:-

Batten type	No. of lampways
125W 2400mm switchstart	24
125W 2400mm electronic start	24
85W 1800mm starterless	48

Installation

Featureline should not be suspended at wider centres than 4.0m. At 4.0m centres, the following deflections were measured:-

15kg load at centre	12mm
Continuous run of TSQ28E	9mm



ORDER QUANTITY GUIDE

Catalogue Number and Description Quantity guide

Installation using TC1 pre-wired trunking

TC1 – pre-wired trunking	Total length of all runs in metres divided by 4.5. Same quantity as lengths and part lengths of TC1.
TC3 – spigot	
TC4 – trunking hanger	One per hanging point (multiply total quantity of TC1 by 1.13 (minimum)).
TC5, TC6, TC7 – cover strips	Calculate total length of all luminaires in metres, and subtract from total length of trunking. Divide result by 1.5 and round up answer to nearest 20.
TC8 – end plates	Two per complete run (if used).
TC11 – cable support	Five per length of TC1 if extra cables are to be run.
TC12 – spare crimp connector	If required.
TC13 – Mains connector (screw)	One per run.
TC14 – spare electrical socket with leads	If required.
TC15, TC17, TC18, TC19 – X, L, upward and downward junctions	As required (see diagram for guide).
TC16 – T junction	Two per run if using perimeter trunking, or as required.
TC20 – tile hanger (if required)	Double the length of all horizontal runs of trunking in metres, and divide by 1.5.
TC21, TC22, TC23 – batten cover plates	One per batten of appropriate type if angle or trough reflectors are not used; otherwise one reflector per batten.

Installation using TC2 un-wired trunking

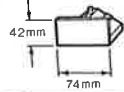
TC2 – un-wired trunking	Total length of all runs in metres divided by 4.5. Same quantity as lengths or part lengths of TC2.
TC3 – spigot	
TC4 – trunking hanger	One per hanging point (multiply total quantity of TC2 by 1.13 (minimum)).
TC5, TC6, TC7 – cover strips	See calculation for TC1 pre-wired trunking above.
TC8 – end plates	Two per complete run (if used).
*TC9 – luminaire suspension assembly	Two per luminaire (if TC10 cannot be used).
*TC10 – 20mm bush suspension assembly	Two per luminaire if provided with 20mm entries.
TC11 – cable support	Five per length of TC2.
TC15, TC17, TC18, TC19 – X, L, upward and downward junctions	As required (see diagram for guide).
TC16 – T junction	Two per run if using perimeter trunking.
TC20 – tile hanger (if required)	See calculation for TC1 pre-wired trunking above.
TC21, TC22, TC23 – batten cover plates	See above.

*For use with luminaires other than Featureline.

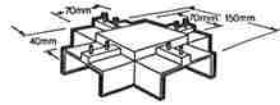
WEIGHTS & PACKING QUANTITIES

Catalogue No.	Description	Weight (kg/lb)	Packing quantity
TC1	Pre-wired trunking 4.5m length with two electrical sockets	9.9/21.8	20
TC2	Un-wired trunking 4.5m length	9.1/20	20
TC3	Spigot	0.6/1.3	2
TC4	Trunking hanger (suspension stirrup)	0.1/0.2	20
TC5	Metal cover strip 1.5m length	0.5/1.1	20
TC6	PVC cover strip (narrow) 1.5m length	0.5/1.1	20
TC7	PVC cover strip (wide) 1.5m length	1.2/2.64	20
TC8	End plate	0.1/0.2	10
TC9	Luminaire suspension assembly for un-wired trunking	0.3/0.66	50 ten pieces
TC10	20mm bush suspension assembly for un-wired trunking	0.6/1.3	02 ten pieces
TC11	Cable support	0.1/0.2	25 ten pieces
TC12	Spare crimp connector	0.3/0.66	20 ten pieces
TC13	Mains connector (screw)	0.6/1.3	20 ten pieces
TC14	Electrical socket with leads & connectors	0.1/0.2	10
TC15	X (four-way) junction	0.4/0.88	Packed to order
TC16	T (three-way) junction	0.3/0.66	Packed to order
TC17	L (right-angle) junction	0.3/0.66	Packed to order
TC18	Upward junction	0.3/0.66	Packed to order
TC19	Downward junction	0.3/0.66	Packed to order
TC20	Tile hanger 1.5m length	0.7/1.54	10
TC21	1800mm batten cover plate	0.6/1.3	5
TC22	2400mm batten cover plate	0.8/1.76	5
TC23	1500mm batten cover plate	0.5/1.1	5

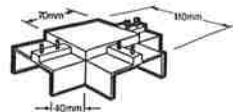
TC8 End Plate



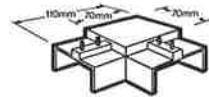
TC15 Four Way Junction



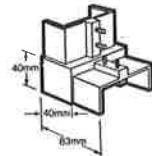
TC16 T Junction



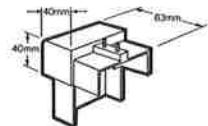
TC17 Right Angle Junction



TC18 Upward Junction



TC19 Downward Junction



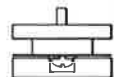
TC10

20mm bush suspension assembly



TC9

Luminaire suspension assembly



ELECTRICAL DATA

Luminaire catalogue No.	Rating	Circuit	Ballast	Capacitor	Starter Switch	Circuit Watts (running)	Circuit current (Amperes)	Minimum power factor (lagging)
TSS5	1 x 65W 1500mm (5ft)	Switchstart	BCS65	5-0mfd 10% 250V	S10	77	0-34	0-85
TSS25	2 x 65W 1500mm (5ft)	Switchstart	2 x BCS65	2 x 5-0mfd 10% 250V	2 x S10	154	0-68	0-85
TSQ6	1 x 85W 1800mm (6ft)	Starterless	BBXK85	8-4mfd 5% 250V	—	96	0-46	0-9
TSQ26	2 x 85W 1800mm (6ft)	Starterless	2 x BBXK85	2 x 8-4mfd 5% 250V	—	192	0-92	0-9
TSQ8E	1 x 125W 2400mm (8ft)	Electronic start	BBE125	7-2mfd 5% 440V	—	137	0-94	0-65 LDG
TSQ28E	2 x 125W 2400mm (8ft)	Electronic start	2 x BBE125	2 x 7-2mfd 440V	—	276	1-88	0-65 LDG
TSS8	1 x 125W 2400mm (8ft)	Switchstart	BBS125	7-2mfd 5% 440V	K3125	137	0-94	0-66 LDG
TSS28	2 x 125W 2400mm (8ft)	Switchstart	2 x BBS125	2 x 7-2mfd 440V	2 x K3125	276	1-88	0-66 LDG

Trunking

Cable connector rating: 25A.

Connector impedance: 1.5 mΩ (1.5mV per ampere per junction).

Cable rating: 24A.

Cable volt drop: 10mV per ampere per metre.

Trunking impedance: 0.5 mΩ per metre. Impedance of 100 metre run (trunking and junctions): 80 mΩ.

Impedance from luminaire earth terminal to socket earth terminal: 30 mΩ.

Each junction spigot is secured by eight screws, avoiding the need for bonding straps.

ORDERING DATA

Please order in the form given in the following example in multiples of packing quantity:-

20 Philips pre-wired trunking TC1

20 Philips spigots TC3

40 Philips trunking hanger TC4

60 Philips metal cover strip TC5

10 Philips end plates TC8

50 Philips battens TSQ26

50 Philips batten cover plates TC21.

Lamps should be ordered separately.

BATTEN WEIGHTS & PACKING QUANTITIES

Battens (without cover plates)	Batten weight inc. lamps (kg/lb)	Packing quantity
TSS5 1 x 1500mm (5ft) 65W switchstart	4-2/9-25	1
TSS25 2 x 1500mm (5ft) 65W switchstart	6-6/14-53	1
TSQ6 1 x 1800mm (6ft) 85W starterless	4-6/10-1	1
TSQ26 2 x 1800mm (6ft) 85W starterless	7-1/15-6	1
TSQ8E 1 x 2400mm (8ft) 125W electronic start	5-4/11-9	1
TSQ28E 2 x 2400mm (8ft) 125W electronic start	8-4/18-5	1
TSS8 1 x 2400mm (8ft) 125W switchstart	5-4/11-9	1
TSS28 2 x 2400mm (8ft) 125W switchstart	8-4/18-5	1

TRUNKING ORDERING DATA

Consult illustration and order quantity guide for part numbers required. Orders should be rounded up to multiples of the packing quantities. Please remember to add sufficient extra components to offset site losses and to provide spares for the eventual user.

LUMINAIRE ORDERING DATA

Featureline luminaires are mechanically and electrically similar to the Philips Feature range of luminaires and accessories.

The table gives the ordering details for the Featureline range of battens; photometric and electrical data for these battens are contained in leaflet PL 1719.

Ordering details and photometric information for accessories for use with Featureline are contained in Feature leaflets as follows:-

Opal diffusers - PL 1722

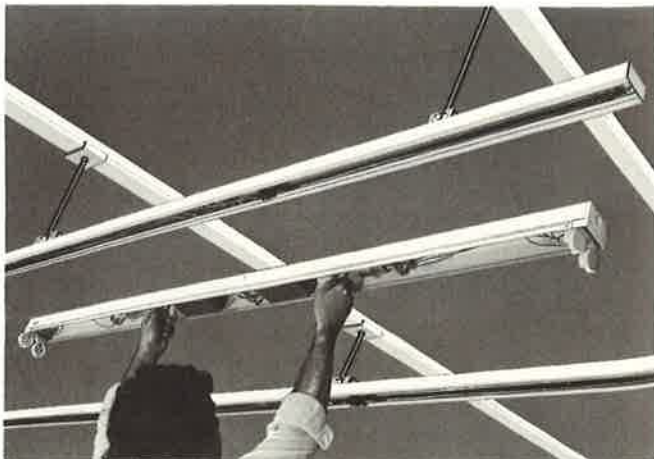
Prismatic controllers - PL 1723

Trough reflectors and wireguards - PL 1720

Open-end angle reflectors - PL 1721

For further details of **ES06 Electronic Starter** see Data Sheet PL 1785.

Made in Great Britain.



CI/SIB (63.9)

UDC 696.6 : 628.94

5

LITEBEAM STANDARD TRUNKING

**Steel trunking system for
fluorescent luminaires with
capacity for other power
services**

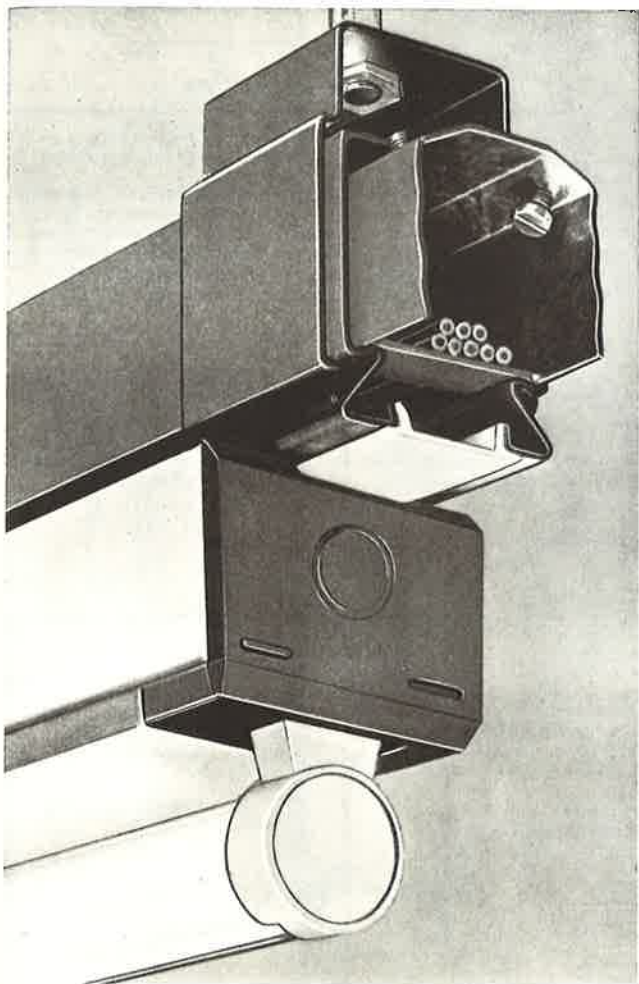
■ Litebeam Standard – a versatile trunking system designed to support individual or continuous mounted fluorescent luminaires, that can also be used for carrying other power services.

RANGE

Trunking length 4.3m (14ft).
Coupling spigots, and hangers.
White cover strip, 2.4m, (8ft) length.
Full range of junctions and angles.
End caps and luminaire suspension
assemblies.
Cable supports and terminal blocks.

APPLICATIONS

Applications include:
Interior lighting for factories and
drawing offices, exhibition halls,
stores etc.



Handbook Ref.

2.2.5/1

To reorder this Data Sheet quote 11.77 PL 1709

Replaces PL8822

TRUNKING

FEATURES

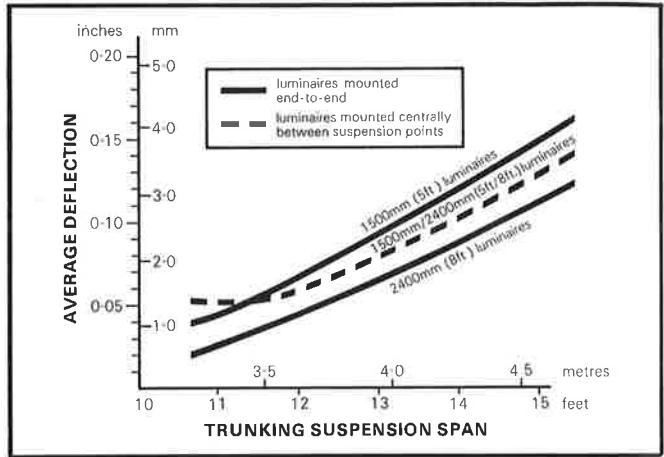
- A strong cross-section with support shoulders formed to accommodate suspension hangers in any position along the length of trunking.
- Simple suspension system of hangers secured to conduit tubes.
- Vertical alignment achieved by adjustment of the 20mm ($\frac{3}{4}$ " ET conduit nuts on installation suspensions.
- Coupling spigots, for joining trunking lengths, slide into the sections and are secured by concealed screws.
- Hangers have been tested up to 200kg loading without distortion.
- Entry for cable, terminal blocks and support plates through trunking mouth.
- Luminaires are secured to trunking by suspension assembly that is inserted and rotated to engage on the trunking return flanges. Locking nuts are provided to secure the luminaire in its final position.
- Cover strip of white PVC is available to blank off trunking mouth between luminaires.
- Installation undertaken with minimum of tools. A 20mm ($\frac{3}{4}$ " ET spanner and screwdriver are all that is required.
- Trunking cable capacity: over 30 cables of 2.5mm² or 4mm² or 6mm²; 15 cables of 10mm².
- The edges of the trunking are returned inwards adding strength to the section, as well as eliminating exposed edges.
- A range of junction pieces is available, for cross overs, tee and right angles. External angles for risers and internal angles for drops are also available.
- All junctions are of spot welded construction and are designed as a fast fit over the trunking section, eliminating the need to drill or cut to shape.

Junction pieces are not designed to be load bearing.

MATERIALS & FINISH

- Trunking:** 1.2mm steel hot dipped galvanised.
- Trunking hangers:** 1.6mm steel galvanised.
- Coupling Spigots:** 1.2mm steel hot dipped galvanised.
- End Caps:** 0.8mm zinc plated steel.
- Cable supports:** 0.6mm zinc plated steel.
- Cover strip:** Extruded PVC white.
- Luminaire suspension assemblies:** Zinc based alloy die cast with lacquered lock nuts.

TRUNKING DEFLECTION



Average deflection of Litebeam trunking in relation to distance between suspension points. The deflection values refer to heavy versions of luminaires and attachments (18-22kg), and are proportionately lower for lighter versions. Deflections are within the requirements of BS 449 'Use of

Structural Steel in Buildings' (deflection not to exceed 1/325 of span).

Note: Deflection varies considerably in practice with tightness of coupling of adjacent trunking lengths, and with tightness of connection of luminaires to trunking.

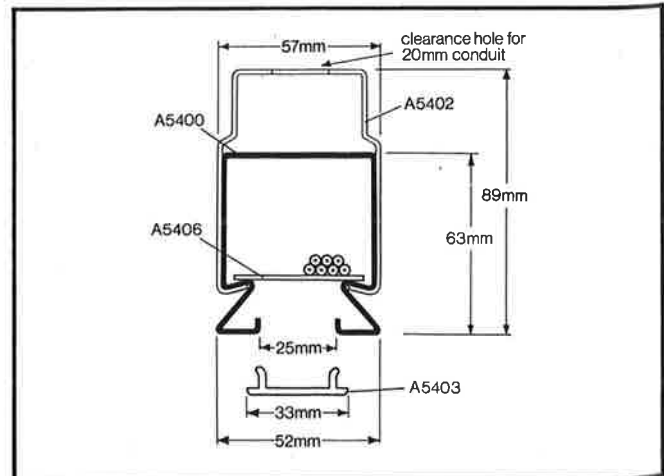
SPECIFICATION

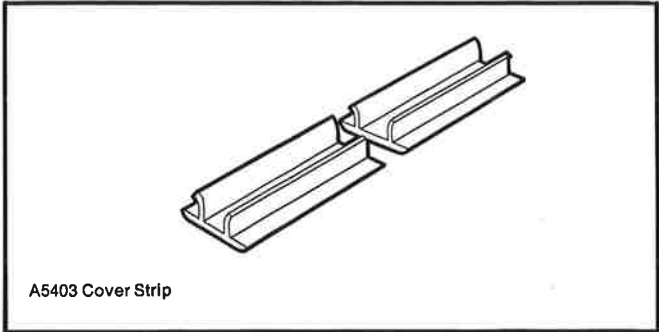
Trunking cable capacity is calculated in accordance with IEE Regulation B118 governing cable volume to free space ratio in trunking installations.

To specify state

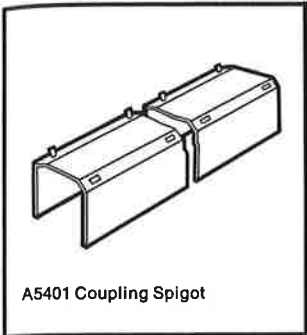
Lighting trunking substantially as Philips 'Litebeam'. The width shall be approximately 55mm and the mouth width approximately 25mm.

DIMENSIONS

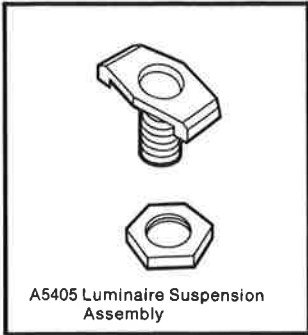




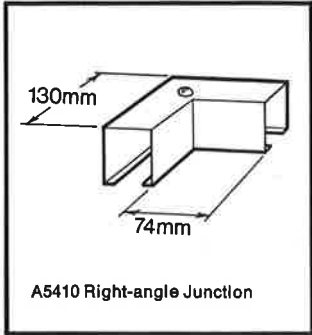
A5403 Cover Strip



A5401 Coupling Spigot



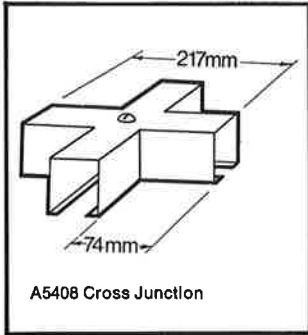
A5405 Luminaire Suspension Assembly



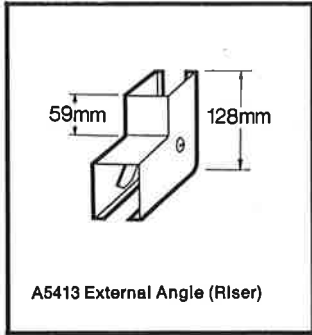
A5410 Right-angle Junction



A5402 Trunking Hanger



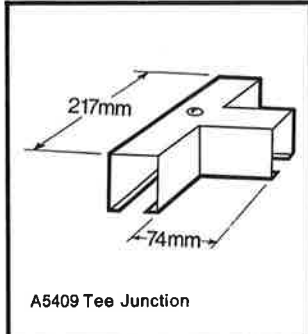
A5408 Cross Junction



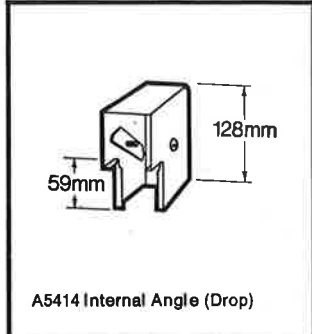
A5413 External Angle (Riser)



A5404 End Cap



A5409 Tee Junction



A5414 Internal Angle (Drop)

DIMENSIONS & WEIGHTS

Description	Weight (gross)	Dimensions (mm)		
		width	depth	length
Trunking 4.3m (14ft) length	12.00kg (28lbs)	57	63	4300
Coupling spigot	800g (1.75lb)			
Trunking hanger	120g (0.25lb)	57	89	
Cover strip 2.4m (8ft) length	370g (0.82lb)	33		2400
End cap	60g (0.125lb)			
Cable supports	28g (0.063lb)			
Terminal blocks	57g (0.125lb)			
Cross junction	2.10kg (4.62lb)			
Tee junction	1.69kg (3.51lb)			
Right angle junction	965g (2.13lb)			
External angle (riser)	965g (2.13lb)			
Internal angle (drop)	965g (2.13lb)			

Approximate weight of trunking complete with accessories – (minus luminaires)
3.3kg per metre.

ORDERING DATA

Catalogue Number	EWf Code	Description	Packing Quantities
A5400	70183	Trunking 4.3m (14ft) length	Packed 6 per bundle
A5401	35128	Coupling spigot	Packed 20 per pack
A5402	35131	Trunking hanger	" " " "
A5403	70167	Cover strip 2.4m (8ft) length	" " " "
A5404	35144	End cap	Packed to order
A5405	35160	Luminaire suspension assembly*	Packed bags of 10
A5406	35186	Cable supports*	Packed bags of 50
A5407	35199	Terminal blocks	Packed to order
A5408	35212	Cross junction	" " "
A5409	35225	Tee junction	" " "
A5410	35238	Right angle junction	" " "
A5413	36431	External angle (riser)	" " "
A5414	36444	Internal angle (drop)	" " "

*order only in bags.

Made in U.K.

CI/SIB (63.1)

UDC 696.6:628.972

5

LITEBEAM FLANGED TRUNKING

Flanged trunking system for fluorescent luminaires

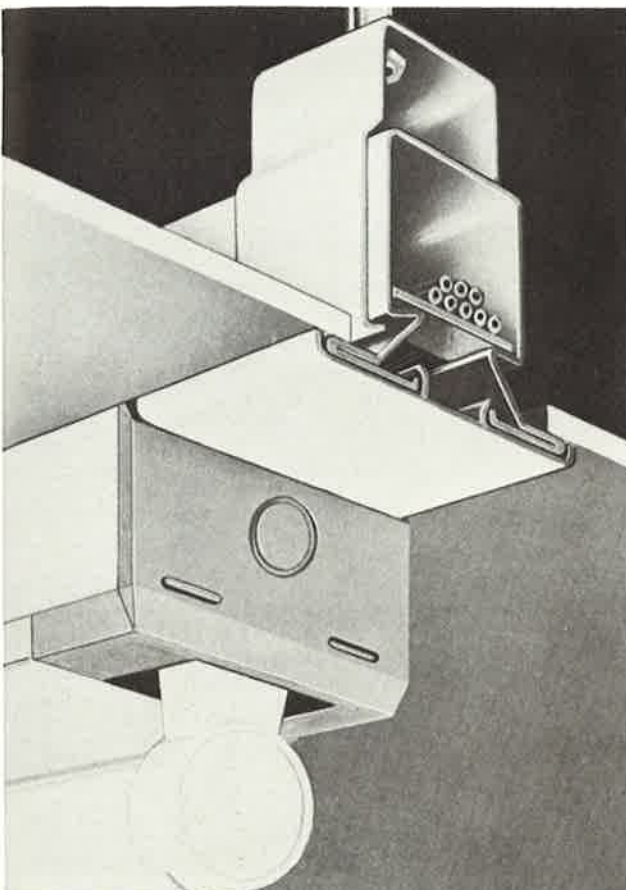
Litebeam flanged trunking, for use with suspended ceilings, of suitable types, can support adjacent ceiling panels on the trunking flange, with the trunking concealed within the ceiling.

RANGE

Trunking length 4.3m (14ft)
Coupling spigots, and hangers.
White cover strips in two widths, 2.4m (8ft) length.
End caps and luminaire suspension assemblies.
Cable supports and terminal blocks.

APPLICATIONS

Interior lighting for Factories, shops and offices, Schools and Hospitals.



Handbook Ref.

2.2.5/2

To reorder this Data Sheet quote

9.79 PL 1294/2

Replaces

PL 1294/1

TRUNKING

FEATURES

- Strong galvanised steel section trunking, with lower edges forming horizontal flange for support to adjacent ceiling panels enables the trunking body to be concealed within the ceiling.
- Litebeam has all the advantages of a normal trunking system, plus a neat ceiling appearance.
- Flexibility of location and adaptability to subsequent changes to floor plan, or room layout.
- Simple suspension system of hangers secured to conduit tubes.
- Vertical alignment achieved by adjustment of the 20mm ($\frac{3}{4}$ " ET conduit nuts.
- Coupling spigots, for joining trunking lengths, slide into the sections and are secured by concealed screws.
- Hangers have been tested up to 200kg loading without distortion.
- Entry for cable, terminal blocks and support plates through trunking mouth.
- Luminaires are secured to trunking by two suspension assemblies that are inserted and rotated to engage on the trunking return flanges. Locking nuts are provided to secure the luminaire in its final position.
- Cover strips of White plastic are available in two widths to blank off trunking mouth between luminaires. The wider strip neatly covers the trunking flange completely.
- Installation undertaken with minimum of tools. A 20mm ($\frac{3}{4}$ " ET spanner and screwdriver are all that is required.
- Trunking cable capacity: over 30 cables of 2.5mm² or 4mm² or 6mm²; 15 cables of 10mm².

The ceiling manufacturer should be consulted to ensure that the trunking and ceiling system are compatible and that adequate support is provided.

SPECIFICATION

Trunking cable capacity is calculated in accordance with IEE Regulations governing cable volume to free space ratio in trunking installations.

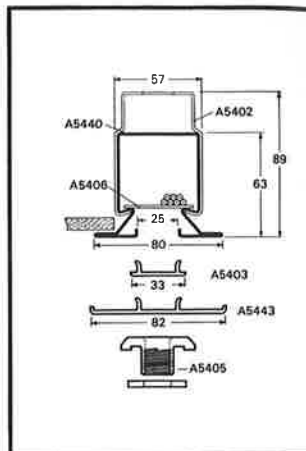
To specify state:

Lighting trunking with flanges for supporting ceiling panels substantially as Philips 'Litebeam Flanged'. The width over flanges shall be approximately 80mm and the mouth width approximately 25mm.

MATERIALS & FINISH

- Trunking:** 1.2mm steel pre-galvanised.
- Suspension hangers:** 1.6mm steel pre-galvanised.
- Coupling Spigots:** 1.6mm steel galvanised.
- End Caps:** 0.8mm Zinc plated steel.
- Cable supports:** 0.6mm Zinc plated steel.
- Cover strip:** Extruded P.V.C. White.
- Luminaire suspension assemblies:** Zinc based alloy die cast with lacquered lock nuts.

Made in U.K.



DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Description	Weight (kg)	Dimensions (mm) nominal		
		width	depth	length
Trunking 4.3m (14ft) length	13.6	57	63	4300
Spigots	0.8			
Hanger	0.12	57	89	
Cover strip				
narrow (8ft) length	0.37	33		2400
wide (8ft) length	0.5	82		2400
End Caps	0.6			

ORDERING DETAILS

Catalogue No.	EFW Code	Description	
A5440	070183	Trunking 4.3m (14ft) length	Packed 6 per bundle
A5401	035128	Spigots	Packed 20 per pack
A5402	035131	Hanger	" "
A5403	070167	Cover strip narrow 2.4m (8ft) length	" "
A5443	068360	Cover strip wide 2.4m (8ft) length	" "
A5404	035144	End Cap	Packed to order
A5405	035160	Luminaire suspension assembly*	Packed bags of 10
A5406	035186	Cable supports*	Packed bags of 50
A5407	035199	Terminal blocks	Packed to order
A5408	035212	Cross junction	" "
A5409	035225	Tee junction	" "
A5410	035238	Right angle junction	" "
A5413	036431	External angle (riser)	" "
A5414	036444	Internal angle (drop)	" "

*order only in bags.

INDUSTRIAL DISCHARGE FITTINGS

	Page
Hermes 2 Fittings	PL1867/1 191
Hermes 2 Gear Box	PL1868 195
Hermes 2 Photometric Data	PL1869 199

CI/SfB

(63.1)

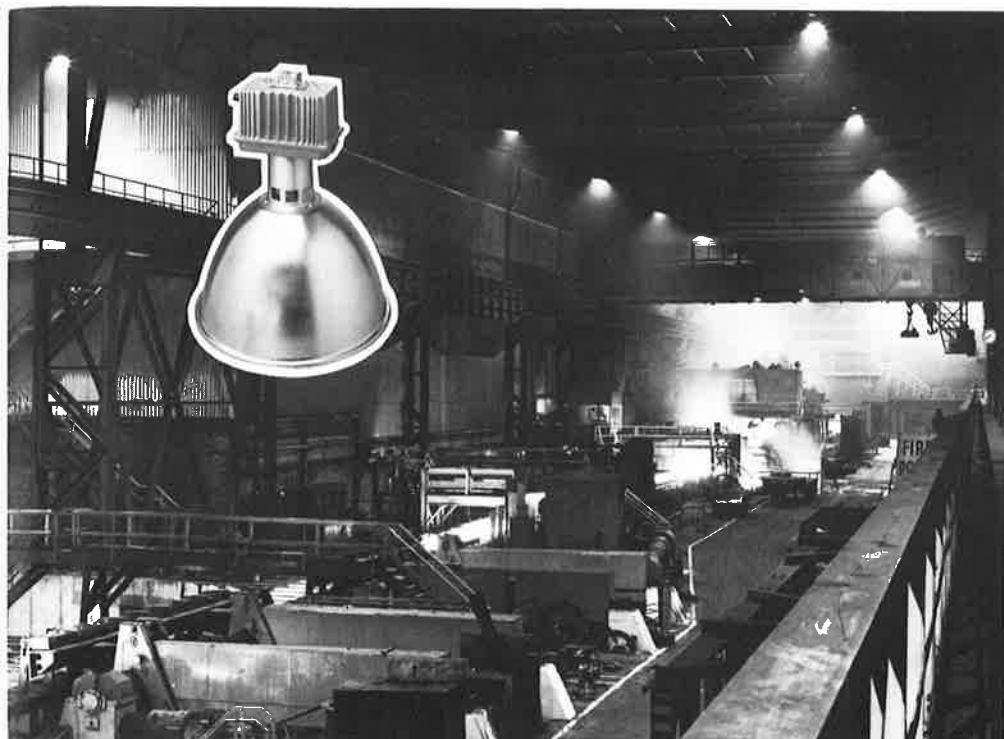
UDC

696.6:628.972

HERMES 2

High-bay luminaires for
150W - 400W discharge lamps

6



A high-bay luminaire which accommodates SON, HPL-N or HPI discharge lamps in ratings from 150W to 400W. An adjustable lampholder assembly permits the user to set any required light distribution from WideSpread through dispersive to concentrated, using the same reflector. The lampholder can also be used with a reflective skirt, permitting the use of HPL-R and SON/R reflector lamps.

RANGE

The luminaire accommodates the following lamp types:-

150W SON	250W HPL-N
250W SON	250W HPL-R
250W SON/R	400W HPL-N
400W SON	400W HPL-R
400W SON/R	400W HPI/BUS

A simple ordering code specifies the correct components from the following options:-

5 Hermes cast alloy gear boxes

Universal reflector with adjustable lampholder
Reflective skirt with adjustable lampholder
Wireguard (optional) for reflector
Dust-resistant cover and lampholder gaiter optional for reflector
Mounting plate for use with remote gear.

Handbook Ref

2.3.1

To reorder this data sheet quote

6.79 PL 1867/1

Replaces

PL 1867

DISCHARGE FITTINGS

APPLICATIONS

For use wherever high-bay discharge lighting is appropriate, particularly at luminaire mounting heights over 3m and in high ambient temperatures, for situations such as:-

- Stores and warehouses
- Foundries and drop forging plants
- Factory production areas
- Railway and bus termini
- Loading bays
- Hypermarkets and Cash & Carries
- Indoor sports halls and complexes

FEATURES

- Simple lampholder adjustment permits the user to accommodate a wide range of discharge lamps in the same reflector, and to set any required light distribution.
- Since the lampholder moves with respect to the reflector and gear, the adjustment can be made at any time after installation to suit changing requirements.
- The variable spacing/mounting height ratio provided by the adjustable distribution eliminates compromise. It permits the lighting designer to install the correct number of luminaires for the required illuminance level and then set them to give the optimum uniformity of illumination. No more luminaires are used than are strictly necessary, thus saving energy, and the design of the installation is greatly simplified.
- Slots in the lampholder housing allows a through current of air to render the luminaire self-cleaning. An optional dust cover and dust-resisting lampholder gaiter can be used to seal the reflector in very dirty environments.
- Rugged cast-alloy gear box assembly (designed to IP54) withstands ambient temperatures up to 45°C; the system retains full efficiency at this temperature (35°C if reflector is fitted with dust cover).
- Simple, speedy installation; all components are positively supported before any wiring has to take place.
- Optional wireguard protects the lamp against knocks, etc.
- Reflective skirts permit the use of internal reflector lamps.
- Very few components complete the entire range, helping availability and greatly simplifying ordering by means of an easily-understood code.
- Optional mounting plate carries the lampholder assembly, permitting the gear box to be mounted remotely.

Approximate Lumen Packages	Lamp Wattage	
	SON	HPL-N
13,000	150	250
21,000	250	400
40,000	400	700

SPECIFICATION

Degree of Protection:
Gear box designed to IP54.

To specify state:

Industrial high-bay luminaire with adjustable lampholder to permit any light distribution to be set before or after installation and pre-wired cast aluminium gear box with the Degree of Protection IP54. Similar to Philips Hermes 2.

RANGE OF OPERATION

240V 50Hz supplies.
Normal indoor and outdoor applications.

MATERIALS & FINISH

Gear box: Pre-wired with potted ballast, housed in corrosion-resistant aluminium alloy casting with integral cooling fins.

Reflector, reflective skirt and lampholder assembly: Aluminium.

Lampholder: Porcelain GES.

LAMP COMPARISON TABLE

The Hermes 2 150W-400W industrial high-bay luminaire is available with control gear to operate the following discharge lamps:-

Universal reflector luminaire

High-pressure sodium (SON) 150W, 250W, 400W.

Mercury fluorescent (HPL-N) 250W, 400W.

Mercury halide (HPI/BUS) 400W.

Reflective skirt luminaires

High-pressure sodium reflector (SON/R) 250W, 400W.

Mercury fluorescent reflector (HPL-R) 250W, 400W.

Mercury fluorescent lamps provide the traditional cool white light normally associated with high-bay luminaires. Energy-saving high-pressure sodium lamps provide a warmer light, and have colour rendering properties that are suitable for most industrial applications.

The table below gives the wattage of mercury and sodium lamps of comparable lumen output, and shows the significant savings in energy consumption that can be gained by changing to high-pressure sodium.

DIMENSIONS & WEIGHTS

Description	Dimensions (mm)		Weight (kg/lb)
	H	W	
Universal reflector	468	544	1-7/3-7
Reflective skirt (250W lamp)	345	276	1-1/2-4
Reflective skirt (400W lamp)	390	276	1-2/2-8
Single distribution reflector (250W lamp)	368	544	1-8/4-0
Single distribution reflector (400W lamp)	413	544	2-0/4-5

DATA SHEET REFERENCE

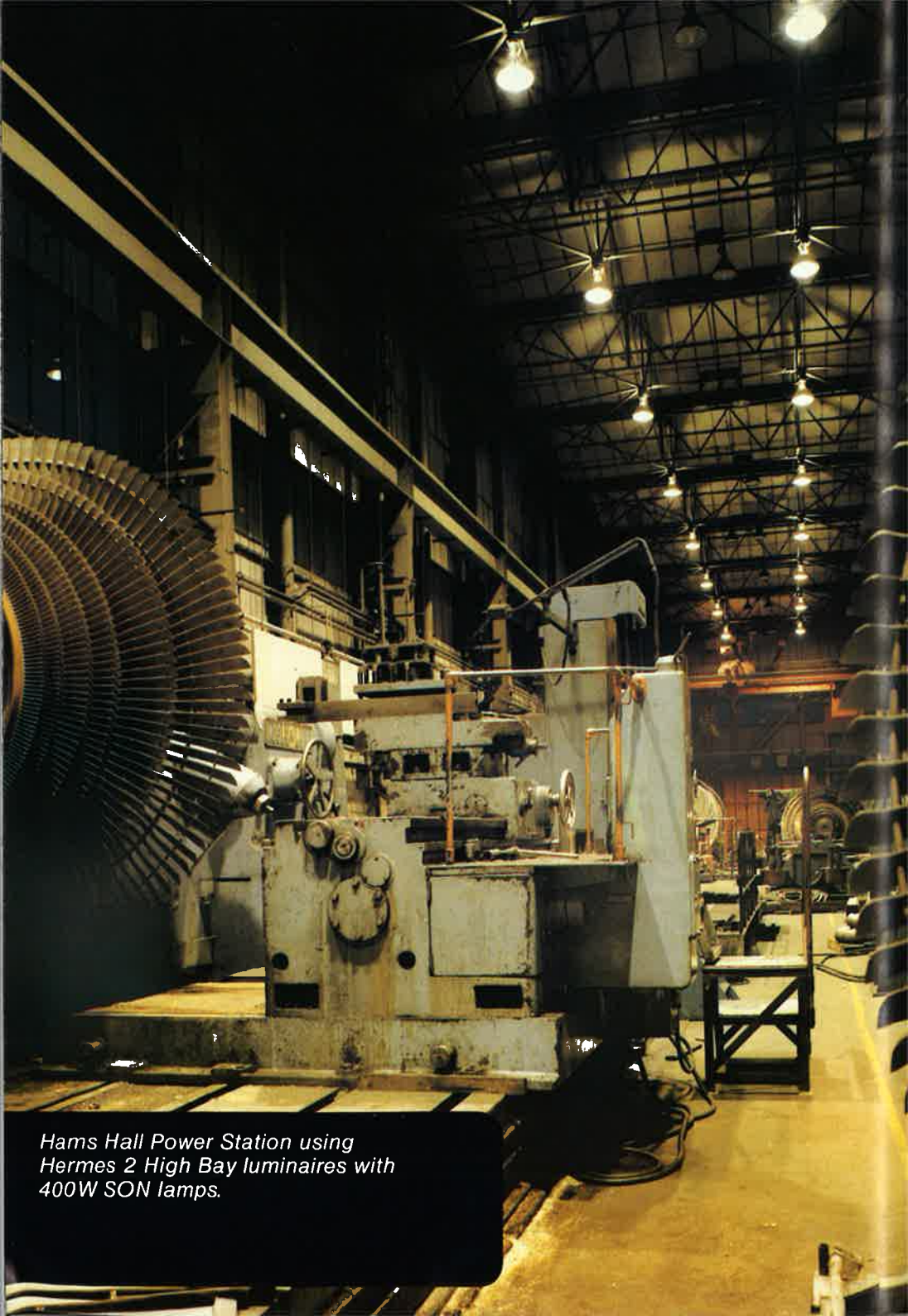
Complete information on Hermes 2 high-bay luminaires for lamps rated from 150W-400W is contained in the following Data Sheets:-

- PL 1867 (this sheet)
- PL 1868 - Hermes 2 pre-wired gear boxes 150W-400W.
- PL 1869 - Photometric information on Hermes 2: 150W-400W lamps.
- Complete information on Hermes 2 high-bay luminaires for lamps rated from 700W-1kW is contained in the following Data Sheets:-
- PL 1871 - General information on Hermes 2 high-bay luminaires for lamps rated from 700W-1kW.
- PL 1872 - Hermes 2 pre-wired gear boxes 700W-1kW.
- PL 1873 - Photometric information on Hermes 2: 700W-1kW lamps.

Note: Mercury fluorescent reflector UK marking MBFR = Philips International marking HPL-R
Mercury fluorescent lamps UK marking MBF = Philips International marking HPL-N
Mercury halide lamps UK marking MBI = Philips International marking HPI

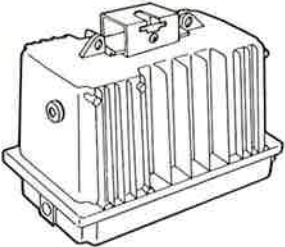


New lighting scheme for Bedford Truck Assembly Plant, Dunstable using 250W SON in Hermes High Bay fittings, increased lux level by 200 lux and saves 30% energy over original fluorescent scheme.

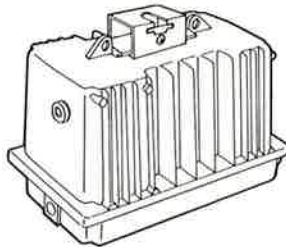


*Hams Hall Power Station using
Hermes 2 High Bay luminaires with
400W SON lamps.*

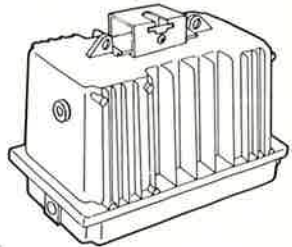
**HERMES 2
Universal Reflector
High Bay System**



**HERMES 2
Skirt**



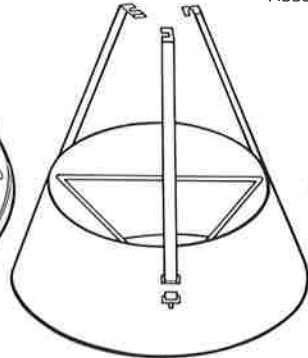
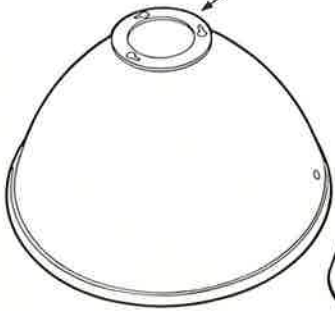
**HERMES 2
Single Distribution**



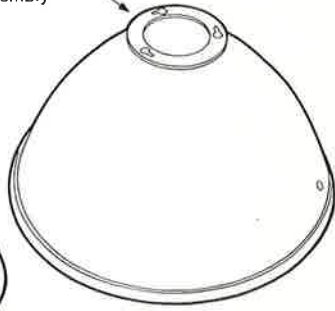
Universal Reflector Assembly



Single Distribution Reflector Assembly



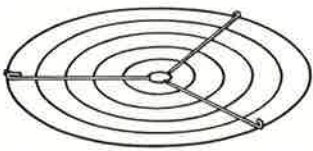
Reflective Skirt



ACCESSORIES



Gaiter for Universal Reflector only



Wire Guard for either Universal or Single Distribution Reflectors



Dust Cover for either Universal or Single Distribution Reflectors

GENERAL PHOTOMETRIC INFORMATION

The information in this table is included to enable the specifier to gauge the general performance of each lamp type. Detailed photometric information on Hermes 2 luminaires rated between 150W and 400W, including utilisation factors and polar curves, is given in Data Sheet PL 1869.

Light source	R.0010 Universal Reflector Lamp position										Recommended lamp positions		
	0	1	2	3	4	5	6	7	8	9	Concentrating	Dispersive	Widespread
150W SON													
SHR MAX	0.68	0.73	0.78	0.86	0.97	1.13	1.26	1.36	0.99	1.01*	3	7	-
LORL	0.71	0.78	0.79	0.78	0.77	0.78	0.78	0.81	0.78	0.76			
BZ Class	1	1	1	1	1	1	1	1	-	- †			
Peak intensity (cd/1000 lm)	1236	1190	1071	905	697	527	465	433	394	355			
Lighting design lumens	13500 lm												
250W SON													
SHR MAX	0.72	0.77	0.84	0.92	1.06	1.19	1.34	1.45	1.03	1.05*	3	5	7
LORL	0.76	0.78	0.81	0.81	1.82	0.82	0.83	0.83	0.84	0.83			
BZ Class	1	1	1	1	1	1	1	1	-	- †			
Peak intensity (cd/1000 lm)	1220	1086	960	791	632	516	466	424	402	376			
Lighting design lumens	24000 lm												
400W SON													
SHR MAX	1.10	1.23	1.37	1.49	1.59	1.70	1.36	1.45	1.56	1.80*	0	2	5
LORL	0.79	0.80	0.79	0.80	0.80	0.80	0.80	0.82	0.81	0.80			
BZ Class	1	1	1	1	1	2	-	-	-	- †			
Peak intensity (cd/1000 lm)	570	478	413	381	349	330	313	306	293	279			
Lighting design lumens	45000 lm												
250W HPL-N													
SHR MAX	0.71	0.76	0.83	0.87	1.01	1.15	1.24	1.55	1.52	1.61*	3	6	7
LORL	0.79	0.81	0.84	0.85	0.85	0.87	0.87	0.87	0.87	0.86			
BZ Class	1	1	1	1	1	1	1	1	-	- †			
Peak intensity (cd/1000 lm)	1281	1167	1039	909	721	571	469	479	400	372			
Lighting design lumens	12500 lm												
400W HPL-N													
SHR MAX	1.13	1.23	1.36	1.49	1.6	1.71	1.81	1.91	2.02	2.06*	0	2	5
LORL	0.79	0.79	0.80	0.80	0.80	0.80	0.79	0.79	0.79	0.79			
BZ Class	1	1	1	1	1	2	2	2	2/3	3 †			
Peak intensity (cd/1000 lm)	550	463	399	360	335	313	295	281	274	262			
Lighting design lumens	21300 lm												
		SHR MAX	LORL	BZ Class	Peak Intensity (cd/1000 lm)					Lighting design lumens			
250W SON/R		1.52	0.94	2	352					22100 lm			
400W SON/R		1.34	0.95	2	401					38400 lm			
250W HPL-R		1.51	0.94	2	367					10500 lm			
400W HPL-R		1.38	0.94	2	386					18000 lm			

ORDERING DATA

Catalogue No.	Description	Weight (kg/lb)
Reflectors		
R.0010	Universal reflector	1.7/3.7
R.0020	Reflective skirt	1.1/2.4
R.0030	Single distribution reflector	1.7/3.7
Accessories		
W.0001	Wireguard	0.6/1.3
W.0002	Dust cover/gaiter	1.0/2.2
W.0003	Mounting terminal plate	0.1/0.2
Hermes 2 pre-wired gear boxes		
S.1500	Gear box for 150W SON lamp	6.0/13.2
S.2500	Gear box for 250W SON & SON/R lamps	7.5/16.5
S.4000	Gear box for 400W SON & SON/R lamps	8.7/19.1
H.2500	Gear box for 250W HPL-N & HPL-R lamps	6.0/13.2
H.4000	Gear box for 400W HPL-N & HPL-R lamps	7.1/15.6
H.4000/1	Gear box for 400W HPI/BUS lamp	7.2/15.8

Notes:

- The ordering code for the Universal reflector or reflective skirt also calls up the adjustable lampholder assembly, which attaches directly to the Hermes 2 gear box to provide a luminaire with integral gear. The mounting terminal plate secures the lampholder assembly directly to the conduit drop, and is usually required when the gear box is mounted remotely.
- The maximum permissible distances between SON/HPI lamps, and remote-

- mounted gear boxes are given in Technical Information Sheet No. 6.
- A complete Hermes 2 luminaire is ordered by means of a four-digit code number made up by straightforward addition of the catalogue numbers of the component parts. A prefix letter denotes the type of lamp (S for sodium; H for mercury).
 i.e. Gearbox S.4000
 Reflector R.0010
 Dust cover W.0002
 Complete ordering code S.4012

*The values of SHR Max given in this Data Sheet are taken from the 'Mid-point ratio' calculation method specified in the IES Technical Report No. 2. However, the true maximum and minimum values occurring between the centre four luminaires are used here rather than those assumed in the above report. The positions shown in bold type are recommended for all high-bay lighting applications. To avoid engineers extrapolating incorrectly, the results for other settings are shown in a lighter type; these are not recommended for normal design work.

†The BZ Classification is based on the assumption that the installation will usually employ a lamp position (hence a specific SHR MAX) which is appropriate to the room proportions. If the application is different, the BZ Classification may be different to that shown.

- The discharge lamp must always be ordered separately.
- The luminaire in the example above is ordered as follows:-
 Philips Hermes 2 high-bay luminaire S.4012 and 400W SON lamp.
- Individual parts and accessories can be ordered separately under the Catalogue Numbers given above.

Made in UK.

CI/SIB	(63.9)
UDC	696.6:628.94

HERMES 2

Pre-wired gear box 150W - 400W

A range of 5 pre-wired cast alloy gear boxes, containing potted ballasts, for use with high-pressure sodium lamps 150W-400W, mercury fluorescent lamps 250W-400W and 400W mercury halide lamps. The gear boxes also form an integral part of Hermes 2 high-bay luminaires 150W-400W.

RANGE

S.1500 (150W SON)
 S.2500 (250W SON, 250W SON/R)
 S.4000 (400W SON, 400W SON/R)
 H.2500 (250W HPL-N, 250W HPL-R)
 H.4000 (400W HPL-N, 400W HPL-R)
 H.4000 + PFC Kit P.0000/1 for 400W HPI/V
 H.4000 + Ignitor Kit P.0000/2 for 400W HPI/H

APPLICATIONS

For use with Hermes 2 high-bay luminaires, mounted either remotely or integrally to the luminaire, in situations such as:-

- Stores and warehouses
- Foundries and drop forging plants
- Factory production areas
- Railway and bus termini
- Loading bays
- Hypermarkets and Cash & Carries
- Indoor sports complexes

Also for use with Philips remote-gear luminaires in a wide range of applications, including:-

- Area floodlighting (with HNF001, HNF003, W5000, NLF 011 and NNF010 luminaires)
- Stadia floodlighting (with HNF 001, HNF003, HNF006 and NNF010 luminaires)
- Security lighting (with HNF001, HNF003, NLF011 and NNF010 luminaires)



Handbook Ref

2.3.2

To reorder this data sheet quote

2.79 PL 1868

Replaces

NEW

FEATURES

- Sturdy, high-grade aluminium alloy housing for outdoor or aggressive indoor environments. The gear box is designed to Degree of Protection IP54.
- Pre-wired and factory tested for easy, labour-saving installation.
- Low wattage losses from high-quality components reduce energy waste.
- Rated for ambient temperatures up to 45°C – excellent performance with high-bay luminaires mounted over hot factory processes.
- Remote or integral use with high-bay luminaires – the control gear can be located in the most convenient position.
- Easy high-bay installation – the hinged lid gives ready access to the simple wiring and supports the lamp-holder assembly while connections are being made.
- Available for use with the full range of Philips mercury fluorescent (HPL-N) and high-pressure sodium (SON) lamps; also for 400W mercury halide lamps (HPI/H and HPI/V)

MATERIALS & FINISH

Gear box housing: Corrosion-resistant aluminium alloy casting with integral cooling fins.

Components: Pre-wired, with potted ballast and high-quality components.

SPECIFICATION

Degree of Protection designed to IP54.

RANGE OF OPERATION

240V 50Hz supplies.

Normal indoor and outdoor applications.

DATA SHEET REFERENCE

Information on Hermes 2 pre-wired gear boxes for high-pressure sodium and mercury fluorescent lamps rated from 700W to 1kW is contained in Data Sheet PL 1872.

Complete information on Hermes 2 high-bay luminaires is contained in the following Data Sheets:-

PL 1867 – General information on Hermes 2 high-bay luminaires for lamps rated from 150W–400W.

PL 1868 – (this sheet)

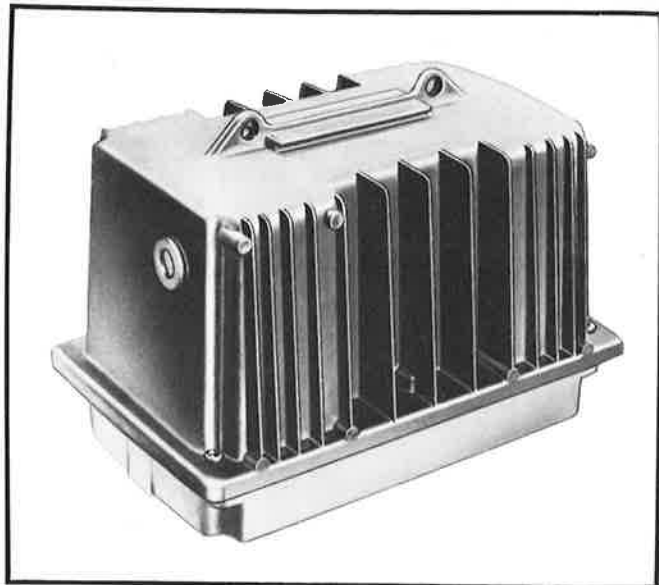
PL 1869 – Photometric information on Hermes 2: 150W–400W.

PL 1870 – Accessories for use with Hermes 2 high-bay luminaires.

PL 1871 – General information on Hermes 2 high-bay luminaires for lamps rated from 700W–1kW.

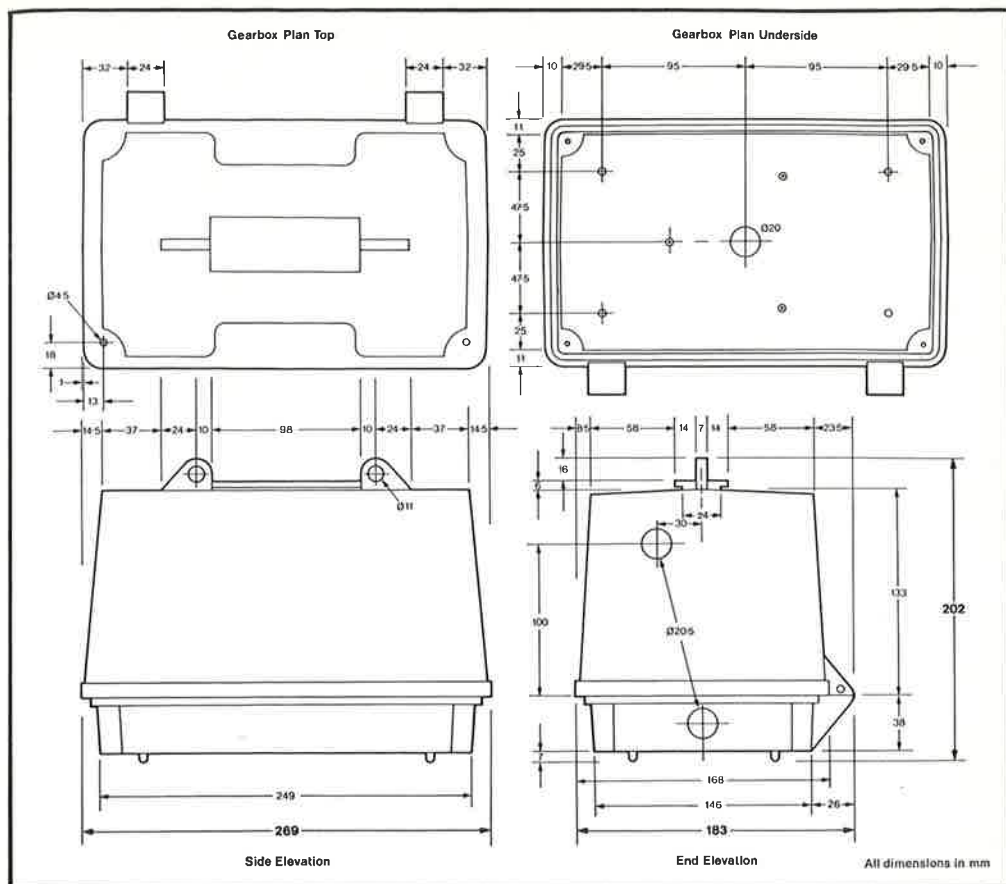
PL 1872 – Hermes 2 pre-wired gear boxes 700W–1kW.

PL 1873 – Photometric information on Hermes 2: 700W–1kW.



Hermes 2 gear boxes can be used with many of the Philips' range of floodlighting luminaires.

DIMENSIONS



DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Catalogue No.	For lamp type	Lamp Voltage V	Lamp Current A	Circuit Current Start	Circuit Current Run	Total Circuit Watts	Overall dimensions (mm)		Weight (kg/lb)
							A	B	
S.1500	150W SON	100	1.8	1.2	0.9	174	270	170	6.0/13.2
S.2500	250W SON & SON/R	100	3.0	1.8	1.3	280	270	170	7.5/16.5
S.4000	400W SON & SON/R	105	4.4	3.2	2.2	440	270	170	8.7/19.1
H.2500	250W HPL-N & HPL-R	135	2.0	2.1	1.3	268	270	170	6.0/13.2
H.4000	400W HPL-N & HPL-R	140	3.2	3.5	2.1	424	270	170	7.1/15.6
H.4000 + PFC Kit P.0000/1	400W HPI/V	125	3.4	3.3	1.9	424	270	170	7.2/15.8
H.4000 + Ignitor Kit P.0000/2	400W HPI/H	125	3.4	3.3	1.9	424	270	170	7.3/16.0

ORDERING DATA

Catalogue No.	Description
S.1500	Gear box for 150W SON lamp
S.2500	Gear box for 250W SON & SON/R lamps
S.4000	Gear box for 400W SON & SON/R lamps
H.2500	Gear box for 250W HPL-N & HPL-R lamps
H.4000	Gear box for 400W HPL-N & HPL-R lamps
H.4000 + PFC Kit P.0000/1	Gear box for 400W HPI/V lamp
H.4000 + Ignitor Kit P.0000/2	Gear box for 400W HPI/H lamp

Notes: All items are individually packed.

Please order in the form given in the following example:-
6 Philips pre-wired gear boxes S.2500

Gear boxes for integral use with Hermes 2 high-bay luminaires are called up by a composite ordering code that also specifies the luminaire and accessories.

Details are included in Data Sheets PL 1867 and 1871.

Made in UK.

CI/SfB	(63.1)
UDC	696.6:628.972

HERMES 2

PHOTOMETRIC INFORMATION

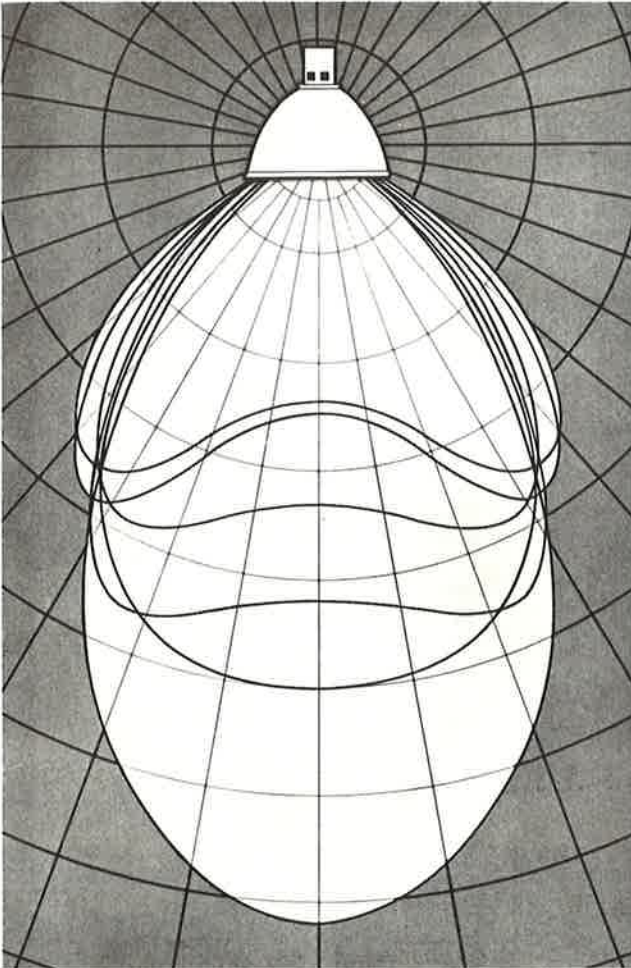
Photometric information - 150W-400W discharge lamps in universal reflector. Polar diagrams, utilization factor tables and other essential photometric information for discharge lamps in the Hermes 2 R.0010 universal reflector and R.0020 reflective skirt. The data included is chosen to meet the needs of the lighting designer.

RANGE

Photometric information is included to cover the following lamp types in 10 lampholder positions:-

- 250W HPL-N and 250W HPL-R
- 400W HPL-N and 400W HPL-R
- 150W SON
- 250W SON and 250W SON/R
- 400W SON and 400W SON/R

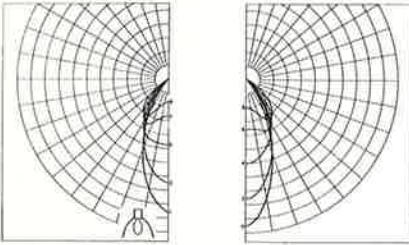
Note: Mercury Fluorescent Lamps
 UK marking MBF = Philips
 International marking HPL-N
 UK marking MBF/R = Philips
 International marking HPL-R



Handbook Ref	2.3.3
To reorder this data sheet quote 8.79 PL 1869	
Replaces	NEW

PHOTOMETRIC DATA

HERMES 2-250 HPL-N	
WITH	UNIVERSAL REFLECTOR
Mounting: SUSPENDED	



Position No.	0	1	2	3	4	5	6	7	8	9
CIE Flux Number	677374	687677	697879	698081	678081	668284	578283	598284	548185	497983
SHR MAX	0.71	0.76	0.83	0.87	1.01	1.15	1.24	1.55	1.52	1.61
SHR MAXTR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ULORL	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02
DLORL	0.76	0.78	0.81	0.83	0.83	0.85	0.85	0.85	0.85	0.84
LORL	0.79	0.81	0.84	0.85	0.85	0.87	0.87	0.87	0.87	0.86

GLARE DATA

Flux	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Fraction Ratio	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02
ACG	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Classification	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BZ	1	1	1	1	1	1	1	1	-	-
Classification	1	1	1	1	1	1	1	1	-	-

Luminous Area (sq. cm.) 2200

Measured: BS 5225 Part 1 1975

Dated: 6/3/79

Test No.	B201	B200	B199	B198	B197	B196	B195	B194	B193	B192
----------	------	------	------	------	------	------	------	------	------	------

LUMINOUS INTENSITIES cd/1000 lm.

Elevation Angle	Lamp Position					
	0	3	4	6	7	
0	1281	909	721	431	324	
5	1196	881	713	436	327	
10	1029	809	672	442	338	
15	855	725	624	452	360	
20	656	626	574	469	400	
25	454	510	505	469	429	
30	284	385	410	433	423	
35	165	265	300	360	379	
40	114	177	211	276	308	
45	74	116	141	199	232	
50	36	65	80	124	154	
55	16	30	38	62	83	
60	10	13	17	27	36	
65	7	8	9	12	15	
70	4	5	5	6	7	
75	4	3	3	4	4	
80	3	1	2	2	2	
85	2	1	1	1	1	
90	2	1	1	1	1	

Lamp Type: High Pressure Mercury
Lighting Design Lumens: 12,500.

Position No. 3

SHR 0.870

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	66	73	77	80	84	87	88	90	92
30	20	61	68	73	76	81	84	86	88	90	92
10	20	58	65	70	73	78	81	83	86	88	89
50	50	20	64	71	75	78	81	83	85	87	89
30	20	60	67	71	74	79	81	83	85	87	87
10	20	57	64	69	72	76	79	81	83	84	85
30	50	20	63	69	73	75	79	81	82	84	84
30	20	60	66	70	73	76	79	80	82	83	83
10	20	57	64	68	71	75	77	79	81	82	82
0	0	0	55	62	65	68	72	74	75	77	78

Position No. 4

SHR 1.010

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	65	72	76	79	84	86	88	90	92
30	20	60	68	72	76	80	83	85	88	90	90
10	20	57	65	69	73	78	81	83	86	88	88
50	50	20	64	70	74	77	81	83	85	87	88
30	20	62	69	73	76	80	83	85	87	88	88
10	20	56	64	68	71	75	79	81	83	85	85
30	50	20	62	69	72	75	78	81	82	83	84
30	20	59	66	70	72	76	79	80	82	83	83
10	20	56	63	67	70	74	77	79	81	82	82
0	0	0	54	61	65	68	71	74	75	77	78

Position No. 6

SHR 1.240

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	65	72	77	80	85	88	89	92	94
30	20	60	67	73	76	81	85	87	90	92	94
10	20	56	64	69	73	78	82	84	87	90	90
50	50	20	63	70	75	78	82	85	86	88	90
30	20	59	66	71	74	79	82	84	86	88	88
10	20	56	63	68	72	76	80	82	85	87	87
30	50	20	62	68	73	76	79	82	83	85	86
30	20	58	65	70	73	76	79	80	82	83	85
10	20	55	62	67	70	75	78	79	82	84	84
0	0	0	54	60	65	68	72	74	76	78	79

Position No. 0

SHR 0.710

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	63	68	72	75	78	80	82	84	85
30	20	59	65	68	71	75	78	79	82	83	83
10	20	56	62	65	69	73	75	77	80	82	82
50	50	20	61	67	70	72	75	77	78	80	81
30	20	58	63	67	70	73	75	77	79	80	81
10	20	55	61	65	67	71	73	75	77	79	79
30	50	20	60	65	68	70	73	74	76	77	78
30	20	57	62	66	68	71	73	74	76	77	77
10	20	55	60	64	66	69	71	73	75	76	76
0	0	0	53	58	61	64	66	68	69	71	71

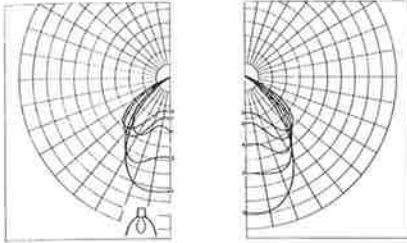
Position No. 7

SHR 1.550

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	68	74	78	81	86	88	90	92	94
30	20	64	69	74	78	82	85	87	90	92	94
10	20	60	66	71	75	79	83	85	87	89	91
50	50	20	67	72	76	79	83	85	87	89	91
30	20	63	68	73	76	80	83	85	87	89	89
10	20	60	65	70	73	78	81	83	85	88	88
30	50	20	66	70	74	77	80	82	84	85	87
30	20	62	67	71	74	78	80	82	84	86	86
10	20	59	64	69	72	76	79	80	83	85	85
0	0	0	58	62	66	69	73	75	77	79	80

PHOTOMETRIC DATA

HERMES 2-400 W HPL-N	
WITH	UNIVERSAL REFLECTOR
Mounting: SUSPENDED	



Position No.	0	1	2	3	4	5	6	7	8	9
CIE Flux Number	607577	575777	545777	515758	485759	447378	407177	370777	346878	316677
SHR MAX	1.13	1.23	1.36	1.49	1.60	1.71	1.81	1.91	2.02	2.06
SHR MAXTR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ULORL	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01
DLORL	0.77	0.77	0.78	0.78	0.79	0.78	0.78	0.78	0.78	0.78
LORL	0.79	0.79	0.80	0.80	0.80	0.79	0.79	0.79	0.79	0.79

GLARE DATA

Flux	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01
Fraction Ratio	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01
ACG	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Classification	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BZ	1	1	1	1	1	2	2	2	2/3	3
Classification	1	1	1	1	1	2	2	2	2/3	3
Luminous Area (sq. cm.) 2200										
Measured: BS 5225 Part 1 1975										
Dated: 29/3/79										
Test No.	B283	B284	B285	B286	B287	B288	B289	B290	B291	B292

LUMINOUS INTENSITIES cd/1000 lm.

Elevation Angle	Lamp Position				
	0	2	5	7	9
0	548	387	212	160	132
5	550	388	214	160	132
10	540	391	218	165	132
15	524	397	236	175	140
20	490	399	268	195	152
25	437	387	299	229	173
30	371	359	313	263	208
35	296	314	307	281	243
40	227	261	285	280	262
45	159	204	251	262	262
50	95	140	200	227	244
55	49	83	138	173	203
60	24	41	81	113	146
65	11	18	40	61	89
70	7	9	16	27	45
75	4	5	7	11	19
80	3	3	4	5	7
85	2	2	3	3	3
90	2	2	2	2	2

Lamp Type: High Pressure Mercury
Lighting Design Lumens: 21,300

Position No. 2

SHR 1.36

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	59	65	70	73	77	80	82	84	86
30	20	54	61	65	69	74	77	79	79	82	84
10	20	51	57	63	66	71	75	77	80	83	
50	50	20	58	64	68	71	75	77	79	81	82
30	20	54	60	65	69	72	75	77	79	81	
10	20	51	57	62	65	70	73	75	77	80	
30	50	20	56	62	66	69	72	75	76	78	79
30	20	53	59	63	66	70	73	74	76	78	
10	20	50	56	61	64	68	71	73	75	77	
0	0	0	49	54	59	61	65	68	69	71	73

Position No. 5

SHR 1.71

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	58	63	67	71	76	79	80	83	85
30	20	54	58	63	67	72	75	78	78	81	83
10	20	51	54	59	64	69	73	75	79	81	
50	50	20	57	61	65	69	73	76	78	80	81
30	20	53	57	62	65	70	73	75	78	80	
10	20	50	54	59	63	68	71	73	76	78	
30	50	20	56	59	64	67	71	73	75	77	78
30	20	53	56	60	64	69	71	73	75	77	
10	20	50	53	58	62	66	69	71	74	76	
0	0	0	48	51	56	59	64	66	68	70	72

Position No. 7

SHR 1.91

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	57	61	65	69	74	77	80	82	84
30	20	52	56	61	65	71	74	77	80	82	
10	20	49	52	57	61	67	71	74	78	80	
50	50	20	56	59	63	67	72	75	77	79	81
30	20	52	55	59	63	69	72	74	77	79	
10	20	49	51	56	60	66	70	72	75	77	
30	50	20	55	58	62	65	70	72	74	76	78
30	20	51	54	58	62	67	70	72	75	76	
10	20	48	51	55	59	65	68	70	73	75	
0	0	0	47	49	53	57	62	65	67	69	71

Position No. 0

SHR 1.13

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	59	66	70	73	77	80	81	84	85
30	20	55	62	66	70	74	77	79	82	83	
10	20	52	59	63	67	71	75	77	80	82	
50	50	20	58	64	68	71	75	77	78	80	82
30	20	54	61	65	68	72	75	76	79	80	
10	20	52	58	63	66	70	73	75	77	79	
30	50	20	57	63	67	69	72	74	76	77	78
30	20	54	60	64	66	70	73	74	76	77	
10	20	51	57	62	64	68	71	72	75	76	
0	0	0	50	56	59	62	66	68	69	71	72

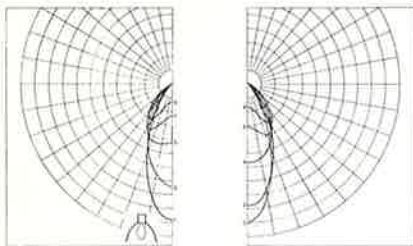
Position No. 9

SHR 2.06

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	55	58	63	67	72	76	78	81	83
30	20	50	53	58	62	68	72	75	79	81	
10	20	46	49	54	58	65	69	72	76	79	
50	50	20	54	57	61	65	70	73	75	78	80
30	20	49	52	56	60	66	70	73	76	78	
10	20	46	48	53	57	63	68	70	74	76	
30	50	20	52	55	59	62	68	71	72	75	77
30	20	48	51	55	59	65	68	70	73	75	
10	20	46	48	52	56	62	66	68	72	74	
0	0	0	44	46	50	54	59	63	65	68	70

PHOTOMETRIC DATA

HERMES 2-150 W SON	
WITH	UNIVERSAL REFLECTOR
Mounting: SUSPENDED	



Position No.	0	1	2	3	4	5	6	7	8	9
CIE Flux Number	606566	657273	67475	657475	637375	617475	597577	577775	517477	467275
SHR MAX	0.68	0.73	0.78	0.86	0.97	1.13	1.26	1.36	0.99	1.01
SHR MAXTR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ULORL	0.04	0.04	0.03	0.03	0.02	0.02	0.01	0.02	0.01	0.01
DLORL	0.67	0.74	0.76	0.75	0.75	0.76	0.77	0.79	0.77	0.75
LORL	0.71	0.78	0.79	0.78	0.77	0.78	0.78	0.81	0.78	0.76

GLARE DATA

Flux	0.06	0.05	0.04	0.04	0.03	0.03	0.01	0.03	0.01	0.01
Fraction Ratio	0.06	0.05	0.04	0.04	0.03	0.03	0.01	0.03	0.01	0.01
ACG	0.06	0.05	0.04	0.04	0.03	0.03	0.01	0.03	0.01	0.01
Classification	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BZ	1	1	1	1	1	1	1	1	-	-
Classification	1	1	1	1	1	1	1	1	-	-
Luminous Area (sq. cm.)	2200									
Measured: BS 5225 Part 1	1975									
Dated:	27/3/79									
Test No.	B261	B262	B263	B264	B265	B266	B267	B268	B269	B270

LUMINOUS INTENSITIES cd/1000 lm.

Elevation Angle	Lamp Position				
	0	3	5	6	7
0	1236	905	513	370	277
5	1170	880	522	381	283
10	1004	804	527	406	305
15	806	715	526	437	347
20	588	607	516	465	401
25	384	479	477	462	433
30	230	344	396	415	420
35	131	222	293	330	363
40	91	143	203	240	280
45	57	94	136	165	200
50	30	53	79	101	128
55	16	27	40	52	68
60	11	14	20	25	32
65	7	9	11	13	15
70	6	6	7	8	8
75	4	5	5	5	6
80	3	3	3	3	3
85	3	2	2	2	2
90	3	2	2	2	2

Lamp Type: High Pressure Sodium
Lighting Design Lumens: 13,500

Position No. 3 SHR 0.86

Utilization Factors UF(F)		Room Index								
Reflectance		0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
C	W F									
70	50 20	61	67	71	73	77	79	81	83	84
30	20	57	63	67	70	74	77	78	81	82
10	20	54	60	64	67	72	74	76	79	81
50	50 20	59	65	69	71	74	76	77	79	80
30	20	56	62	65	68	72	74	76	78	79
10	20	53	59	63	66	70	72	74	76	78
30	50 20	58	63	67	69	72	73	75	76	77
30	20	55	61	64	67	70	72	73	75	76
10	20	53	58	62	65	68	70	72	74	75
0	0 0	51	57	60	62	65	67	68	70	71

Position No. 5 SHR 1.13

Utilization Factors UF(F)		Room Index								
Reflectance		0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
C	W F									
70	50 20	60	66	70	73	77	79	81	83	84
30	20	56	62	67	70	74	77	78	81	83
10	20	53	59	64	67	71	74	76	79	81
50	50 20	59	65	68	71	74	76	78	80	81
30	20	56	61	65	68	72	74	76	78	79
10	20	53	59	63	66	70	73	74	77	78
30	50 20	58	63	67	69	72	74	75	77	77
30	20	55	60	64	67	70	72	73	75	76
10	20	52	58	62	65	68	71	72	74	75
0	0 0	51	56	60	62	65	68	69	70	71

Position No. 6 SHR 1.26

Utilization Factors UF(F)		Room Index								
Reflectance		0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
C	W F									
70	50 20	60	66	70	73	77	79	81	83	84
30	20	56	61	66	69	74	77	78	81	83
10	20	53	58	64	67	71	74	76	79	81
50	50 20	59	64	68	71	74	77	78	80	81
30	20	56	60	65	68	72	75	76	78	80
10	20	52	58	63	66	70	73	74	77	78
30	50 20	58	63	67	69	72	74	75	77	78
30	20	54	60	64	66	70	72	74	76	77
10	20	52	57	62	64	68	71	72	74	76
0	0 0	51	56	60	62	65	68	69	71	72

Position No. 0 SHR 0.68

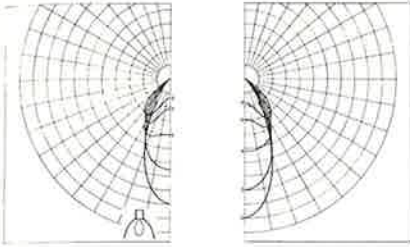
Utilization Factors UF(F)		Room Index								
Reflectance		0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
C	W F									
70	50 20	56	61	65	67	70	72	73	75	76
30	20	53	58	62	64	67	70	71	73	75
10	20	50	56	59	62	65	68	69	72	73
50	50 20	55	60	63	65	67	69	70	72	73
30	20	52	57	60	62	65	67	69	70	71
10	20	50	55	58	60	63	66	67	69	70
30	50 20	54	58	61	63	65	66	67	69	69
30	20	51	56	59	61	63	65	66	68	68
10	20	49	54	57	59	62	64	65	67	68
0	0 0	48	52	55	57	59	60	61	63	64

Position No. 7 SHR 1.36

Utilization Factors UF(F)		Room Index								
Reflectance		0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
C	W F									
70	50 20	61	67	72	75	79	82	83	86	87
30	20	56	62	67	71	75	79	81	83	84
10	20	53	59	64	68	73	76	78	81	84
50	50 20	59	65	70	72	76	79	80	82	84
30	20	55	61	66	69	73	76	78	80	82
10	20	52	58	63	67	71	74	76	79	81
30	50 20	58	64	68	70	74	76	77	79	80
30	20	55	60	65	68	71	74	75	78	79
10	20	52	58	62	65	69	72	74	76	78
0	0 0	50	56	60	63	67	69	70	72	74

PHOTOMETRIC DATA

HERMES 2-250 W SON	
WITH	UNIVERSAL REFLECTOR
Mounting: SUSPENDED	



Position No.	0	1	2	3	4	5	6	7	8	9
CIE Flux Number	65173	66734	68777	69778	66789	64789	61980	57780	53781	477780
SHR MAX	0.72	0.77	0.84	0.92	1.06	1.19	1.34	1.45	1.03	1.05
SHR MAXTR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ULORL	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02
DLORL	0.73	0.75	0.78	0.79	0.80	0.80	0.81	0.81	0.82	0.81
LORL	0.76	0.78	0.81	0.81	0.82	0.82	0.83	0.83	0.84	0.83

GLARE DATA

Flux	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Fraction Ratio	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02
ACG	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Classification	1	1	1	1	1	1	1	1	-	-
BZ	1	1	1	1	1	1	1	1	-	-
Classification	1	1	1	1	1	1	1	1	-	-
Luminous Area (sq. cm.) 2200										
Measured: BS 5225 Part 1 1975										
Dated: 6/3/79										
Test No.	B182	B183	B184	B185	B186	B187	B188	B189	B190	B191

LUMINOUS INTENSITIES cd/1000 lm.

Elevation Angle	Lamp Position				
	0	3	5	7	
0	1220	791	632	486	263
5	1166	781	632	488	268
10	1035	746	618	494	283
15	864	695	601	506	319
20	650	617	572	516	373
25	435	510	513	496	417
30	265	379	413	432	424
35	153	252	294	330	381
40	110	167	199	232	305
45	70	111	133	158	223
50	32	61	75	92	145
55	14	27	34	43	75
60	9	12	15	18	31
65	6	8	8	9	13
70	4	4	5	5	7
75	3	3	3	3	3
80	2	2	2	2	2
85	2	2	1	1	1
90	2	1	1	1	1

Lamp Type: High Pressure Sodium
Lighting Design Lumens: 24,000

Position No. 3

SHR 0.92

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	63	70	74	76	80	83	84	86	88
30	20	59	66	70	73	77	80	82	84	86	86
10	20	56	63	67	70	75	78	80	83	84	84
50	50	62	68	72	74	78	80	81	83	84	84
30	20	58	65	69	71	75	78	79	81	83	83
10	20	56	62	66	69	73	76	77	80	81	81
30	50	61	67	70	72	75	77	78	80	81	81
30	20	58	64	67	70	73	75	77	78	79	79
10	20	55	61	65	68	72	74	75	77	78	78
0	0	0	54	59	63	65	69	71	72	73	74

Position No. 4

SHR 1.06

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	64	70	74	77	81	84	85	87	89
30	20	59	66	70	74	78	81	83	85	87	87
10	20	56	63	68	71	75	79	80	83	85	85
50	50	62	69	72	75	78	81	82	84	85	85
30	20	58	65	69	72	76	78	80	82	83	83
10	20	56	62	67	70	74	77	78	81	82	82
30	50	61	67	70	73	76	78	79	81	82	82
30	20	58	64	68	70	74	76	77	79	80	80
10	20	55	62	66	68	72	75	76	78	79	79
0	0	0	54	60	63	66	69	71	72	74	75

Position No. 5

SHR 1.19

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	63	70	74	77	81	83	85	87	89
30	20	59	66	70	73	78	81	82	85	87	87
10	20	56	62	67	70	75	78	80	83	85	85
50	50	62	68	72	75	78	80	82	84	85	85
30	20	58	64	69	72	75	78	80	82	83	83
10	20	55	62	66	69	73	76	78	80	82	82
30	50	61	66	70	73	76	78	79	80	81	81
30	20	57	63	67	70	74	76	77	79	80	80
10	20	55	61	65	68	72	74	76	78	79	79
0	0	0	53	59	63	65	69	71	72	74	75

Position No. 0

SHR 0.72

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	61	66	70	72	75	77	79	81	82
30	20	57	63	66	69	73	75	77	79	80	80
10	20	55	60	64	67	70	73	75	77	79	79
50	50	60	65	68	70	73	74	76	77	78	78
30	20	56	62	65	67	70	72	74	76	77	77
10	20	54	59	63	65	69	71	72	75	76	76
30	50	59	63	66	68	70	72	73	74	75	75
30	20	56	61	64	66	69	70	72	73	74	74
10	20	54	59	62	64	67	69	70	72	73	73
0	0	0	52	57	60	62	64	66	67	68	69

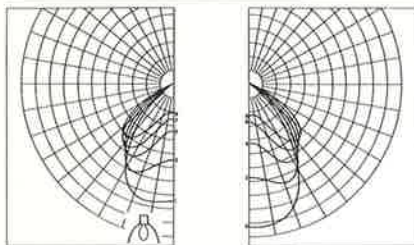
Position No. 7

SHR 1.45

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	63	69	74	77	81	84	85	88	90
30	20	58	64	70	73	78	81	83	85	88	88
10	20	55	61	66	70	75	78	80	84	86	86
50	50	61	67	72	74	78	81	82	84	85	85
30	20	57	63	68	71	75	78	80	82	84	84
10	20	54	60	65	69	73	76	78	81	83	83
30	50	60	66	70	72	75	78	79	81	82	82
30	20	57	62	67	70	74	76	78	80	81	81
10	20	54	60	64	67	72	74	76	78	80	80
0	0	0	52	58	62	65	69	71	72	74	76

PHOTOMETRIC DATA

HERMES 2-400 W SON
WITH UNIVERSAL REFLECTOR
Mounting: SUSPENDED



Position No.	0	1	2	3	4	5	6	7	8	9
CIE Flux Number	62767	59781	56768	53779	49759	46759	41739	39741	34718	316876
SHR MAX	1.1	1.23	1.37	1.49	1.59	1.7	1.36	1.45	1.56	1.8
SHR MAXTR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ULORL	0.01	0.02	0.01	0.0	0.0	0.0	0.01	0.01	0.01	0.01
DLORL	0.78	0.78	0.78	0.80	0.79	0.80	0.79	0.81	0.80	0.79
LORL	0.79	0.80	0.79	0.80	0.80	0.80	0.80	0.82	0.81	0.80

GLARE DATA

Flux	0.01	0.02	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01
Fraction Ratio	0.01	0.02	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01
ACG	0.01	0.02	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.01
Classification	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BZ	1	1	1	1	1	2	-	-	-	-
Classification	1	1	1	1	1	2	-	-	-	-
Luminous Area (sq. cm.)	2200									
Measured:	BS 5225 Part 1 1975									
Dated:	28/3/79									
Test No.	B272	B273	B274	B275	B276	B277	B278	B279	B280	B281

LUMINOUS INTENSITIES cd/1000 lm.

Elevation Angle	Lamp Position				
	0	1	2	3	5
0	570	470	372	301	189
5	570	474	377	307	192
10	562	476	387	320	205
15	546	478	403	343	231
20	515	467	413	369	271
25	461	438	406	381	310
30	387	388	378	370	330
35	298	318	328	337	328
40	218	245	265	286	305
45	148	175	200	226	263
50	88	109	132	156	202
55	44	57	74	93	134
60	21	27	35	45	73
65	10	13	16	20	33
70	6	7	7	9	14
75	4	4	4	5	6
80	2	3	2	3	3
85	1	2	1	2	2
90	1	1	1	1	1

Lamp Type: High Pressure Sodium
Lighting Design Lumens: 45,000

Position No. 1 SHR 1.23

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	60	67	71	74	78	81	82	85	86
30	20	56	62	67	70	75	78	80	83	84	84
10	20	53	59	64	68	72	76	78	81	83	83
50	50	20	59	65	69	72	76	78	79	81	83
30	20	55	61	66	69	73	76	77	80	81	81
10	20	52	59	63	66	71	74	76	78	80	80
30	50	20	58	63	68	70	73	75	77	78	79
10	20	55	60	65	67	71	74	75	77	78	78
0	0	0	50	56	60	63	66	69	70	72	73

Position No. 2 SHR 1.37

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	60	70	70	73	77	80	82	84	86
30	20	55	66	66	70	74	77	79	82	84	84
10	20	52	63	67	72	75	77	80	82	83	83
50	50	20	59	68	69	71	75	77	79	81	82
30	20	55	65	65	68	72	75	77	79	81	81
10	20	52	62	63	66	70	73	75	78	80	80
30	50	20	58	67	67	69	73	76	76	78	79
30	20	54	64	64	67	71	73	74	76	78	78
10	20	52	62	62	65	69	71	73	75	77	77
0	0	0	50	60	60	62	66	68	70	72	73

Position No. 3 SHR 1.49

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	60	66	71	74	78	81	83	85	87
30	20	56	62	67	71	75	78	80	83	83	85
10	20	53	59	64	67	72	76	78	81	84	84
50	50	20	59	65	69	72	76	79	80	82	84
30	20	55	61	66	69	73	76	78	80	83	83
10	20	53	58	63	67	71	74	76	79	81	81
30	50	20	58	64	68	71	74	76	78	79	81
30	20	55	60	65	68	72	74	76	78	80	80
10	20	52	58	62	66	70	73	74	77	79	79
0	0	0	51	56	60	63	67	70	71	73	75

Position No. 0 SHR 1.1

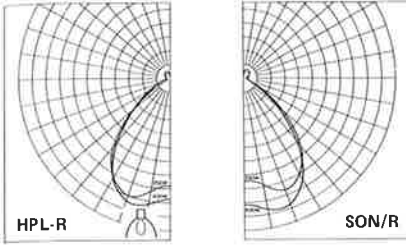
Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	60	67	71	74	78	81	82	84	86
30	20	56	63	67	71	75	78	80	82	84	84
10	20	53	60	65	68	72	76	78	80	82	82
50	50	20	59	66	69	72	76	78	79	81	82
30	20	56	62	66	69	73	76	77	79	81	81
10	20	53	59	64	67	71	74	76	78	79	79
30	50	20	58	64	68	70	73	75	77	78	79
30	20	55	61	65	68	71	74	75	77	78	78
10	20	52	59	63	66	69	72	74	76	77	77
0	0	0	51	57	61	63	67	69	70	72	73

Position No. 5 SHR 1.7

Utilization Factors UF(F)											
Reflectance			Room Index								
C	W	F	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	60	64	69	73	77	80	82	85	86
30	20	56	60	65	69	74	77	79	82	84	84
10	20	52	56	61	66	71	75	77	80	83	83
50	50	20	59	63	67	71	76	78	79	82	85
30	20	55	59	64	67	72	75	77	80	82	83
10	20	52	56	61	65	70	73	75	78	80	80
30	50	20	58	61	66	69	73	75	77	79	80
30	20	54	58	62	66	70	73	75	77	79	79
10	20	52	55	60	64	68	71	73	76	78	78
0	0	0	50	53	58	62	66	68	70	72	74

PHOTOMETRIC DATA

HERMES 2 250W & 400W SON/R & HPL-R	
WITH	REFLECTING SKIRT
Mounting: SUSPENDED	



LAMP	250w SON/R	400w SON/R	250w HPL-R	400w HPL-R
CIE Flux Number	507480	547580	527782	537581
SHR MAX	1.52	1.34	1.51	1.38
SHR MAXTR	N/A	N/A	N/A	N/A
ULORL	0.13	0.13	0.10	0.12
DLORL	0.81	0.82	0.84	0.82
LORL	0.94	0.95	0.94	0.94
Flux Fraction Ratio	0.16	0.16	0.12	0.15
ACG Classification	N/A	N/A	N/A	N/A
BZ Classification	2	2	2	2
Luminous Area (sq. cm.) 600				
Measured: BS 5225 Part 1 1975				
Dated: 7/5/79				
Test No.	B341	B345	B344	B348

LUMINOUS INTENSITIES cd/1000 lm.

Elevation Angle	250W	400W	250W	400W
	SON/R		HPL-R	
0	303	375	314	355
5	305	381	318	361
10	319	394	334	375
15	339	401	355	386
20	352	395	367	385
25	349	378	364	372
30	334	352	349	349
35	311	314	324	314
40	375	257	285	262
45	221	193	227	202
50	159	136	161	146
55	104	93	107	100
60	67	62	70	68
65	42	38	44	42
70	24	22	25	24
75	13	13	13	13
80	9	11	9	9
85	10	12	9	10
90	11	13	9	11

Lamp Type: High Pressure Sodium
 High Pressure Mercury
 Lighting Design Lumens: 250w SON/R 22100
 400w SON/R 38400
 250w HPL-R 10500
 400w HPL-R 18000

* The values of SHR MAX given in this Data Sheet are taken from the 'Mid-Point Ratio' calculation method specified in the IES Technical Report No. 2. However, the true maximum and minimum values occurring between the centre four luminaires are used here rather than those assumed in the above report. The positions not underlined are recommended for all high-bay lighting applications. To avoid engineers extrapolating incorrectly, the results for other settings are shown underlined, these are not recommended for normal design work. † The BZ Classification is based on the assumption that the installation will usually employ a lamp position (hence a specific SHR MAX) which is appropriate to the room proportions. If the application is different, the BZ Classification may be different to that shown.

250W SON/R

SHR 1.52

Utilization Factors UF(F)												
Reflectance				Room Index								
C	W	F		0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	63	70	76	80	85	88	91	94	96	
	30	20	58	64	70	75	81	84	87	91	94	
	10	20	54	60	66	71	77	81	84	88	92	
50	50	20	61	67	72	76	80	83	85	88	90	
	30	20	56	62	68	71	77	80	83	86	88	
	10	20	52	58	64	69	74	77	80	84	87	
30	50	20	58	64	69	72	76	78	80	82	84	
	30	20	54	60	65	68	73	76	78	81	83	
	10	20	51	57	62	66	71	74	76	79	82	
0	0	0	48	53	58	61	65	68	70	72	75	

400W SON/R

SHR 1.34

Utilization Factors UF(F)												
Reflectance				Room Index								
C	W	F		0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	63	71	76	80	86	89	92	95	97	
	30	20	57	65	71	75	81	85	88	92	94	
	10	20	53	61	67	71	77	82	85	89	92	
50	50	20	61	67	73	76	81	84	86	89	91	
	30	20	56	63	68	72	77	81	83	86	89	
	10	20	52	59	65	69	74	78	81	84	87	
30	50	20	58	64	69	72	76	79	81	83	85	
	30	20	54	60	66	69	74	77	79	81	83	
	10	20	51	57	63	66	71	75	77	80	82	
0	0	0	48	54	59	62	66	69	71	73	75	

250W HPL-R

SHR 1.51

Utilization Factors UF(F)												
Reflectance				Room Index								
C	W	F		0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	64	71	77	81	86	90	92	95	97	
	30	20	59	66	72	76	82	86	89	92	95	
	10	20	55	61	68	72	78	82	86	90	93	
50	50	20	62	68	74	77	82	85	87	90	92	
	30	20	57	64	69	73	78	82	84	87	90	
	10	20	54	60	66	70	75	79	82	85	88	
30	50	20	60	66	70	74	78	81	82	85	87	
	30	20	56	62	67	70	75	78	80	83	85	
	10	20	53	59	64	68	73	76	78	81	84	
0	0	0	50	55	60	64	68	71	73	75	77	

400W HPL-R

SHR 1.38

Utilization Factors UF(F)												
Reflectance				Room Index								
C	W	F		0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
70	50	20	63	70	76	80	85	89	91	94	96	
	30	20	57	64	70	75	81	85	87	91	94	
	10	20	53	60	66	71	77	81	84	88	92	
50	50	20	60	67	72	76	80	84	86	88	90	
	30	20	55	62	68	71	77	80	83	86	88	
	10	20	52	58	64	68	74	78	80	84	87	
30	50	20	58	64	69	72	76	79	81	83	85	
	30	20	54	60	65	69	73	76	78	81	83	
	10	20	50	57	62	66	71	74	76	79	82	
0	0	0	48	53	58	61	66	69	71	73	75	

ROADLIGHTING

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MASOX Major Road Lantern	PL1266/1	209
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XGS, HGS, SGS Group A & B	PL1775/2	223
SRP013 High Mast	PL1838	227
M155	PL1893/1	229
M150 Group B	PL1774/1	231

CI/SIB
(90.6)

UDC
696.6:628.971

MA SOX RANGE Roadlighting Lanterns



Highly efficient MA Lantern for use with 90W, 135W, and 180W SOX low pressure sodium lamps. Unique optics provide both 'cut-off' and 'semi cut-off' distribution in one lantern. The lantern, comprising of three interchangeable modules, minimises stock of spares.

RANGE

Modular construction comprising of bowl, canopy and spigot entry, available without gear or with hingeable gear shoe in the following ratings.

90W Overall length 819mm
90W Overall length 1002mm with gear shoe
135W Overall length 1066mm
135W Overall length 1249mm with gear shoe
180W Overall length 1411mm
180W Overall length 1594mm with gear shoe

APPLICATIONS

Modern motorway and major road where 'cut-off' and 'semi cut-off' distribution is required from one lantern-giving both efficiency and uniformity to the overall scheme.

The MASOX lantern-winner of the Design Council Award 1975.

Handbook Ref

3.1.1

To reorder this Data Sheet quote 11 77 PL 1266/1

Replaces

PL 1266

FEATURES

■Dual purpose lantern with unique optics provide both 'cut-off' and 'semi cut-off' distribution from a single lantern. A simple adjustment of the lampholder and lamp support bracket alters the position in the housing to provide the two light distributions with no additional components.

■Optical system designed to meet the BS1788 and the BS4533 'cut-off' and 'semi cut-off' and C.I.E. 12 'semi cut-off' requirements.

■Versatility of the product reduces spares stock and maintenance costs. Greater visible uniformity on lighting schemes.

■Basic modular construction. A complete lantern comprises of three separate components; canopy, prismatic bowl and spigot entry module.

■Canopy and bowl can be standardized throughout the scheme.

■Spigot entry module available without control gear housing or with integral hinged gear shoe. The modular construction offers easier installation, maintenance and lower maintenance stock.

■Injection moulded acrylic reflector bowl with high quality interior prisms.

■Hinged gear shoe when released from safety catches can be completely removed for replacement.

■Electrical connections are made by plug and socket and the integral gear version incorporates replaceable cartridge fuse link.

■The canopy is constructed in glass fibre re-inforced polyester (GRP) and formed by a special pressing method, giving a very smooth surface structure that discourages dust and grime from settling. The pressing method prevents inherent stresses from forming in the canopy during construction, and combines great mechanical and tensile strength when subject to vibration.

■The GRP canopy is self-coloured white throughout and combines an additive to improve UV resistance. It is light in weight, is resistant to chemical and weather influences and will not discolour.

■Lamp compartment is housed in the canopy module separate from the control gear module; a specification requirement now in force in many countries for motorway lighting.

■All internal wiring is of heat resistant material.

■Low profile canopy with low drag specially designed to minimise the windage area and so reduce the amount of stress on the column.

■Built in provision for one or two part photocells. The lantern can be supplied complete with photocell.

■Stainless steel used for all exposed bolts and screws to resist corrosion.

■Stainless steel spring clips allow reflector bowl to be safely hinged down for cleaning or complete removal of the bowls.

■Spigot entry module, made from die-cast non-corrosive aluminium alloy, designed for side entry mounting configuration for either 42 or 48mm spigots.

■Extruded neoprene gasket between canopy and bowl provides resilient seal. Spring clips ensure an even pressure all round.

MATERIALS & FINISH

Reflector bowl: injection moulded acrylic.

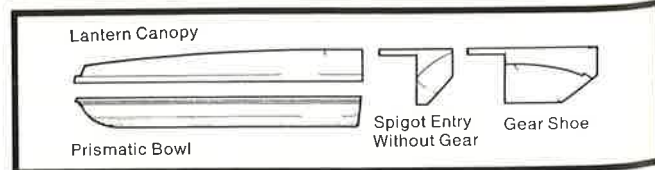
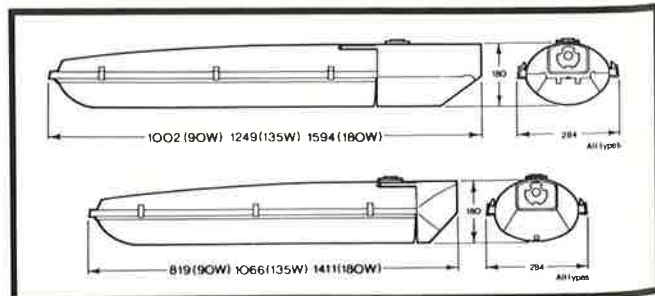
Canopy: glass fibre re-inforced polyester (GRP) pressing.

Spigot: Die-cast non-corrosive alloy.

Gasket for housing: extruded neoprene rubber.

Fixing clips: spring stainless steel.

Internal wiring: heat resistant PVC.



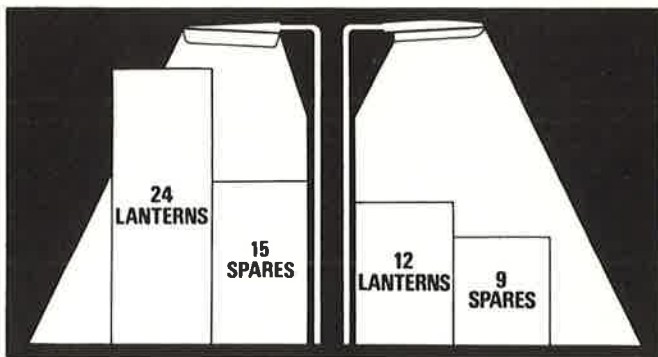
BASIC MODULAR CONSTRUCTION

For easy installation, maintenance and stock control, the new range of Lanterns are of modular construction. The canopy and bowl are basic components to which a spigot entry module, either without control gear or with hingeable gear shoe, is added.

SPECIFICATION

To specify state:

- Lanterns shall be certified by the British Standards Institution as fully complying with the requirements of BS 4533: Part 2: Section 2. 7: 1976.
- Lanterns shall be of a type currently acceptable to the Department of the Environment.
- The Lantern shall have a downward light output ratio of 0.74 (cut-off) or 0.75 (semi cut-off).
- The Lantern shall be totally enclosed, side entry mounting on 42/48 mm. o.d. spigots 100 mm. long and suitable for use with SOX low pressure sodium lamps.
- The Lantern shall have, as an integral part of the design, adjustment for both 'semi cut-off' light distribution and 'cut-off' light distribution.
- The Lantern shall have International Protection category IP23.
- The Lantern shall be similar to Philips MA SOX range.



Typical U.K. Group 'A' SOX Lantern Range with Spares

New Philips Range and Spares to cover same range of Application

Comparison of the number of separate stock types required to cover the full range of Group 'A' SOX applications, using first a typical Group 'A' range, and secondly the new Philips MA range. Both produce the same application capability.

7

DIMENSIONS, WEIGHTS & ELECTRICAL DATA

LAMP DATA

Lamp Rating	Lighting Design Lumens	Lamp, Volts V	Lamp, Current A Nominal	Dimensions mm O/A Length	Dia.	Cap	Packing Qty.
90W	12,250	112	0.95	528	66	BC	9
135W	21,200	164	0.95	775	66	BC	9
180W	31,500	245	0.90	1120	66	BC	9

CONTROL GEAR DATA

Catalogue No.	Description	Rating	Total Circuit Watts	Voltage @50Hz	Dimensions mm. Length O/A	Width	Body	Fixing Centre	Weight kg	Packing Qty.
L5090BX	90W Ballast	—	118	230/250	188	101.5	139.5	171.5	5.40	6
L4025/07	Capacitor	25 μ F \pm 10%	—	250	95	45	—	—	0.14	30
L4135	135/180W Ballast	—	—	190/250	188.5	106	130	176.5	6.80	4
L5020/07	Capacitor	20 μ F \pm 10%	—	300	95	45	—	—	0.12	30

*135W circuit 175 Watts
180W circuit 220 Watts

PHOTOCELL DATA

Description	Cat. No.	Voltage Range	Switch Differential	Weight, kg.	Packing, Qty.
3-pin twist (one-part)	SS4	200/250V	1:2	0.20	10

REPLACEMENT PARTS AVAILABLE

Catalogue Number	Description	Packing Qty.	Catalogue Number	Description	Packing Qty.
R8020	90W Gear Unit	1	R8154	90W Refractor Bowl	1
R8021	135W/180W Gear Unit	1	R8155	135W Refractor Bowl	1
			R8156	180W Refractor Bowl	1

PHOTOMETRIC DATA

Lantern

Type	MA90	MA50	MA60
Refractor type	Injection moulded acrylic		
Lampholder position	Cut-off Lamp position 1 Semi Cut-off Lamp position 3		
Angle of tilt	4°		

Light Output Ratios

Upper hemisphere		<i>Cut-Off</i>	<i>Semi Cut-Off</i>
Lower hemisphere	{ Total Road side Kerb side	.74	.75
		.37	.375
		.37	.375
Total		.76	.77

Cut-off

Light output in lower hemisphere (downward flux lumens)

SOX	90W	135W	180W
	9060	15700	23500

Semi Cut-off

Light output in lower hemisphere (downward flux lumens)

SOX	90W	135W	180W
	9200	15900	23600

Lamp(s)

Type	SOX		
Luminous flux	90W	135W	180W
	12250	21200	31500

Type of distribution

Downward light output ratio

Angle of elevation, upper limit of beam
lower limit of beam

Peak intensity ratio

Downward zone
Maximum Intensity Ratio
Minimum Intensity Ratio
Maximum Intensity
Peak Intensity

0° to 30° from vertical in all directions.

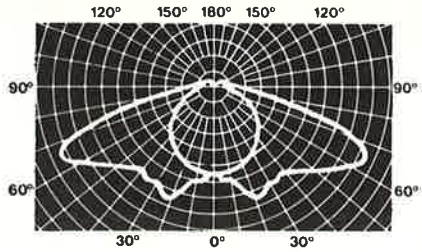
Angle of elevation at which the intensity ratio is 1.2 in the vertical plane parallel to the street axis

Intensity ratio at the horizontal in the vertical plane parallel to the street axis

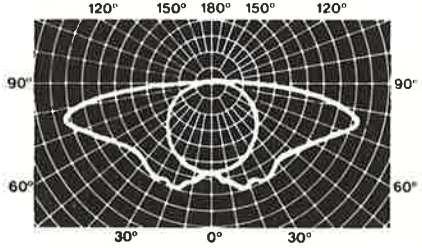
Angle of Azimuth between beam centre and road axis

Cut-Off	Semi Cut-Off
0.74	0.75
70°	80°
58°	73°
2.12	1.92
1.50	1.44
0.92	0.93
70%	74%
74½°	83°
0.12	0.17
1°	1°

Polar light distribution curves (cut-off)



Polar light distribution (semi-cut-off)



LANTERN ORDERING DATA

Ordering Code	Rating	Downward Light Output Ratio		Dimensions mm		Control Gear	NEMA Photo Cell Socket Fitted	Weight Kg	Windage		
		Semi	Cut-Off	Length	Depth				Plan M ²	Elevation M ²	
MA 90	1 × 90W SOX	0.75	0.74	819	180	LOOSE	NO	6.10	0.21	0.13	
				819		INTEGRAL	YES				6.30
				1002		INTEGRAL	NO				14.50
				1002		INTEGRAL	YES				14.70
MA 50	1 × 135W SOX	0.75	0.74	1066	180	LOOSE	NO	7.50	0.28	0.17	
				1066		INTEGRAL	YES				7.70
				1249		INTEGRAL	NO				17.30
				1249		INTEGRAL	YES				17.50
MA 60	1 × 180W SOX	0.75	0.74	1411	180	LOOSE	NO	9.40	0.38	0.23	
				1411		INTEGRAL	YES				9.60
				1594		INTEGRAL	NO				19.20
				1594		INTEGRAL	YES				19.40

CI/SIB (90.6)

UDC 696.6 : 628.971

MA 30 RANGE

Roadlighting Lantern

For Group 'A' Road lighting and Area Lighting offering a choice of SON lamps or PowerWhite (MBF/U=HPL) lamps. Cut-off or Semi cut-off light distribution from one lantern. For use with remote mounted control gear.

RANGE

Choice of two lamp types and five wattages:

Energy saving SON lamp 150W, 250W and 400W

or alternative

PowerWhite (MBF/U=HPL) 250W and 400W.

APPLICATIONS

Possible applications include:

- Motorways
- Highways
- Secondary roads
- Area lighting
- Security lighting
- Factory perimeter lighting
- Garage forecourts

FEATURES

- Lightweight lantern canopy, of spun aluminium construction, pre-treated stove-enamelled white, both outside and inside.
- Spigot entry corrosion resistant die-cast aluminium alloy (LM6M).
- One piece acrylic bowl attached to the body with stainless steel clips.
- No clips on bowls ensuring easy storage without scratching bowls.
- Nylon bowl retaining straps – unclip easily to allow full access for maintenance.
- Neoprene gasket ensures dust and weatherproof seal.
- Degree of Protection IP23.
- 42mm diameter (1½" BSP) spigot entry, 100mm long.



Handbook Ref.

3.1.2

To reorder this data sheet quote

3.78 PL 1822

Replaces

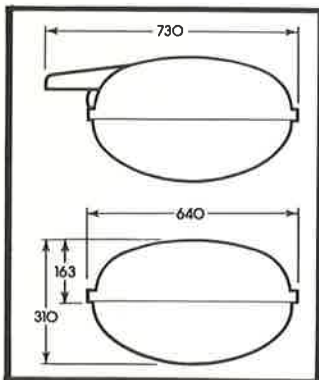
PL 1270/1

Features continued

- Lanterns pre-wired with heat resistant cables to terminal block and GES lampholder with separate cable clamp.
- Lantern to accept NEMA sockets or two part photocell supplied if required.
- Optical system uses highly polished side reflectors, made from super purity aluminium alloy, chemically brightened and anodised.
- Cut-off and semi cut-off light distribution achieved by simple adjustment of the lampholder position and the mirrors.
- Lanterns designed to comply with BS 1788 and BS 4533.
- Lanterns supplied in semi cut-off form, ready for 250W SON/MBF light distribution.
- Suitable earthing facilities adjacent to terminal block.

INSTALLATION

- See C.I.S. No. 42.



SPECIFICATION

- Certified by the British Standards Institution as fully complying with BS 4533 and BS 1788.
- Lanterns are of a type currently acceptable to the Department of the Environment.
- The downward light output ratio exceeds 0.75.
- Lanterns are totally enclosed, side entry mounting on a 42-48mm o.d. spigot 100mm long and suitable for use with:
 1. High-pressure Sodium (SON) discharge lamps.
 2. High-pressure Mercury Fluorescent (MBF) discharge lamps.
- Integral adjustment for both semi cut-off and cut-off light distribution.
- Control gear situated remote from lantern.
- Provision for fixing and wiring NEMA socket, if required.

To specify state:

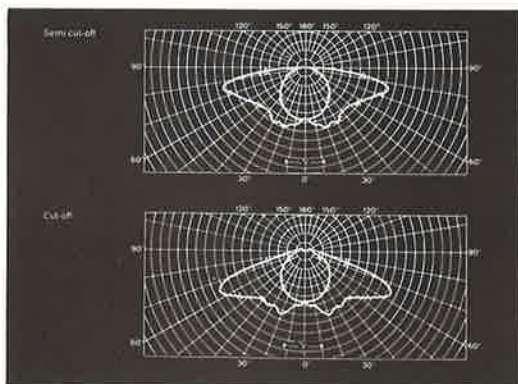
Roadlighting lantern which fully complies with the requirements of BS 4533 and BS 1788. The lantern shall have, as an integral part of its construction, the facility for providing either cut-off or semi cut-off light distribution by simple adjustment of the lampholder and mirror and shall be Philips MA 30 or similar.

MATERIALS & FINISH

- Canopy:** Spun aluminium finished white stoved enamel.
- Bowl:** Acrylic plastic.
- Sealing gasket:** Neoprene seal.
- Spigot entry:** Cast aluminium LM6M.
- Reflectors:** Super purity aluminium alloy. Chemically brightened and anodised.

RANGE OF OPERATION

- Supply Voltage: 240 Volt 50 Hz supply subject to statutory tolerances.
- Earthing: Suitable facilities adjacent to lampholder.



LAMP & CONTROL GEAR DATA

Lamp type	Lumens	Cap	Ballast type	Voltage tapped	Ignitor type	Lamp Voltage (V)	Lamp Current (A)	Total Circuit Watts	Recommended P.F. Capacitor	Mains Current Amperes Start	Mains Current Amperes Run	Fuse Rating HRC
150W SON	13,500	GES	L4154BX	240	S50	100	1.8	174	L4016/07	1.2	0.9	10
250W SON	24,000	GES	L4254	210/225/240	S50	100	3.0	280	2 x L4016/07	1.8	1.3	10
400W SON	45,000	GES	L4404	210/225/240	S50	105	4.4	440	2 x L4020/07	3.0	2.2	15
250W MBF/U = HPL	12,000	GES	L5250BX	240	—	135	2.0	268	L4016/07	2.1	1.3	10
400W MBF/U = HPL	21,500	GES	L5400BX	240	—	140	3.2	424	L4020/07	3.5	2.1	15

ORDERING DATA

Catalogue number	Description	Dimensions(mm)		Weights Kg.	Packing Quantity
		Length	Depth		
MA30	Roadlighting Lantern for 150, 250 and 400W SON and 250 and 400W MBF/U=HPL	730	310	5.0	1
MA30 *1	Roadlighting Lantern for 150, 250 and 400W SON and 250 and 400W MBF/U=HPL with NEMA Socket fitted	730	310	5.2	1

Specify lamp and control gear required when ordering.

When using 400 Watt Semi cut-off a bowl patch is required and available free of charge on request.

Please order lanterns in the form given in the following example:

- 80 Philips lanterns MA30
- 80 Philips mercury fluorescent lamps 250W MBF/U
- 80 Philips ballasts L5250BX
- 80 Philips PF capacitors L4016/07

Note that lamps and control gear should be ordered separately.

Made in Great Britain.

CI/SIB
(90.6)

UDC
696.6:628.971

MI 8

Lantern for Group B roadlighting

This aluminium-bodied lantern houses one 55W low-pressure sodium (SOX) lamp, and is available with integral control gear or for use with loose control gear mounted in the column base. Either version is available with or without NEMA socket and single-part photocell and acrylic or vandal resistant bowls.

RANGE

MI 8-055XBSOO – Lantern without control gear.

MI 8-055XBSGO – Lantern with integral control gear.

APPLICATIONS

Especially suitable for the controlled lighting of minor roads, and for other applications such as:-

- Security lighting
- Residential lighting
- Car parks
- Hotel forecourts
- Shopping precincts
- Railway stations



Handbook Ref.

3.1.4

To reorder this data sheet quote 3.78 PL No. 1824

Replaces

PLM 9298/1

FEATURES

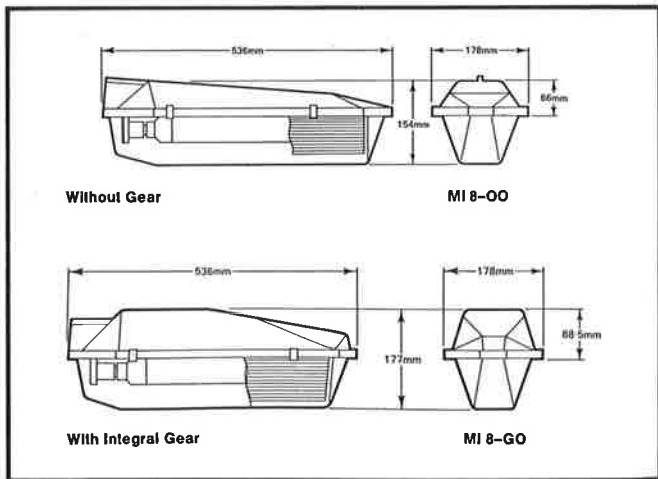
- Corrosion-resistant die-cast aluminium body (LM6M), primed with zinc chromate and stove-enamelled grey outside, white inside.
- Acrylic refractor bowl injection-moulded to close tolerances to ensure effective light control and made to a constant thickness to eliminate inbuilt stresses.
- Stainless steel hinges on one side of bowl and stainless steel catches secured with non-slip rubber inserts hold the bowl securely yet enable it to be opened easily for relamping. The bowl is easily removed for cleaning.
- Durable, resilient gasket made from distortion-resistant, close-cell plastic foam prevents dust and water from entering between bowl and canopy.
- Side entry mounted, with entry for 76mm maximum of 1in BSP (34mm o.d.) plain barrel spigot, secured by two socket head screws.
- Available without control gear or with integrally-mounted and wired gear mounted on white stove-enamelled steel tray, hinged at spigot end to drop down for easy servicing. An ignitor circuit – low loss control gear – may be fitted instead of conventional auto leakage transformer on request.
- Available with or without NEMA socket and single-part photocell.
- Rigidly-mounted BC lampholder and lamp support maintains correct light distribution. Lamp support is covered by glass-fibre silicone rubber-impregnated sleeving.
- Light distribution conforms with requirement of BS 5489 Part 3 for Class B5/6 luminaires, required for installations which conform to CP 1004 Part 3.

MATERIALS & FINISH

- Canopy:** High-pressure die-cast aluminium LM6M, zinc chromate primed and stove enamelled grey outside, white inside.
- Bowl:** Injection-moulded acrylic.
- Bowl clips & hinges:** Stainless steel.
- Gear tray:** Sheet steel, stove-enamelled white.

SPECIFICATION

- Group B road lighting lantern for loose or integral control gear. Integral gear mounted on hinged tray. Fitted with acrylic refractor or vandal resistant bowl. Spigot entry for 34mm o.d. spigot. Available with or without NEMA socket. For use with 55W SOX lamp. Complies with requirements of BS 5489 Part 3 for Class B5/6 luminaires required for installations which conform to CP 1004 Part 3.
- To specify state:**
 - Group B road lighting lantern for use with 55W SOX lamps, fitted either with integral gear on hinged tray or with provision for mounting remote gear. The lantern shall comply with the requirements of BS 5489 Part 3 for Class B5/6 lighting, and shall be as Philips Type MI 8.

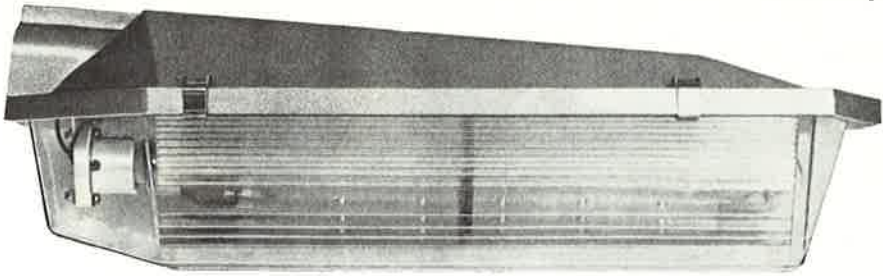


LAMP & CONTROL GEAR DATA

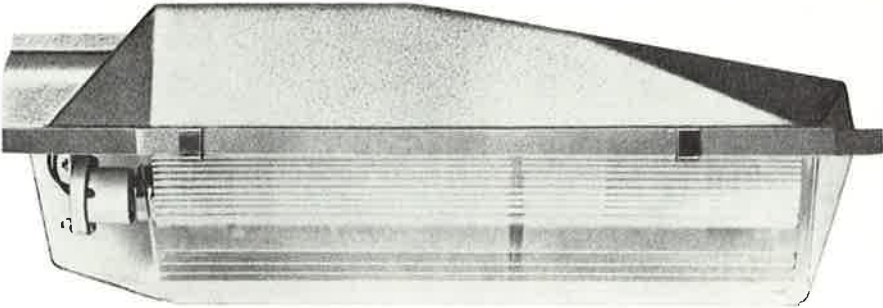
Lamp type	Lumens	Lamp Volts	Lamp Current	Total Circuit Watts	Cap	Ballast	PFC Capacitor	Ignitor
MI 8-00—Loose gear								
55W SOX	7150	104	0.6	80	BC	L4045BX	L4016/07	—
55W SOX	7150	104	0.6	75	BC	L5035BX	L4016/07	—
55W SOX	7150	104	0.6	68	BC	L6355	L4008/07	SX71
MI 8-GO—Integral gear								
55W SOX	7150	104	0.6	75	BC	L5035BX	L4016/07	—
55W SOX	7150	104	0.6	68	BC	L6355	L4008/07	SX71*

*Supplied with low loss gear on request.

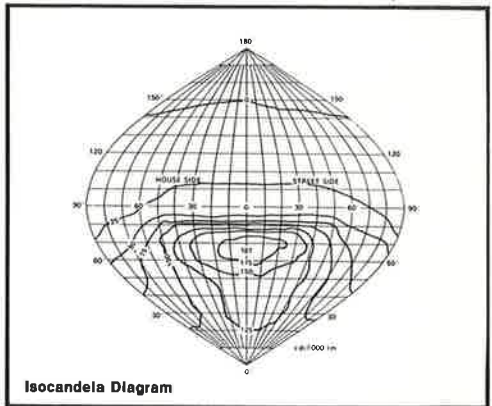
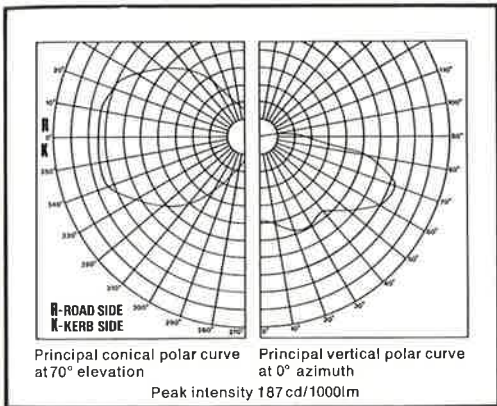
MI 8 without gear



MI 8 with integral gear

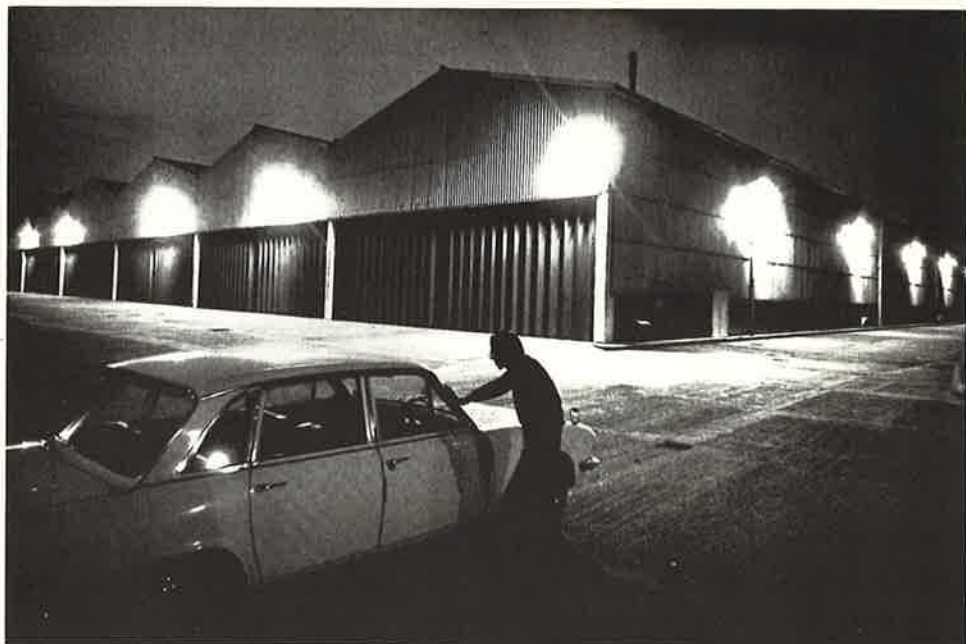


LIGHT DISTRIBUTION DIAGRAMS



PHOTOMETRIC DATA

Light Output Ratio
 Light Output Ratio: 0-80
 Downward Light Output Ratio: 0-72



MI 8 used for security lighting

ORDERING DATA

Catalogue No.	Description	Weight (kg)	Windage area	
			Plan (m ²)	Elevation (m ²)
MI 8-055XBSSGO	Lantern for 55W SOX with integral control gear	7.40	0.086	0.081
MI 8-055XBSSGO*1	Lantern for 55W SOX with integral control gear and NEMA socket	7.65	0.086	0.081
MI 8-055XBSSOO	Lantern for 55W SOX, for loose control gear	2.72	0.086	0.061
MI 8-055XBSSOO*1	Lantern for 55W SOX, for loose control gear, with NEMA socket	2.97	0.086	0.061

Add suffix /VR to Catalogue No. for vandal resistant bowl.

Please order lanterns in the form given in the following example:-

- 80 Philips lanterns MI 8-055XBSSOO
- 80 Philips low-pressure sodium lamps 55W SOX
- 80 Philips ballasts L6355
- 80 Philips PFC capacitors L4008/07
- 80 Philips ignitors SX71

Note that lamps, and control gear for lanterns without integral gear, should be ordered separately.

All lanterns are individually packed.

Made in Great Britain

CI/SIB	(90.6)
UDC	696.6:628.973

HGS SGS 201/250 & 201/400

Dual entry lantern cut-off and semi cut-off distribution for high-pressure sodium and mercury lamps

These lanterns, for side or bottom entry mounting, are fitted with integral control gear for ease of maintenance.

The lampholder is adjustable to give a CIE semi cut-off or a CIE cut-off light distribution. The reflectors are also easily adjustable to give different toe-in angles.

Note: Mercury fluorescent lamps
UK marking MBF = Philips
International marking HPL-N

RANGE

HGS 201/250 – for 250W mercury lamps.

HGS 201/400 – for 400W mercury lamps.

SGS 201/250 – for 250W high-pressure sodium lamps.

SGS 201/400 – for 400W high-pressure sodium lamps.

APPLICATIONS

Possible applications include:

- Highways
- Secondary roads
- Factory perimeter lighting
- Security lighting
- Car parks
- Shopping precincts

Top: HGS 201/250 lantern, side entry mounted.

Bottom: SGS 201/400 lantern bottom entry mounted, side and bottom entry facility combined on both lanterns.



Handbook Ref.	3.15
To reorder this data sheet quote	8.78 PL 1268/1
Replaces	PL 1268

FEATURES

- Light weight glass fibre re-inforced polyester housing of outstanding quality.
- High-pressure die-cast mast-entry pieces of non-corrosive aluminium.
- High-purity aluminium anodised reflector for perfect optical control.
- Easily adjustable toe-in angles of 5-10-15-20° towards the road axis. Standard position 15°.
- Adjustable lamp position for different cut-off light distributions.
- Standard version suitable for mounting on mast-arms of 60 mm O.D. or on mast-tops of 78 mm O.D.
- All exposed parts made of stainless steel.
- Clear transparent acrylic bowl for maximum lantern efficiency.
- The Bowl hinges automatically on the housing, after the clips have been removed.
- Integral control gear.
- Dual mast or arm mounting.

MATERIALS & FINISH

Housing: Polyester, Blueish Grey.

Spigot-entry piece: Natural aluminium colour.

Bowl: Acrylic.

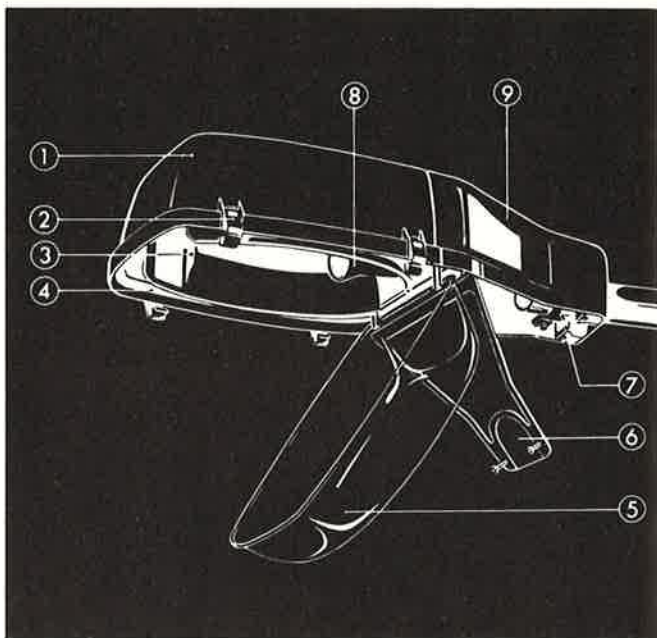
SPECIFICATION

- Roadlighting lantern complying with CIE Standards for cut-off and semi cut-off light distribution. The lantern has the Degree of Protection IP23, and complies with BS 4533 Class I Electrical Protection (earth required).

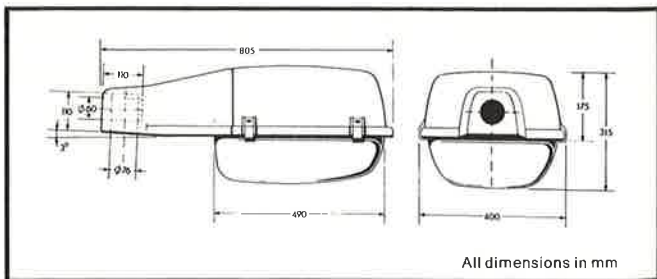
To specify state:

Roadlighting lantern with GRP canopy and integral control gear, offering dual distribution in compliance with CIE Standards for cut-off and semi cut-off light distribution. To have the Degree of Protection IP23 and to be similar to Philips Type HGS 201 or SGS 201.

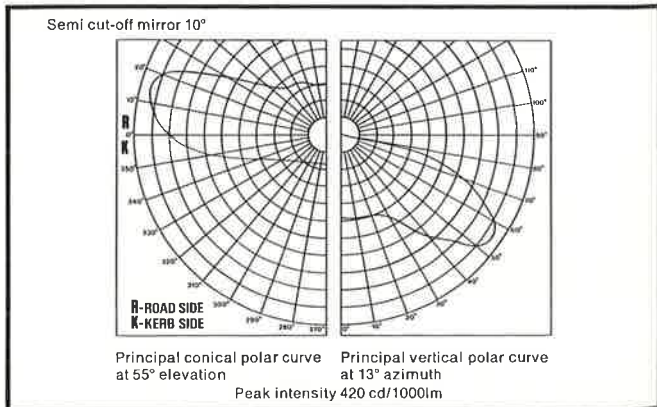
HGS/SGS 201/250

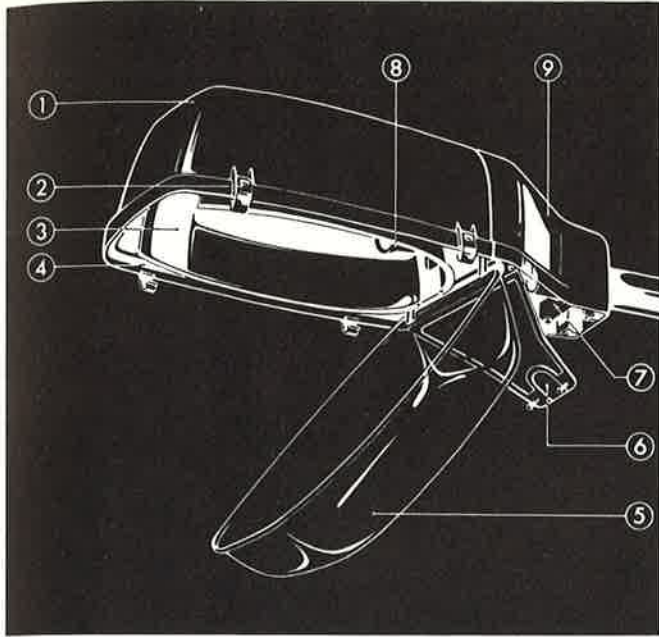


DIMENSIONS



LIGHT DISTRIBUTION DIAGRAMS



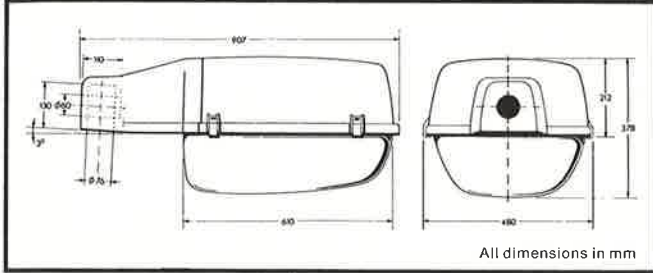


Key to illustrations

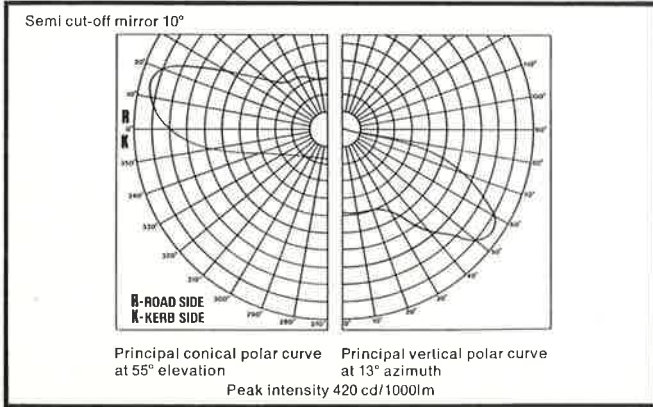
1. Housing
2. Closing clip (4 x)
3. Mirror (2 x)
4. Gasket
5. Bowl
6. Coverplate
7. Mast-fixing bracket
8. Lampholder
9. Rear compartment



DIMENSIONS



LIGHT DISTRIBUTION DIAGRAMS



LAMP DATA

Lamp Type	Lighting Design Lumens	Cap	Ballast	Voltage	Ignitor Type	Circuit Watts (Hot)	Capacitor	Capacitance μ F	Mains Current (Amperes)		Fuse Rating Amperes
									Start	Running	
SGS 201											
250W SON	24,000	GES	L4254	210/225/240	S50	280	2 \times L4016/07	32	1.8	1.3	10
400W SON	45,000	GES	L4404	210/225/240	S50	440	2 \times L4020/07	40	3.0	2.2	15
HGS 201											
250W MBF/U	13,500	GES	L5250BX	240	—	268	L4016/07	16	2.1	1.3	10
400W MBF/U	21,500	GES	L5400BX	240	—	424	L4020/07	20	3.5	2.1	15

ORDERING DATA

Catalogue Number	Description
------------------	-------------

SGS 201/250	Lantern for 250W high-pressure sodium lamps with integral control gear
SGS 201/400	Lantern for 400W high-pressure sodium lamps with integral control gear
HGS 201/250	Lantern for 250W mercury lamps with integral control gear
HGS 201/400	Lantern for 250W mercury lamps with integral control gear

Please order lanterns in the form given in the following example:-

80 Philips lanterns SGS 201/400

80 Philips high-pressure sodium lamps 400W SON

All lanterns are individually packed.

Note: Mercury fluorescent lamps:
UK marking MBF = Philips
International marking HPL-N.

Lamps: Made in Holland.
Lanterns: Made in Holland.
Control gear: Made in UK.
Ignitors: Made in Holland.

CI/SIB	(90.6)
UDC	696.6:628.971

XGS HGS SGS

Lanterns for group B roadlighting

Manufactured of plastic materials, these lanterns combine strength and attractiveness with efficiency and light weight. Control gear is mounted integrally and dual mounting facilities ensure versatility.

Note: Mercury fluorescent lamps
UK marking MBF = Philips
International marking HPL-N

RANGE

Designed for use with three lamps: For 35W Low Pressure Sodium the lantern is XGS 201/035, for 70W High Pressure Sodium the lantern is SGS 201/070 and for 125W Mercury Fluorescent the lantern is HGS 201/125.

The lantern housing is identical in each type but the reflector system and/or control gear change depending on the type required.

APPLICATIONS

These lanterns are suitable for use in:

- Group B roadlighting
- Residential lighting
- Security lighting
- Car parks
- Hotel forecourts
- Shopping precincts
- Railway stations
- Site lighting



7

Handbook Ref.	3.1.6
To reorder this data sheet quote	PL 1775/1
Replaces	PL 1775

ROADLIGHTING

FEATURES

- Strong, lightweight glass-fibre reinforced polyester canopies.
- Vandal-resistant polycarbonate bowls.
- Integral control gear simplifies maintenance.
- Special bracket provides the option of bottom entry or side entry mounting.
- Super high purity aluminium reflectors ensure high reflectivity and light output ratio.
- Available with NEMA socket for photocell control.

MATERIALS & FINISH

Canopy: Lightweight glass-fibre reinforced polyester (GRP) grey

Bowl: Polycarbonate (vandal resistant)

Reflectors: Super high purity aluminium

Control gear: Mounted integrally

Bowl clips: Stainless steel

Control gear cover: Anodised aluminium.

RANGE OF OPERATION

240 volts 50 Hz.

SPECIFICATION

Group B roadlighting lantern with grey GRP canopy and fitted with integral control gear. The lantern housing is designed to accept 70W High Pressure Sodium, 35W Low Pressure Sodium and 125W Mercury Fluorescent lamps with the appropriate control gear. The lantern has the facility for accepting bottom or side entry spigots of 76 mm o.d. or 42/48 mm o.d. respectively.

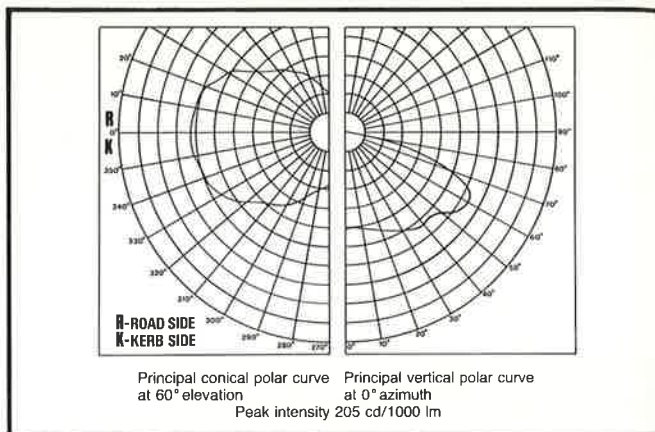
Degree of Protection IP23.

Complies with construction requirements of BS 4533.

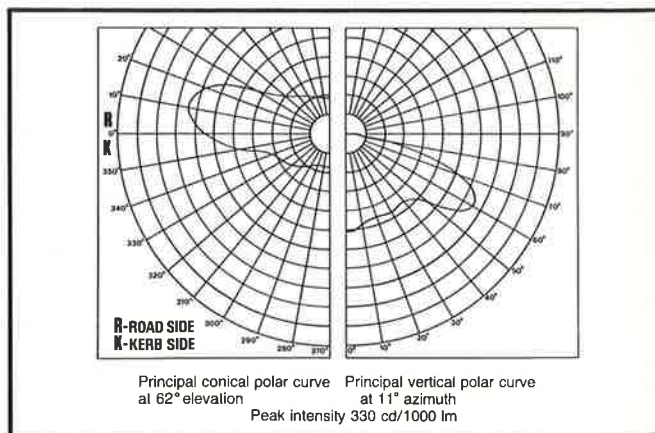
To specify state:

Group B roadlighting lantern for use with 35W SOX/125W MBF/70W SON with integral gear. The lantern shall have the facility for mounting as a post top or on side entry spigots. Philips Type XGS 201/035, HGS 201/125, SGS 201/070, or similar.

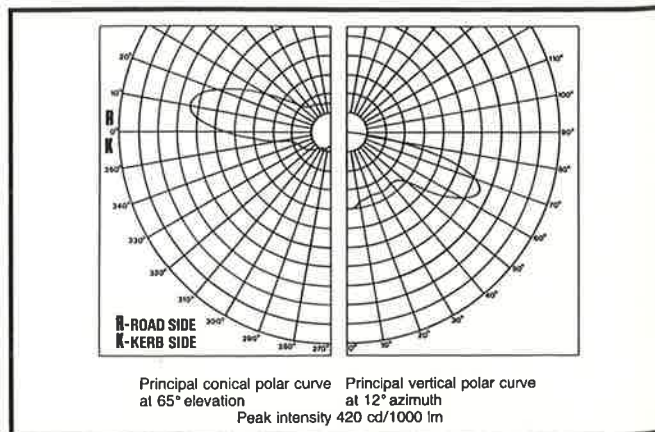
LIGHT DISTRIBUTION DIAGRAMS



XGS 201/035



HGS 201/125



SGS 201/070



Devon County Council are involved in a 5 year programme of converting much of their street lighting to high-pressure sodium.



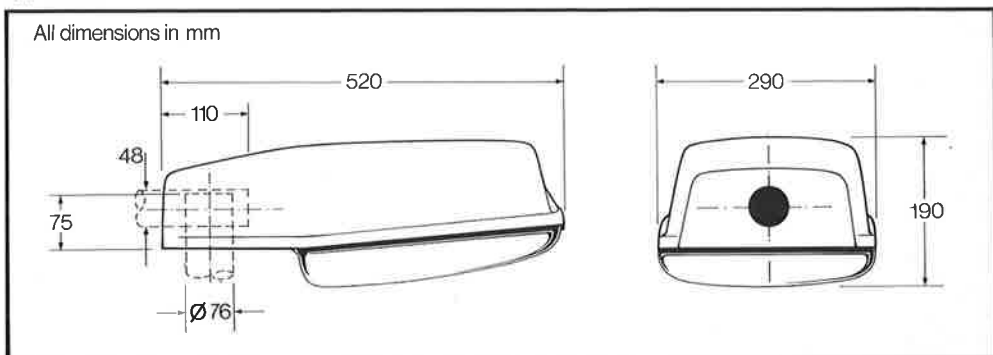
Gorleston Cliff Tops - illuminated with forty 70W SON lamps in MU70 cones. Running costs about £9 per unit per annum (based on 4,000 hrs burning).

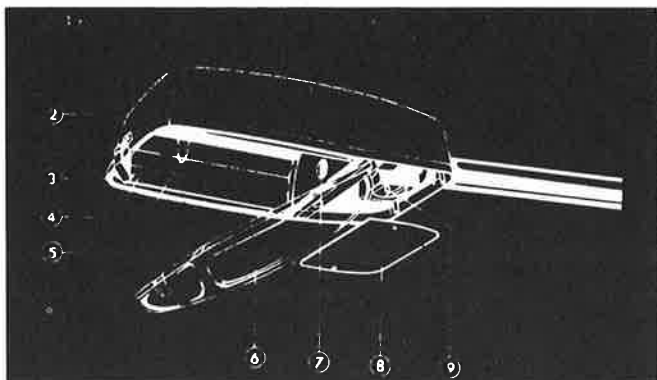


XGS 201/035

DIMENSIONS

All dimensions in mm





Key to Illustration

1. Housing
2. Closing clip
3. Gasket
4. Reflector (2x)
5. Lamp support (XGS only)
6. Bowl
7. Lampholder
8. Cover-plate
9. Mast-fixing bracket

ORDERING DATA

Catalogue No.	Description	Weight (kg)
XGS 201/035	Lantern for 35W low pressure sodium lamps with integral ignitor circuit	5.8
HGS 201/125	Lantern for 125W mercury lamps with integral gear	5.5
SGS 201/070	Lantern for 70W high pressure sodium lamps with integral gear	5.5

Add Suffix *1 to Catalogue No. for NEMA socket to be fitted.
 Please order lanterns in the form given in the following example:-
 80 Philips lanterns HGS 201/125
 80 Philips 125W mercury fluorescent lamps.
 Note that lamps should be ordered separately.
 Lanterns are individually packed,

Note: Mercury fluorescent lamps:
 UK marking MBF = Philips
 International marking HPL-N.

Lamp: SOX Made in U.K.
 SON/MBF Made in Holland

Lantern: Made in U.K.
Control gear: Made in U.K.

Ignitor: Made in Holland

CI/SIB
(90.6)

UDC
696.6 : 628.971

SRP 013

High-mast lantern

This aluminium-bodied lantern can be supplied with integral control gear for two 250W or 400W high-pressure sodium SON or SON/T lamps, or for two 400W mercury halide lamps. It fits either side-entry mast arms of 60 mm o.d. or vertical-entry masts of 90-110 mm o.d.

Note: Mercury halide lamps
UK marking MBI = Philips
International marking HPI

RANGE

SRP 013 + 250W SON: Lantern complete with control gear for 2 x 250W SON or SON/T lamps.

SRP 013 + 400W SON: Lantern complete with control gear for 2 x 400W SON or SON/T lamps.

SRP 013 + 400W mercury halide: Lantern complete with control gear for 2 x 400W mercury halide lamps.

APPLICATIONS

For any application where a high-mast lantern with a high luminance level and good uniformity of distribution is required, such as:-

- Main roads
- Squares
- Motorway interchanges

FEATURES

- Die-cast aluminium canopy, stove enamelled white inside, grey outside for resistance to corrosion.
- Clear acrylic bowl, sealed to canopy with gasket to render the lantern resistant to ingress by rain and dust.
- Built-in control gear includes power factor correction capacitors.
- All exposed ferrous parts are made from stainless steel.

continued

Handbook Ref.

3.1.7

To reorder this data sheet quote

6.78 PL 1838

Replaces

PL 9597



Features continued

- High-purity (99.99%) aluminium reflectors provide highly efficient lighting with good beam control.
- Cut-off light distribution according to C.I.E. recommendations. Maximum intensity at 55°.
- Toe-in angle 20° towards the road axis.
- Fits side-entry mast arms of 60 mm o.d. (2 in. B.S.P.) or vertical-entry masts of 90–110 mm o.d. (3–3½ in. B.S.P.).

MATERIALS & FINISH

Canopy: Die-cast aluminium, stove enamelled white inside, grey outside.

Bowl: Clear acrylic.

Sealing gaskets: Neoprene close cell.

Bowl clips & hinges: Stainless steel.

SPECIFICATION

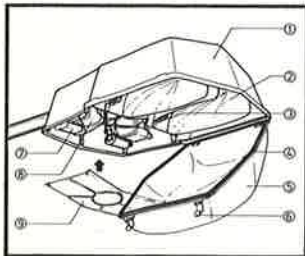
- High-mast lantern for 250W or 400W SON or SON/T, or 400W mercury halide lamps, complete with integral control gear. Fitted with acrylic reflector bowl. Spigot entries for 60mm o.d. side-entry mast arm and 90–110mm o.d. vertical entry mast.

To specify state:

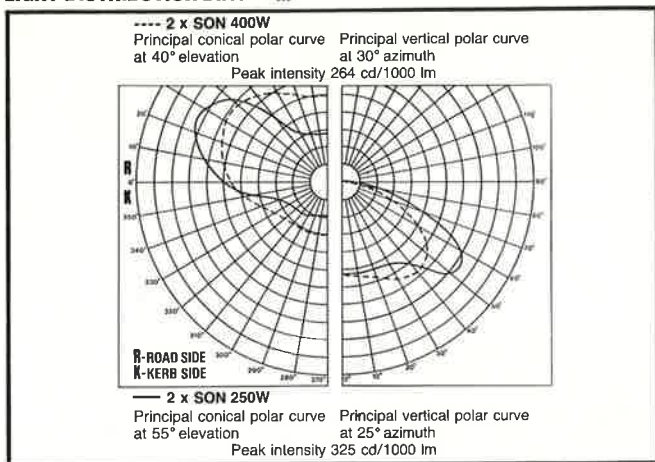
- High-mast lantern with integral control gear for two 250/400W SON(T) lamps or two 400W mercury halide lamps with corrosion-resistant canopy and clear acrylic bowl. Similar to Philips SRP 013.

KEY TO ILLUSTRATION

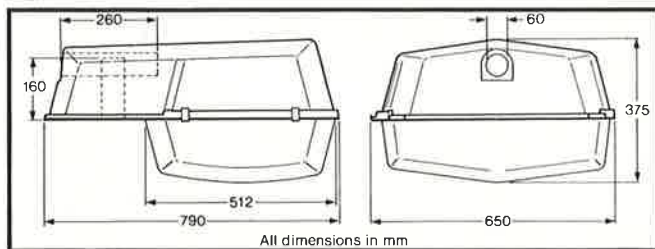
- 1 Canopy
- 2 Reflector
- 3 Lampholder
- 4 Gasket
- 5 Bowl
- 6 Toggle
- 7 Capacitor
- 8 Ballast
- 9 Cover plate



LIGHT DISTRIBUTION DIAGRAM



DIMENSIONS



LANTERN DATA

Specification	Total lamp Lumens	Lamp Volts V*	Lamp Current A*	Total Circuit Watts	Total Weight (kg)	Windage area Plan (m ²)	Elevation (m ²)
SRP 013 + 250W SON	48,000	100	3.0	560	34	0.45	0.20
SRP 013 + 250W SON/T	50,000	100	3.0	560	34	0.45	0.20
SRP 013 + 400W SON	90,000	105	4.4	880	37	0.45	0.20
SRP 013 + 400W SON/T	93,000	105	4.4	880	37	0.45	0.20
SRP 013 + 400W MBI/H	58,400	125	3.4	848	38	0.45	0.20

†After 2000 hours' burning.

*Per lamp.

ORDERING DATA

Catalogue No.	For lamp type
SRP 013 + 250W SON	250W SON or 250W SON/T
SRP 013 + 400W SON	400W SON or 400W SON/T
SRP 013 + 400W MBI/H	400W MBI/H

Please order lanterns in the form given in the following example:—

- 50 Philips lanterns SRP 013 + 400W MBI/H
- 50 Philips mercury halide lamps 400W MBI/H

Note that lamps should be ordered separately.

All lanterns are individually packed.

Note: Mercury halide lamps.
UK marking MBI = Philips
International marking HPI.

Lamp: Made in Holland.
Fitting: Made in Holland.

CI/SIB (90.6)

UDC 696.6 : 628.971

MI 55

Lantern for Group B roadlighting

This aluminium lantern combines efficiency in operation with ease of installation and maintenance. The lantern is designed for use with 70W high-pressure sodium (SON) lamps, and is available with integral control gear or loose control gear for mounting in the column base.

RANGE

Lantern for 70W SON lamp, with or without control gear, with or without photocell (NEMA) socket.

APPLICATIONS

This lantern is suitable for:

- Group B roadlighting
- Security lighting
- Residential lighting
- Car parks
- Hotel forecourts
- Shopping precincts
- Railway stations
- Footpath lighting



Handbook Ref.

3.1.9

To reorder this data sheet quote

8.79 PL 1893/1

Replaces

PL 1893

ROADLIGHTING

FEATURES

- Canopy is a high-pressure aluminium die-casting to provide rigidity and durability.
- Integral control gear is mounted on a hinged tray for easy access.
- Vandal-resistant bowl.
- 70W SON lamp combines good colour rendering with high efficacy (lumens/Watt).
- Control gear is from standard Philips range and can be replaced easily.

SPECIFICATION

Group B roadlighting lantern for loose or integral control gear (integral gear mounted on hinged tray). Vandal-resistant bowl. Spigot entry (34mm). Available with or without NEMA socket. For use with 70W SON lamp. Lantern complies with requirements of BS 5489 Part 3 for Class B5/6 luminaires, required for installations which conform to CP 1004 Part 3.

To specify state:

Group B roadlighting lantern for use with 70W SON lamp and fitted with integral gear on hinged tray or offering provision for remote mounting of control gear. Vandal-resistant bowl. Similar to Philips MI 55.

MATERIALS & FINISH

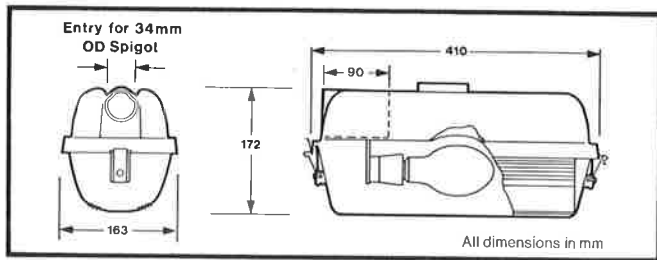
Canopy: High-pressure die-cast aluminium LM6M.

Bowl: Vandal resistant material.

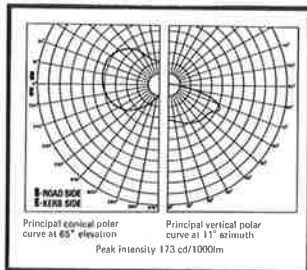
Bowl clips: Stainless steel

Gear tray: White pre-coated sheet steel

DIMENSIONS



LIGHT DISTRIBUTION DIAGRAM



PHOTOMETRIC DATA

Light Output Ratios

Light output ratio: 0.71

Downward light output ratio: 0.63

LAMP & CONTROL GEAR DATA

Lamp	100hr lumens	Lamp Volts	Circuit Current (A)	Total Circuit Watts	Ballast	Capacitor	Ignitor
70W SON	5800	90	0.5	85	L4074	L4010/07	Internal

ORDERING DATA

Catalogue No.	Description	Weight (kg)
MI 55-00	Lantern for 70W SON, for loose gear	2.6
MI 55-00*1	Lantern for 70W SON, for loose gear, with NEMA socket	2.6
MI 55-G0	Lantern for 70W SON with integral gear	4.1
MI 55-G0*1	Lantern for 70W SON with integral gear, with NEMA socket	4.1
	Spare bowl (complete with clips)	

Please order in the form given in the following example:-

24 Philips lanterns MI 55-G0*1

24 Philips 70W SON lamps

Note that lamps should be ordered separately. Lanterns are packed individually.

Lamp: Made in Holland

Lantern: Made in Great Britain

CI/SIB
(90.6)

UDC
696.6 : 628.971

MI 50

Lantern for Group B roadlighting

This aluminium lantern combines efficiency in operation with ease of installation and maintenance.

The lantern is designed for use with 35W Low Pressure Sodium (SOX) lamps, and is available with integral control gear (ignitor circuit) or loose control gear for mounting in the column base.

RANGE

MI 50-00 – Lantern without control gear.

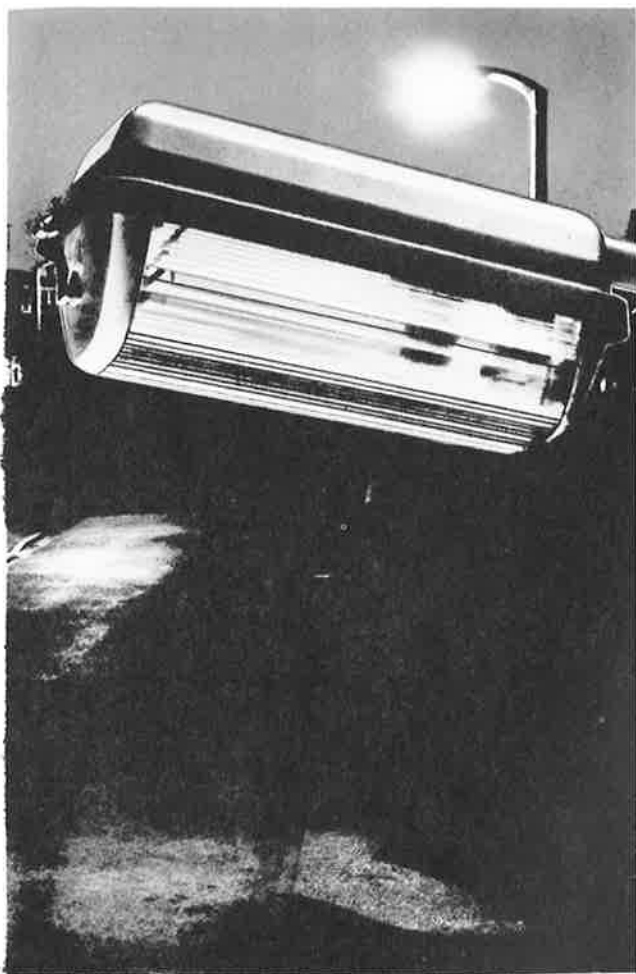
MI 50-GO – Lantern with integral control gear.

A vandal-resistant bowl and a NEMA socket for photocell control are available, if required.

APPLICATIONS

The lantern is suitable for:

- Group B roadlighting
- Security lighting
- Residential lighting
- Car parks
- Hotel forecourts
- Shopping precincts
- Railway stations



Handbook Ref

3.1.11

To reorder this data sheet quote

7.78 PL 1774/2

Replaces

PL 1774/1

FEATURES

- Canopy is a high-pressure aluminium die casting to provide rigidity and durability.
- Integral control gear is mounted on a hinged gear tray for easy access.
- Ignitor circuit on integral gear lanterns gives fast re-ignition and low running costs.

MATERIALS & FINISH

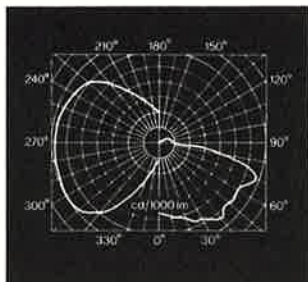
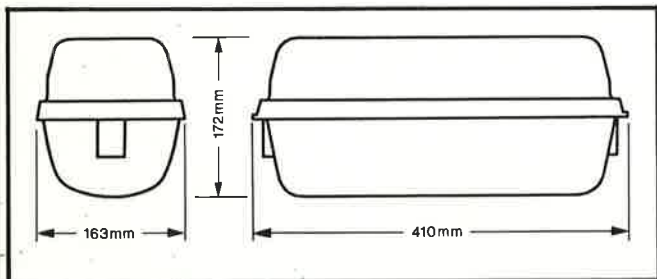
- Canopy:** High-pressure die cast aluminium LM6M.
- Bowl:** Vandal resistant material.
- Bowl clips:** Stainless steel.
- Gear tray:** Pre-coated sheet steel.

SPECIFICATION

Group B roadlighting lantern for loose or integral control gear. Integral gear (ignitor circuit) mounted on hinged gear tray. Fitted with vandal resistant bowl. Spigot entry accepts 34 mm O.D. spigot. Available fitted with NEMA socket. For use with 35W SOX lamp.

To specify state:

Group B roadlighting lantern for use with 35W SOX lamps and fitted with integral ignitor circuit on hinged gear tray or offering provision for remote mounting of control gear. Philips type MI 50 or similar.



LAMP & CONTROL GEAR DATA

Lamp type	Lumens	Lamp Volts	Lamp Current (A)	Total Circuit Watts	Cap	Ballast	Ignitor	PFC Capacitor
35W SOX	4300	70	0.6	48	BC	L6355	SX71	L4008/07

ORDERING DATA

Catalogue No.	Description	Weight (approx.)
*MI 50-00	Lantern for 35W SOX	2.6 kg
MI 50-GO	Lantern with integral Ignitor circuit for 35W SOX	4.8 kg

Add Suffix *1 to Catalogue No. for NEMA socket to be fitted.

Please order lanterns in the form given in the following example:

- 80 Philips lanterns MI 50-00
- 80 Philips low-pressure sodium lamps 35W SOX
- 80 Philips ballasts L6355
- 80 Philips Ignitors SX71
- 80 Philips PFC capacitors L4008/07.

Note that lamps and control gear for lanterns without integral gear, should be ordered separately.

Lanterns are individually packed

Lamp: Made in Great Britain
Lantern: Made in Great Britain
Ignitor: Made in Holland

RESIDENTIAL AND AMENITY

Page

MU80	PL1827	235
Bollards	PL1828	239
MFB16 Fluorescent Bulkhead	PL1865	243
W4321 W4326	PL1845	245
MSB18	PL1881/1	247
XGC001	PL1882/1	249
Security KombiPak	PL1883/1	251
W4270 W4271 W4272 W4273	PL1884	253
NPP, HPP, SPP Lanterns	PL1889/1	255
NPP, HPP, SPP Electrical Units	PL1890/1	259
SNK70 KombiPak	PL1892	261



CI/SIB	(90.6)
UDC	696.6:628.971

MU80

Lanterns for municipal lighting

A range of post-top lanterns consisting of electrical units for 150W and 250W high-pressure sodium lamps or 250W mercury fluorescent lamps, and a choice of three bowl styles to fit the electrical unit.

Note: Mercury fluorescent lamps
 UK marking MBF = Philips
 International marking HPL-N
 Mercury halide lamps
 UK marking MBI = Philips
 International marking HPI

RANGE

MU80 – Electrical unit with control gear for 150W SON, 250W SON or 250W Mercury.

BIG S – Spherical bowl.

BIG E – Elliptical bowl.

BIG H – High cone bowl.

APPLICATIONS

Suitable for use in situations where appearance and high light output is important, such as:

- Residential areas
- Shopping precincts
- Walkways
- Leisure centres
- Public parks and gardens
- Hospitals and industrial premises

Handbook Ref

3.2.2

To reorder this data sheet quote

5.78 PL 1827

Replaces

NEW

FEATURES

- Precision-made electrical unit with high-pressure die-cast body.
- Gear consists of ballast, power factor correction capacitor(s), (ignitor on SON lamps only) terminal block and porcelain GES lampholder.
- Bowls are made from vandal-resistant low-pressure polythene with spun-aluminium canopies; the underbowl material resists UV light. Canopies are lacquered white inside, grey outside to resist corrosion.
- Lanterns are rain-proof and insect-proof; chloroprene gaskets seal the canopy to the under bowl and the complete bowl assembly to the electrical unit. A foam plastic sealing ring surrounds the incoming cables where the lantern is mounted on the post.
- Simply installed on post-top columns with 76mm o.d. spigots. The neck of the electrical unit is accurately aligned by means of two ridges and the assembly is secured by two locking screws.

- Canopy is firmly secured by means of a single centrally-mounted cap nut. The canopy can be inverted and rested on the cap nut stud to give ample working clearance for servicing or relamping.

- Ideal for higher mountings of 8-10 metres.

MATERIALS & FINISH

Electrical unit: High-pressure die-cast aluminium, corrosion-resistant grey finish, complete with control gear components.

Lampholder: Porcelain GES.

Bowls: Spun aluminium canopy, lacquered white inside, grey outside, sealed to low-pressure polythene under bowl with chloroprene gasket.

RANGE OF OPERATION

240V 50Hz supplies.
Normal outdoor operation.

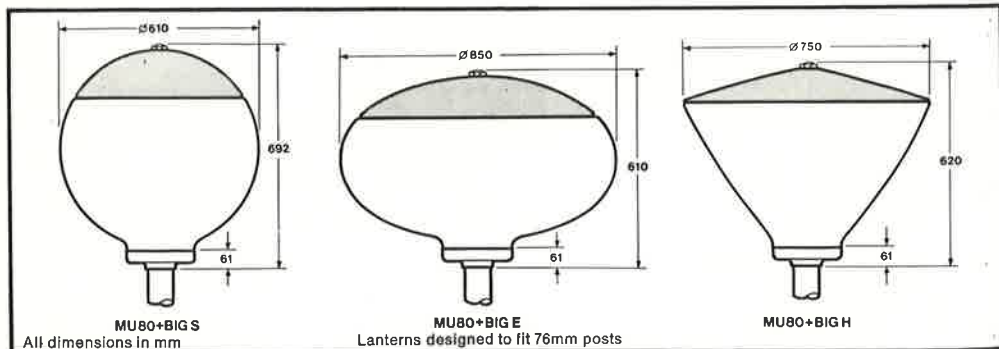
SPECIFICATION

- Residential post-top lantern with choice of three vandal-resistant bowls.
- Integral control gear for 150W or 250W high-pressure sodium lamps, or 250W mercury fluorescent lamp.
- Bowls are UV-resistant; all metal parts are corrosion-resistant.
- Complies with BS 4533 2.2 Class II electrical appliances (earth not required).

To specify state:

Post-top lantern with choice of three bowl styles and integral control gear for use with 150W or 250W high-pressure sodium lamps or 250W mercury fluorescent lamp. Lantern must be insect-tight, and must be built from vandal-resistant and corrosion-resistant materials. Substantially as Philips MU80.

DIMENSIONS



WEIGHTS

Catalogue No.	Weight (kg)
MU80 + BIG S	10.6
MU80 + BIG E	12.1
MU80 + BIG H	10.7

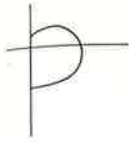
LAMP DATA

Lamp type	Lighting Design Lumens	Lamp Volts	Lamp Current	Total Circuit Watts	Cap	Packing quantity
150W SON	13,500	100	1.8	174	GES	9
250W SON	24,000	100	3.0	280	GES	9
250W PowerWhite MBF	12,500	135	2.0	266	GES	9

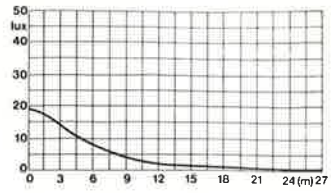
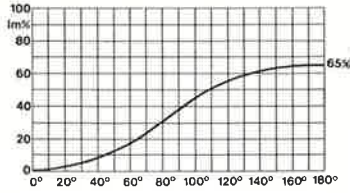
Light Distribution Diagrams

Zonal luminous flux diagrams

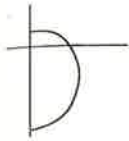
Illuminance diagrams



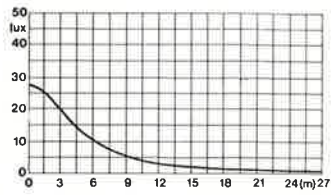
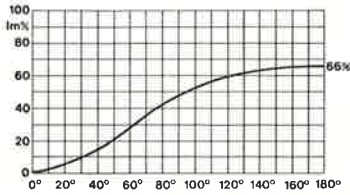
MU80+BIG S



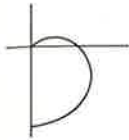
H = 6 m



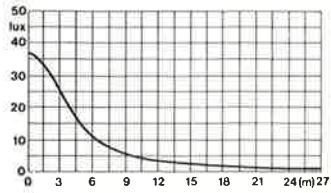
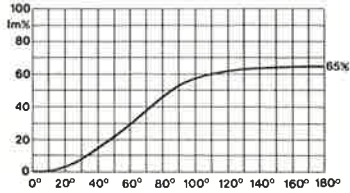
MU80+BIG E



H = 7 m



MU80+BIG H



H = 6 m



MU80+BIG S



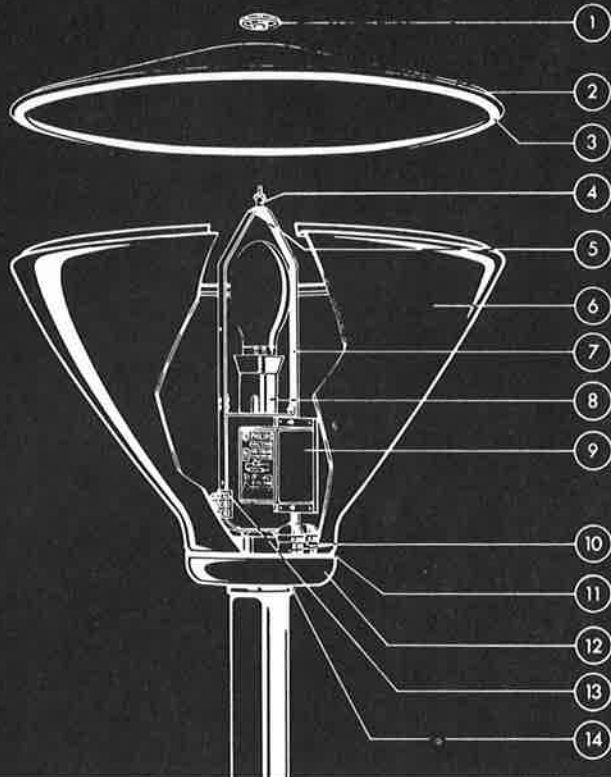
MU80+BIG E



MU80+BIG H

Cut Away View

1. Cap nut
2. Canopy
3. Chloroprene rubber gasket
4. Spacer and nut
5. Fixing bolt
6. Diffuser
7. Unit-bracket
8. E40 lampholder
9. Built-in ballast
10. Capacitors
11. Chloroprene rubber gasket
12. Electrical unit
13. Terminal block
14. Post fixing screw



MU80 + BIG H

ORDERING DATA

Catalogue No.	Description
MU80 + BIG S + (lamp)	Electrical unit with spherical bowl & lamp.
MU80 + BIG E + (lamp)	Electrical unit with elliptical bowl & lamp.
MU80 + BIG H + (lamp)	Electrical unit with high cone bowl & lamp.

Please order lanterns in the form given in the following example:
25 Philips lanterns MU80 + BIG H + 250W SON.

Note that lamps should be specified with electrical units to ensure that the correct control gear is supplied.

Lanterns and components are supplied individually packed.

Note: Mercury fluorescent lamps
UK marking MBF = Philips
International marking HPL-N
Mercury halide lamps
UK marking MBI = Philips
International marking HPI

Made in Holland.

CI/SIB
(90.6)

UDC
696.6:628.971

BOLLARDS

Low-level lighting bollards

Vandal-resistant bollards for use with tungsten, high-pressure sodium SON, and mercury fluorescent MBF lamps, to provide a source of low-level lighting in various outdoor situations.

RANGE

HGC 130 – Lighting bollard with opal diffusing light cube

HGC 131 – Lighting bollard with louvre diffuser

HGC 132 – Lighting bollard with mirror reflector for PAR 38 lamp.

HGC 130 and HGC 131 available for 150W GLS lamp, or with control gear for 50W, 80W or 125W MBF lamp, or 50W or 70W SON lamp. HGC 132 available for use with 100W PAR 38 pressed glass lamp only.

APPLICATIONS

Low-level lighting in situations such as:-

- Parks and greens
- Footpaths and pavements
- Pedestrian areas
- Bungalow parks
- Camping grounds
- Hospital premises
- Nursing-home precincts
- Private gardens and driveways
- Car parks

HGC 130 – lighting bollard with opal diffusing light cube

Handbook Ref.

3.2.3

To reorder this Data Sheet quote

3.78 PL 1828

Replaces

NEW



FEATURES

- Stylish and decorative, with non-corrosive functional green finish.
- Modular construction of four major components – column, light cube, control gear plate and top cover – simplifies assembly.
- All external parts are made from vandal and corrosion resistant materials.
- Designed for mounting on four studs or bolts up to 12mm o.d., which can either be anchored in a concrete block or fixed on a metal base plate attached to an anchoring system.
- Column and top cover made from glass-reinforced polyester (GRP) with anti-corrosion green finish.
- Vandal-resistant polycarbonate light cube resists ultra-violet radiation; will not discolour during the life of the bollard.
- Choice of three light cubes; opal diffusing finish or clear finish with white louvre or mirror controller to eliminate glare.

- HGC 130 and HGC 131 are suitable for use with GLS lamps up to 150W, mercury fluorescent (MBF) lamps from 50W to 125W or high-pressure sodium lamps 50W or 70W. Position of porcelain ES lampholder adjusts to accommodate different lamp sizes, and bollards for use with discharge lamps have integral control gear.
- Easily assembled; the cube and lampholder assembly are carried on a white lacquered metal frame fixed to the column with four stainless steel screws. The bollard is closed by the top cover, attached to the frame by a single centrally-mounted stainless steel hexagonal Allen screw.
- A silicone seal between top cover and cube and a sealing ring under the Allen screw ensure that the bollard is rainproof to IP33.
- Optional gear unit for 50W, 80W or 125W mercury fluorescent (MBF) or 50W or 70W SON lamps incorporate ballasts and power factor correction capacitors.

- All internal parts are accessible after removing the top cover to simplify relamping and servicing.

MATERIALS & FINISH

Column and top cover: Glass-reinforced polyester (GRP), green corrosion-resistant finish.

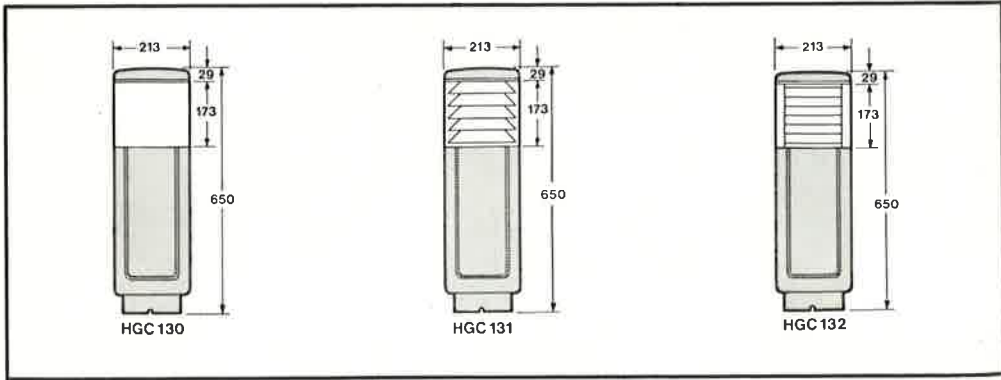
Light cube: Polycarbonate (Lexan 303), opal finish (HGC 130), clear finish (HGC 131 & 132).

Light controllers: Aluminium louvres, lacquered white (HGC 131), mirrors (HGC 132).

Lamp holder: Porcelain ES, mounted on three-position bracket to accommodate different lamp types on HGC 130 and HGC 131 bollards.

RANGE OF OPERATION

240V 50Hz Normal outdoor operation.



DIMENSIONS, WEIGHTS & LAMP DATA

Lamp type	Lighting Design Lumens	Lamp Volts	Lamp Current	Total Circuit Watts	Cap	Packing quantity
13987E PAR 38	—	240	0.417	100	ES	15
150W GLS	2075	240	0.625	150	ES	25
PowerWhite 50W MBF	1900	95	0.6	59	ES	50
PowerWhite 80W MBF	3650	115	0.8	90	ES	40
PowerWhite 125W MBF	5800	125	1.15	138	ES	24
50W SON	3200*	85	0.75	61	ES	40
70W SON	5800*	90	1.0	85	ES	40

*100 hr. figure.

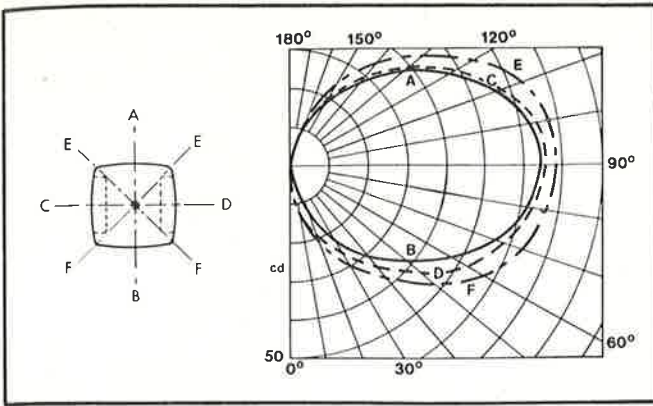
SPECIFICATION

- Decorative low-level lighting bollards for use with GLS lamps up to 150W or mercury fluorescent lamps from 50W to 125W, or 50W and 70W high-pressure sodium SON lamps. Bollard with mirror controller is for PAR 38 pressed glass lamp only.
- Bollards for use with discharge lamps have integral control gear.
- Opal diffusing light cube or clear cube with louvre or mirror controllers.
- Complies with BS 4533 2.2 Class I electrical appliances.
- Degree of Protection IP33.

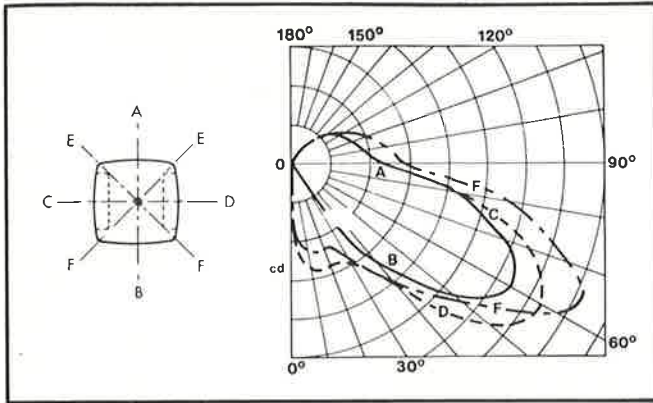
To specify state:

Vandal-resistant low-level lighting bollards with non-corrosive green finish and choice of opal diffusing light cube or clear cube with louvre or mirror controllers. Degree of Protection IP33. Philips HGC or similar.

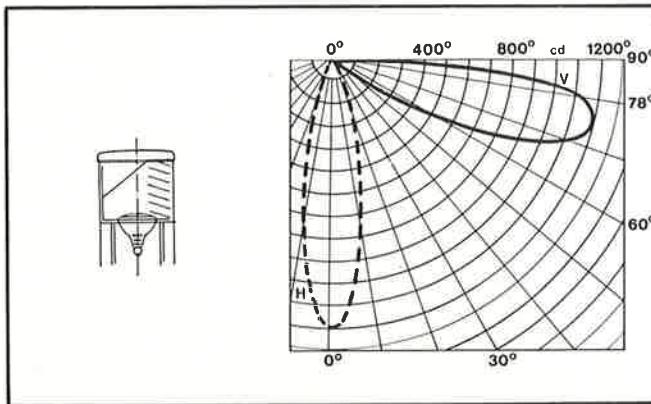
LIGHT DISTRIBUTION DIAGRAMS



HGC 130 1 x 80W PowerWhite



HGC 131 1 x 80W PowerWhite

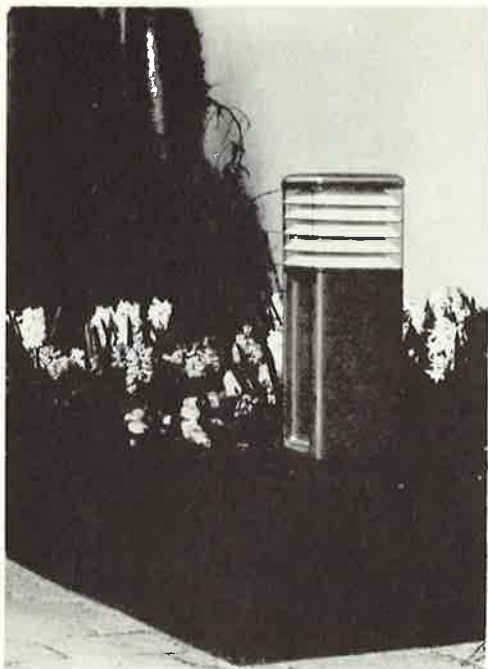


HGC 132 1 x 100W PAR 38 Spot

Candela intensities for the HGC 130 and HGC 131 bollards are calculated using the PowerWhite 80W MBF lamp. Candela readings for the other lamp types can be obtained by multiplying the diagram by the following conversion factors:-

Lamp	Conversion factor
150W GLS	0.57
PowerWhite 50W MBF	0.52
PowerWhite 125W MBF	1.59
50W SON	0.88
70W SON	1.59

—— V - Vertical
 - - - - H - Horizontal on 78° vertical



HGC 131 Lighting bollard with louvre diffuser.



HGC 132 Lighting bollard with mirror reflector.

ORDERING DATA

Ordering reference	Description	Weight (kg)
HGC 130	Bollard with opal light cube for GLS lamp	6.7
HGC 130 + 50	Bollard with opal light cube for 50W MBF or SON lamps	8.4
HGC 130 + 70	Bollard with opal light cube for 70W SON lamp	8.4
HGC 130 + 80	Bollard with opal light cube for 80W MBF lamp	8.6
HGC 130 + 125	Bollard with opal light cube for 125W MBF lamp	8.6
HGC 131	Bollard with clear light cube and louvre controller for GLS lamp	7.0
HGC 131 + 50	Bollard with clear light cube and louvre controller for 50W MBF or SON lamps	8.7
HGC 131 + 70	Bollard with clear light cube and louvre controller for 70W SON lamp	8.7
HGC 131 + 80	Bollard with clear light cube and louvre controller for 80W MBF lamp	8.9
HGC 131 + 125	Bollard with clear light cube and louvre controller for 125W MBF lamp	8.9
HGC 132	Bollard with clear light cube and mirror controller for GLS lamp	7.0
HGC 132 + 50	Bollard with clear light cube and mirror controller for 50W MBF or SON lamps	8.7
HGC 132 + 70	Bollard with clear light cube and mirror controller for 70W SON lamp	8.7
HGC 132 + 80	Bollard with clear light cube and mirror controller for 80W MBF lamp	8.9
HGC 132 + 125	Bollard with clear light cube and mirror controller for 125W MBF lamp	8.9

Note: Mercury fluorescent lamps.
UK Marking MBF = European marking HPL-N.

Please order bollards in the form given in the following example:-

25 Phillips low-level lighting bollards HGC 131 + 50W SON

25 Phillips high-pressure sodium lamps 50W SON

Note that lamps should be ordered separately.

Lamp and bollard: Made in Holland.
Control gear: Made in U.K.

C/SIB	(63.8)
UDC	696.6 : 628.978

MFB 16

Fluorescent Bulkhead Luminaire

A high-quality luminaire, supplied as a KombiPak complete with two 8W miniature fluorescent lamps and starters, four fixing accessories; ceiling or wall mounted for security and amenity lighting.

RANGE

MFB 16 – KombiPak luminaire with control gear, two TL 8W/35 miniature fluorescent lamps and starters, four fixing screws and masonry plugs, cable gland and hexagon key for opening.

APPLICATIONS

For use in public, commercial and industrial premises, in situations such as:-

- Parking areas
- Office buildings
- Shops and supermarkets
- Schools and colleges
- Passageways and corridors
- Public stairways
- Factory buildings and warehouses
- Vehicle and pedestrian underpasses
- Precincts and public enclosures of all kinds



Handbook Ref.	3.2.4
To reorder this data sheet quote	PL 1865
Replaces	PL 1291

FEATURES

- Sturdy die-cast aluminium body and vandal-resistant opal diffuser combine smart appearance with durability.
- Supplied as KombiPak complete with fixing accessories.
- Cover secured by hexagon screw to deter tampering.
- Gear tray easily removed after disconnection from incoming mains terminal block for workshop servicing.
- Each lamp has its own ballast and starter.
- Power Factor correction capacitor and fuse supplied as standard.

MATERIALS & FINISH

Body: Die-cast corrosion-resistant aluminium alloy, painted grey.

Diffuser: Opal polycarbonate.

Gear tray: Steel, zinc-plated, painted white.

Weight: 2.5 kg.

FIXING & WIRING

Knockouts for cable entry are provided to rear, 20mm tapped conduit entries provided at either end (plugged if not used).

SPECIFICATION

- Type compliance with BS 4533 2.2 Class I Electrical (earth required).
- Degree of Protection IP 23.

To specify state:

Luminaire with die-cast aluminium housing and integral control gear, suitable for TL 8W/35 miniature fluorescent lamps and supplied as a complete pack for ceiling or bulkhead mounting. Substantially as Philips MFB 16 KombiPak.

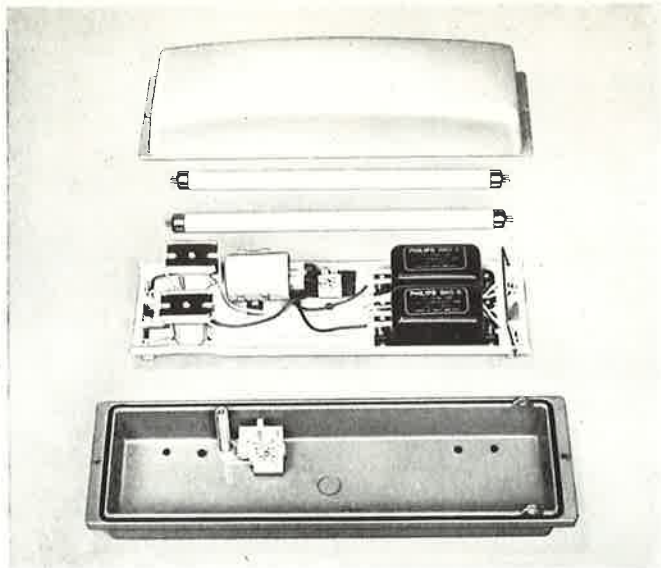
RANGE OF OPERATION

240V 50Hz.

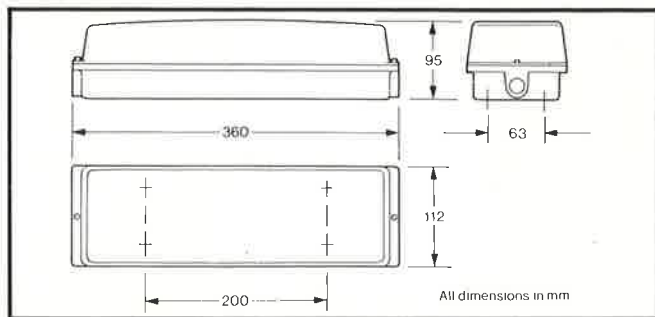
Indoor or outdoor operation (Degree of Protection IP 23).

Suitable for ambient temperatures from -5°C to 30°C .

Any operating position.



DIMENSIONS



ELECTRICAL DATA

	Circuit Watts (running)	Circuit Current A
	26	0.2

ORDERING DATA

Catalogue No.	Description	Packing quantity
MFB 16	Luminaire	Individually packed
Spares		
TL 8W/35	Fluorescent lamp	25
S 10	Starter	10

Spare gear trays and opal diffusers also available – details on application.

Please order in the form given in the following example in multiples of the packing quantity. 50 Philips MFB 16 luminaires.

Lamp: Made in Holland;

Luminaire: Made in UK.

CI/SIB
(63.8)

UDC
696.6 : 628.978

W4321 W4326

Heavy-duty bulkhead luminaires

Two heavy-duty bulkhead luminaires for indoor or outdoor use, one for normal industrial use and the other for use in Zone II hazardous areas. The luminaires use high-efficacy mercury fluorescent lamps, and are supplied complete with integral control gear.

Note: Mercury fluorescent lamps
UK marking MBF = Philips
International marking HPL-N

RANGE

W4321 – Standard luminaire for 80W mercury fluorescent lamp.

W4326 – Division 2 luminaire for 80W mercury fluorescent lamp.

A heavy-duty galvanised steel wire-guard is supplied with both luminaires.

APPLICATIONS

For use wherever a heavy-duty bulkhead luminaire for wall or ceiling mounting is required, in situations such as:-

- Indoor and outdoor factory areas
- Industrial lifts
- Pedestrian subways and walkways
- Public lavatories
- PetroChemical industries
- Marine applications

Top: W4321 standard fitting

Bottom: W4326 Division 2 fitting

Handbook Ref.

3.2.5

To reorder this data sheet quote 3,79 PL 1845/1

Replaces

PL 1845

FEATURES

■ Die-cast corrosion-resistant aluminium body with epoxy resin stoved finish gives excellent protection against arduous environments.

■ Double wall construction provides an open fixing channel and an enclosed control gear compartment.

■ Ballast, power factor correction capacitor and two-way porcelain terminal block are securely fixed to the base of the casting and are protected against the heat of the lamp by a 20 SWG anodised aluminium reflector.

■ Ribbed glass diffuser is carried in a die-cast aluminium front frame assembly, hinged to the body and secured by means of four stainless steel socket head captive screws. A U-shaped silicone rubber gasket seals the luminaire against dust and moisture.

■ Luminaire for use in Zone II areas incorporates Klippon two-way terminal blocks for looping two 7/029 cables, and spark-proof locking lampholder.

■ Heavy-duty guard made from 14 SWG galvanised steel wire supplied with both types.

■ High-efficiency mercury fluorescent lamp gives high lumen output for low energy consumption; lamp life can be six times that of tungsten equivalent.

MATERIALS & FINISH

Body and front frame: Die-cast corrosion-resistant LM6 aluminium alloy, epoxy resin stoved finish.

Cover fasteners: Two stainless steel wire retaining hinges; four 6mm stainless steel socket head captive screws.

Sealing gasket: Silicone rubber.

Lampholder: Porcelain ES (spark-proof locking type on Division 2 luminaire).

SPECIFICATION

■ Heavy-duty bulkhead luminaires for indoor or outdoor use, complete with integral control gear for operating mercury fluorescent lamps. Type for use in Zone II areas is approved by HM Factory Inspectorate for use in these areas as defined by BS Code of Practice CP 1003: 1964.

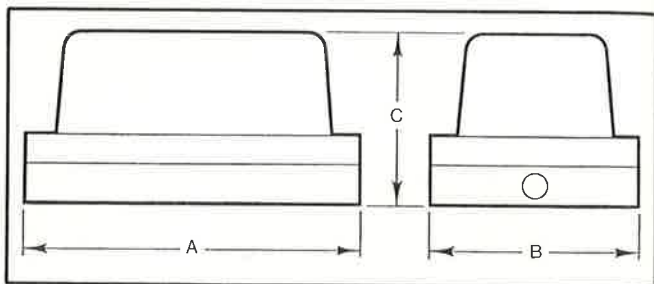
To specify state:

■ Heavy-duty bulkhead luminaire for indoor and outdoor use, with corrosion-resistant die-cast aluminium body and integral control gear for mercury fluorescent lamp. Substantially as Philips W4321 series.

DIMENSIONS & WEIGHTS

Catalogue No.	Overall dimensions (mm)			Maximum Ambient temp. (°C)	Weight (kg)	Lampholder
	A	B	C			
W4321	297	189	157	35	6.3	ES
W4326	297	199	172	35	6.3	ES

DIMENSIONS



LAMP DATA

Lamp type	Lighting Design Lumens	Lamp Voltage V	Lamp current A	Total circuit Watts
80W MBF/U	3650	115	0.8	88

ORDERING DATA

Catalogue No.	Description	Packing quantity
W4321	Bulkhead luminaire for 80W MBF/U lamp	1
W4326	Division 2 bulkhead luminaire for 80W MBF/U lamp	1
Spare W4330	Prismatic glass diffuser	1

Please order luminaires in the form given in the following example. Note that lamps should be ordered separately:-

25 Philips heavy-duty bulkhead luminaires W4326
25 Philips 80W MBF/U mercury fluorescent lamps

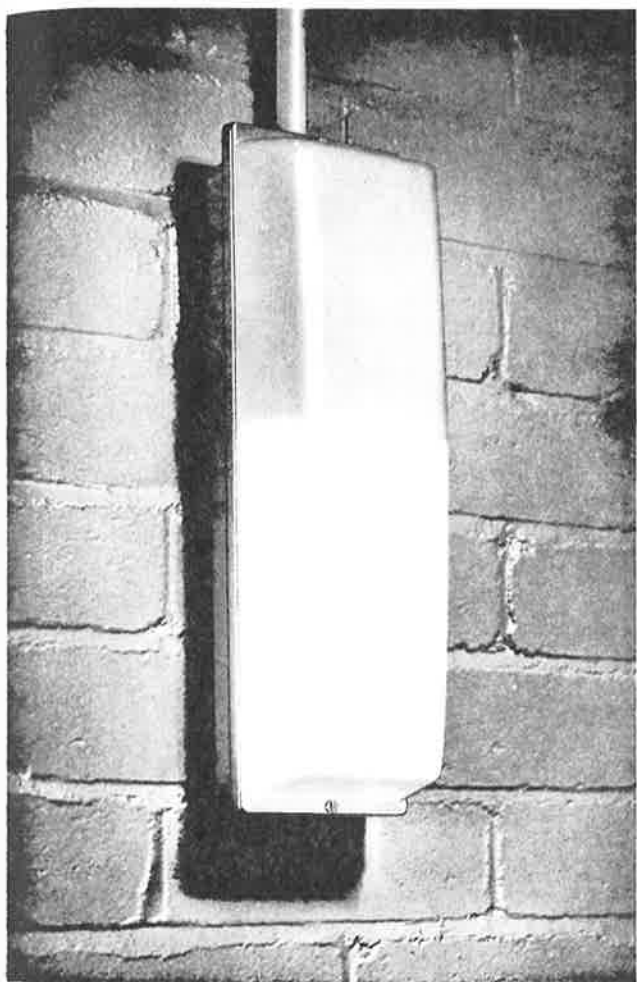
RANGE OF OPERATION

240V 50Hz continuous operation.

For indoor or outdoor use.

Note: Mercury fluorescent lamps.
UK marking MBF = Philips
International marking HPL-N.

Luminaire: Made in UK.
Lamp: Made in Belgium.



CI/SIB	(63.8)
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UDC	696.6:628.978
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MINI SOX BULKHEAD KOMBIPAK MSB 18

A sturdy, high-quality luminaire, supplied as a KombiPak complete with 18W SOX lamp and all fixing accessories, for use as a ceiling or bulkhead luminaire for emergency, security or amenity lighting.

RANGE

MSB 18 - KombiPak complete with luminaire with integral control gear, nylon washer, cable gland, 18W SOX lamp, four fixing screws and wall plugs, and Allen key for opening.

APPLICATIONS

Suitable for use in domestic, public, commercial and industrial premises, in situations such as:-

- Parking areas
- Factory gates
- Banks
- Perimeter areas
- Loading bays
- Building sites
- Schools
- Supermarkets
- Farmyards
- Museums

Handbook Ref	3.2.6
To reorder this data sheet quote	3.79 PL 1881/1
Replaces	PL 1881

8

RESIDENTIAL & AMENITY

FEATURES

- Gives as much light as a typical 100W GLS bulkhead; consumes only 25W.
- Sturdy cast aluminium body and vandal-resistant opal diffuser combine smart appearance with durability.
- High-efficiency, low-pressure sodium lamp with integral control gear permits all-night burning, all the year-round, for as little as 5p a week.
- Supplied as KombiPak, complete with all fixing accessories.
- Familiar yellow sodium light gives excellent visual acuity and fog penetration.
- Cover secured by hexagon screw to prevent unauthorised tampering

MATERIALS & FINISH

- Body:** Die-cast corrosion-resistant aluminium alloy, painted grey.
Diffuser: Opal acrylic, vandal-resistant.
Gear tray: Steel, zinc-plated.

SPECIFICATION

- Degree of Protection IP23.

To specify state:

Luminaire with die-cast aluminium housing and integral control gear, suitable for Philips 18W SOX lamp and supplied as KombiPak for ceiling or wall mounting. Similar to Philips MSB 18.

RANGE OF OPERATION

230/250V 50 Hz.

Indoor or outdoor operation (Degree of Protection IP23).

Suitable for ambient temperatures from minus 20°C to 40°C.

WEIGHT

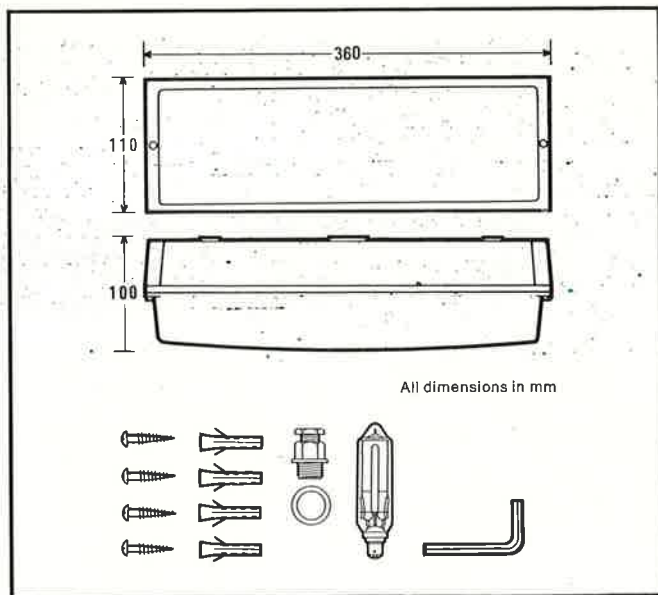
2.3 kg.

Note: When the luminaire is mounted vertically, the gear tray must be at the top so that the lamp cap is uppermost. Cable entry is provided from either end or from the underside.

Lamp: Made in Holland.

Luminaire: Made in UK.

DIMENSIONS



LAMP DATA

Lamp type	Lamp voltage (V)	Lamp current (A)	Circuit current (A)	Total circuit Watts
18W SOX	57	0.35	0.12	25

ORDERING DATA

Catalogue No.	Description	Packing quantity
MSB 18	Luminaire with opal diffuser complete with 18W SOX lamp and all accessories	Individually packed
18W SOX	Spare lamp	20

Please order in the form given in the following example:-
 10 Philips KombiPaks MSB 18.

CI/SIB	(63.8)
UDC	696.6:628.978

MINI SOX KOMBIPAK XGC 001

Lantern/bulkhead luminaire

A high-quality luminaire, supplied as a KombiPak complete with 18W SOX lamp and all fixing accessories, for use as a ceiling or wall-mounted luminaire for emergency, security or amenity lighting.

RANGE

XGC 001 – KombiPak complete with luminaire with integral control gear and prismatic controller, 18W SOX lamp, lantern bracket, fixing screws and Rawlplugs.

APPLICATIONS

Suitable for use in domestic, public, commercial and industrial premises, in situations such as:-

- Parking areas
- Factory gates
- Banks
- Perimeter areas
- Loading bays
- Building sites
- Footpaths
- Schools
- Supermarkets
- Farmyards
- Museums

FEATURES

- Gives more light than a typical 100W, GLS bulkhead; consumes only 25W.
- Vandal-resistant prismatic controller enhances light distribution, enabling the luminaire to be used as an effective mini-lantern.
- When used as a bulkhead luminaire, a detachable side reflector directs light downwards, further improving efficiency.
- Modern, smart appearance coupled with Degree of Protection IP54 make the luminaire eminently suitable for indoor or outdoor use.



Handbook Ref

3.2.7

To reorder this data sheet quote 3.79 PL 1882/1

Replaces

PL 1882

Features continued

- High-efficiency low-pressure sodium lamp with low-loss integral control gear permits all-night burning, all the year round, for as little as 5p a week.
- Supplied as KombiPak, complete with all fixing accessories including lantern bracket.
- Familiar yellow sodium light gives excellent visual acuity and fog penetration.
- Cover secured to prevent unauthorised tampering.

MATERIALS & FINISH

Body: Polyamide, self-coloured black.

Prismatic controller: Polycarbonate, UV stabilised, vandal-resistant.

Gear tray: Steel, stove-enamelled white, with anodised aluminium reflector.

Sealing gasket: Silicone rubber, labyrinth type.

SPECIFICATION

■ Degree of Protection IP54.

To specify state:

Luminaire with prismatic controller and integral control gear, suitable for Philips 18W SOX lamp and supplied as KombiPak for wall, ceiling or bracket mounting. Similar to Philips XGC 001.

RANGE OF OPERATION

240V 50Hz.

Indoor or outdoor operation (Degree of Protection IP54).

WEIGHT

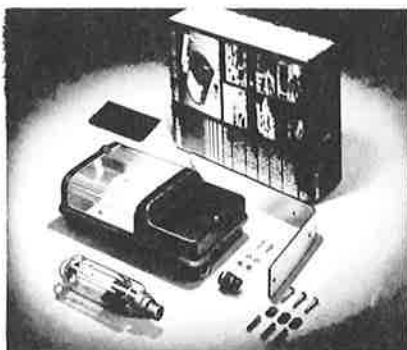
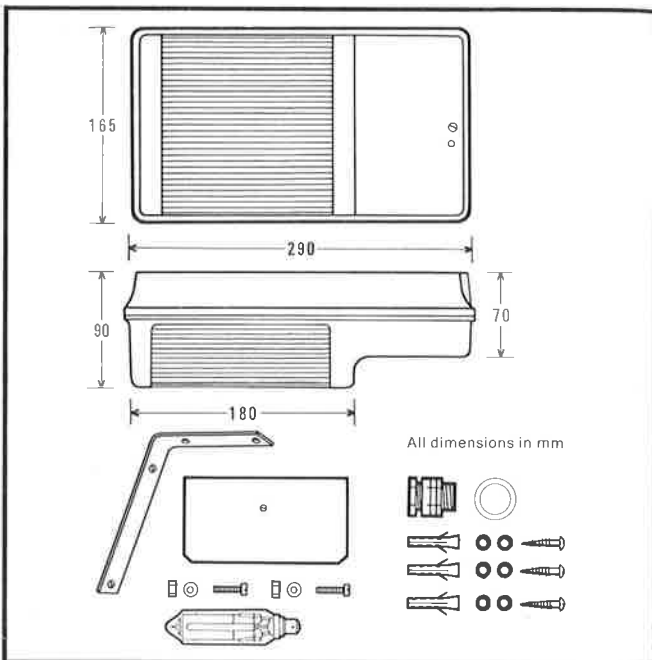
Luminaire 1.8 kg (complete with packing, bracket, accessories, etc.)
Bracket 0.2 kg.

Note: When mounted vertically, the prismatic controller must be at the bottom so that the lamp cap is uppermost. Cable entry is provided on the right-hand side, or from the top or the bottom.

Lamp: Made in Holland.

Luminaire: Made in Holland.

DIMENSIONS



LAMP DATA

Lamp type	Lamp voltage (V)	Lamp current (A)	Circuit current (A)	Total circuit Watts
18W SOX	57	0.35	0.12	25

ORDERING DATA

Catalogue No.	Description	Packing quantity
XGC 001	Luminaire with prismatic controller complete with 18W SOX lamp and all accessories	Individually packed
18W SOX	Spare lamp	20

Please order in the form given in the following example:-
10 Philips KombiPaks XGC 001.

CI/SIB
(63.8)

UDC
696.6:628.978

SECURITY KOMBIPAK

55W SOX lantern with integral control gear, supplied as a pack complete with lamp, photo cell and all fixing accessories, for most basic security lighting needs.

RANGE

55W SOX Security KombiPak – M18 lantern with integral control gear, 55W SOX lamp, photo cell, wall bracket for flat surface or corner mounting, four 3/16 x 2 in. Rawlbolts, masonry drill and Allen key.

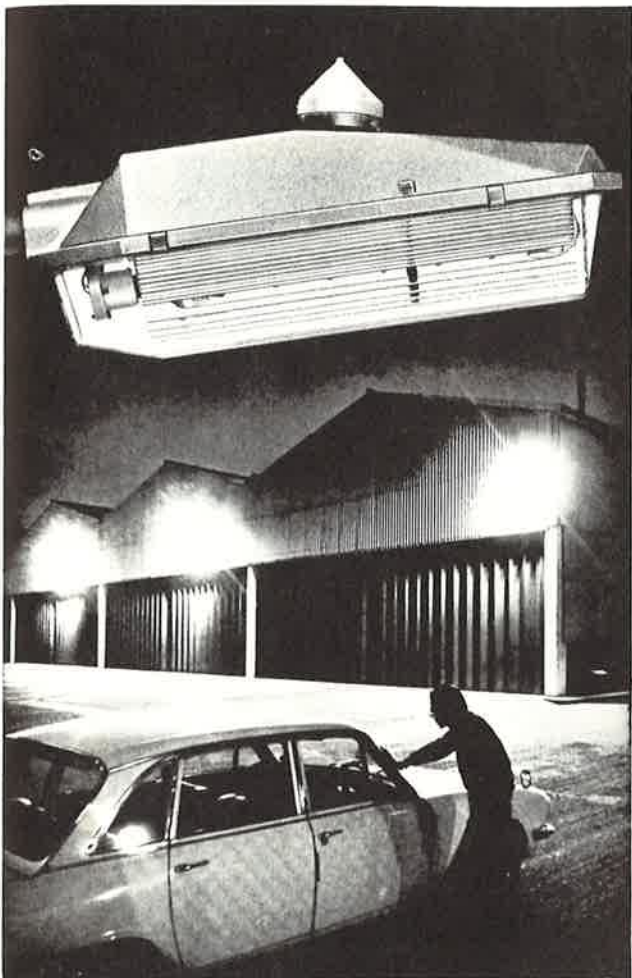
APPLICATIONS

Ideal for outdoor security lighting in situations such as:-

- Public house car parks
- Perimeter fences and walls
- Factory gatehouses and approaches
- Churches
- Building entrances and exits
- Schools and youth clubs
- Transport cafes and lorry parks
- Farms and isolated buildings
- Sports and social clubs
- Building sites and plant hire depots

FEATURES

- Supplied as a complete packaged kit complete with lamp; absolutely no extras needed for installation.
- Low-pressure sodium lamp gives 60% more light output than a 300W GLS lamp; consumes only 75 Watts.
- Lamp service period can be three times that of tungsten halogen lamps, greatly reducing maintenance costs.
- Integral photo cell switches lantern on at dusk and off at dawn, effecting further savings in energy.
- Rainproof and resistant to rust and vandalism – the lantern is the same type as is used in large quantities for street lighting.
- Lantern complies with BS 4533 for electrical safety.



Handbook Ref.

3.2.8

To reorder this data sheet quote 3.79 PL 1883/1

Replaces

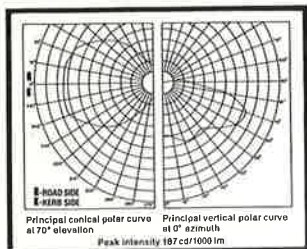
PL 1883

RESIDENTIAL & AMENITY

Features continued

- Polycarbonate refractor bowl hinges downwards for easy lamp changing and is simply removed for cleaning.
- Integral control gear is mounted on a white stove-enamelled steel tray which hinges downwards at the spigot end for easy servicing.

PHOTOMETRIC DATA



Light output ratios

LOR:- 0.80
DLOR:- 0.72

MATERIALS & FINISH

Canopy: High-pressure die-cast aluminium LM6M, zinc chromate primed and stove-enamelled grey outside, white inside.

Bowl: Injection-moulded polycarbonate

Bowl clips and hinges: Stainless steel.

Gear tray: Sheet steel, stove-enamelled white.

SPECIFICATION

■ Type compliance with BS 4533.

To specify state:

Security lantern for outdoor use, with integral control gear for 55W SOX lamp. Supplied as a complete package with lamp, lantern, mounting bracket and fixing accessories, and photo cell. Substantially as Philips 55W SOX security KombiPak.

RANGE OF OPERATION

230/250V 50 Hz supplies.
Normal outdoor operation.

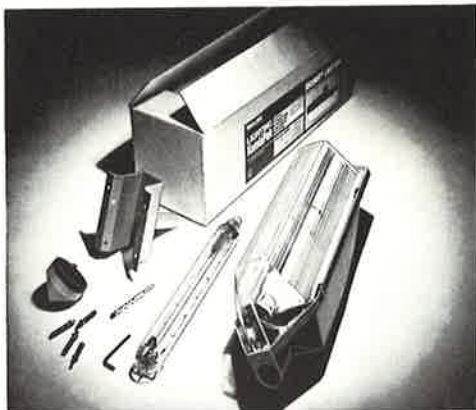
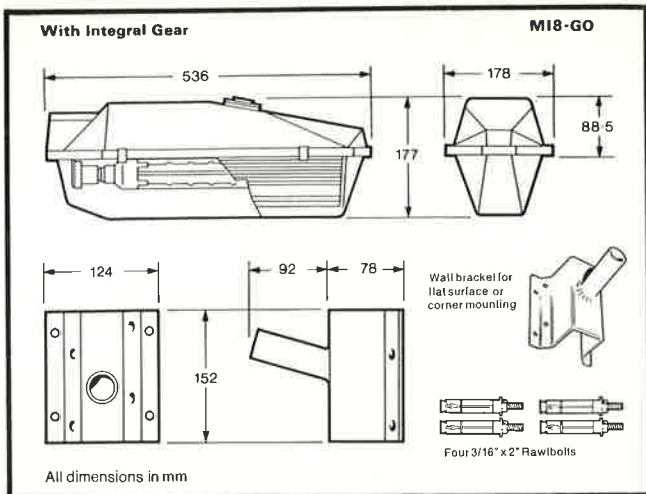
WEIGHT

7.65 kg.

Lamp: Made in Holland.

Fitting: Made in UK.

DIMENSIONS



LAMP DATA

Lamp type	Lighting design Lumens	Lamp volts (V)	Lamp current (A)	Circuit current (A)	Total circuit Watts	Cap
55W SOX	7150	104	0.6	0.3	75	BC

PHOTO CELL DATA

Description	Voltage	Switch-on Level	Switch-off Level
Conical, with 3-pin twist socket	240/250	70 lux	140 lux

ORDERING DATA

Catalogue No.	Description	Packing quantity
SXK 55	M18 complete -055XB5GO with photo cell *1/VR	Individually packed
55W SOX	Spare lamp	9

Please order in the form given in the following example:-
20 Philips 55W SOX Security KombiPaks

CI/SIB

(63.1)

UDC

696.6:628.972

W4270 W4271 W4272 W4273

Amenity lighting luminaire

Weatherproof wellglass amenity lighting luminaires, available in two sizes. Can be used with GLS lamps up to 200W or 100W ML lamp. Both ratings may be obtained with top or side entry fixing.

RANGE

W4270 – 100W GLS luminaire with top entry.

W4271 – 200W GLS luminaire with top entry.

W4272 – 100W GLS luminaire with side entry.

W4273 – 200W GLS luminaire with side entry.

APPLICATIONS

Suitable for a wide variety of amenity lighting applications in public, commercial and industrial premises.

Note: UK marking MBTF – Philips
International marking ML



8

RESIDENTIAL & AMENITY

Handbook Ref

3.2.9

To reorder this data sheet quote 6.79 PL No. 1884

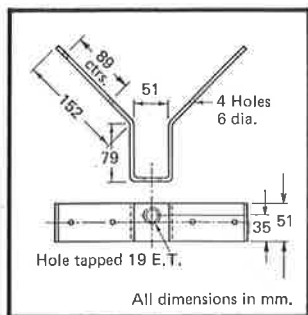
Replaces

8309/1.55

FEATURES

- Die-cast aluminium alloy canopy, common to both ratings, is positively sealed to small or large screw-neck wellglass by gasket.
- Corrosion-resistant canopy casting is stove-enamelled semi-matt black for smart appearance and long life.
- Side or top entry holes are tapped for 20mm conduit; top entry canopy has internal drill starts at 50 mm centres to enable the luminaire to be mounted directly to a standard BESA box.
- Small wellglass suits GLS lamps up to 100W; large wellglass suits GLS lamps up to 200W or ML (mercury blended) lamps up to 100W.
- Canopy is fitted with standard porcelain BC lampholder and 2BA earth screw and washer.
- Wall bracket, finished to match the canopy, converts side-entry version into stand-off luminaire for walls.

W4594 Corner Bracket



MATERIALS & FINISH

Canopy: Corrosion-resistant die-cast aluminium alloy, semi-matt black stoved finish.

Wellglass: Opal glass, screw-neck attachment to canopy with sealing gasket.

Lampholder: Porcelain BC.

SPECIFICATION

- Type compliance with BS 4533:1971.
- Wellglass thread complies with IEC 140.

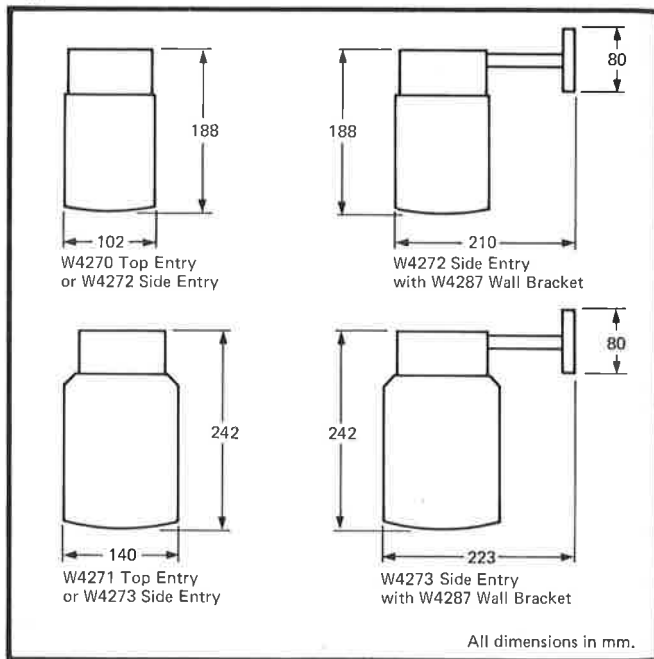
To specify state:

Amenity lighting luminaire with opal wellglass sealed to canopy by gasket; with porcelain BC lampholder. Similar to Philips W4270 series.

RANGE OF OPERATION

240V 50Hz supplies.
Indoor or outdoor conditions.

DIMENSIONS



LAMP DATA

Lamp type	Luminaire type	Watts	Cap	Initial Lumens
GLS Pearl	W4270, W4272	60	BC	710
GLS Pearl	W4270, W4272	100	BC	1360
GLS Pearl	W4271, W4273	150	BC	2180
GLS Pearl	W4271, W4273	200	BC	2900
ML	W4271, W4273	100	BC	1111

ORDERING DATA

Catalogue No.	Description	Weight (kg/lb)	Packing quantity
W4270	20mm top entry	1-4/3-0	1
W4271	20mm top entry	2-0/4-5	1
W4272	20mm side entry	1-4/3-0	1
W4273	20mm side entry	2-0/4-5	1

Accessories

W4287	Wall bracket (side entry only)	1
W4294	Corner wall bracket (side entry only)	1

Please order in the form given in the following example:

10 Philips amenity luminaires W4273.
10 Philips wall brackets W4287.

Note that lamps must be ordered separately.

Lamp and Fitting: Made in UK.
ML lamp: Made in Holland.

INTERMEDIATE

CI/SIB (90.6)
UDC 696.6:628.971

NPP, HPP & SPP

Lanterns for municipal lighting Bowls & decorative units

A range of decorative post-top lanterns comprising eight vandal-resistant bowls and cylinder, louvre or dome-shaped decorative units which can be used in conjunction with clear or smoked bowls to give many combinations of decorative effect. Electrical units for use with these lanterns, for 50W, 80W and 125W HPL lamps, 50W and 70W SON lamps and GLS or ML lamps up to 100W, are listed in Data Sheet PL. 1890.

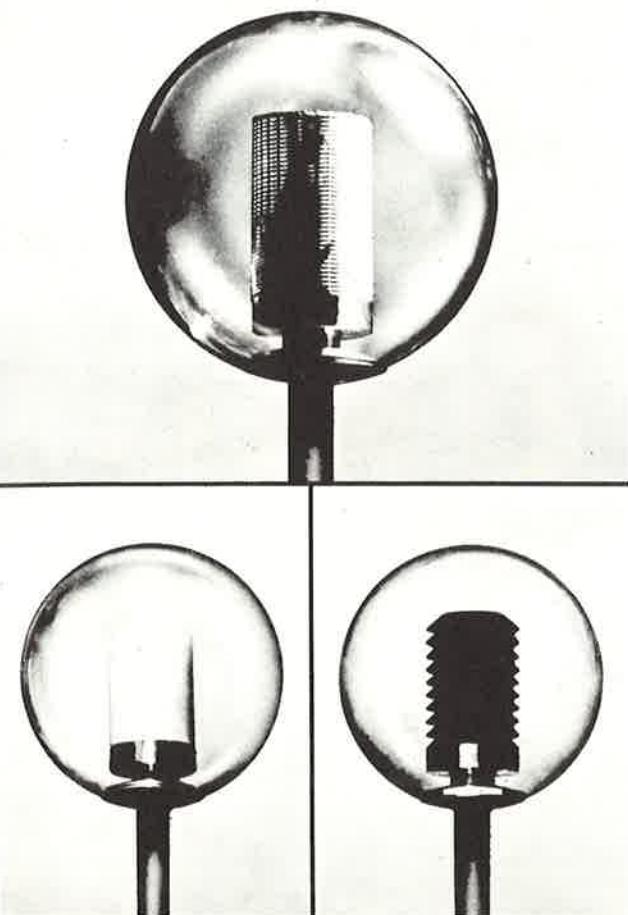
RANGE

Eight bowl styles with choice of materials giving eleven variants. Three decorative units – cylinder, louvre and dome-shaped (yellow or white). Please see descriptions and illustrations within this Data Sheet.

APPLICATIONS

Suitable for use wherever the environment demands a high standard of lantern design, with particular applications in:—

- Residential areas
- Shopping precincts
- Public parks and gardens
- Leisure centres
- Hotel forecourts
- Hospitals
- Car parks



Handbook Ref.

3.2.10

To reorder this data sheet quote 10/79 PL1889/1

Replaces

PL 1889

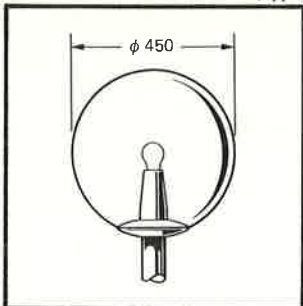
RESIDENTIAL & AMENITY

8

FEATURES

- Bowls, gear units and decorative units are designed to combine aesthetically with each other.
- High-impact acrylic bowls are vandal-resistant and allow high light transmission.
- Decorative units are available in a choice of colours and designs, each for use with any light source listed.
- Bowls are easily removed for maintenance and replacement.
- All bowls and decorative units are interchangeable.
- Lanterns can be attached to 60mm or 76mm poles by means of a spigot adaptor which is invisible in position.
- All metal parts are made from corrosion-resistant materials.
- Lantern bowls are sealed to electrical units, and are weather-resistant with the Degree of Protection IP 54.

DIMENSIONS & WEIGHTS (typical lanterns)

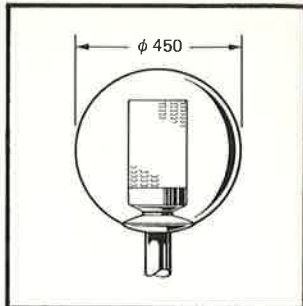


Bowl type Clear or smoked sphere

Material Acrylic or Polycarbonate

Weight 1.1Kg 1.7Kg

Decorative unit Not used

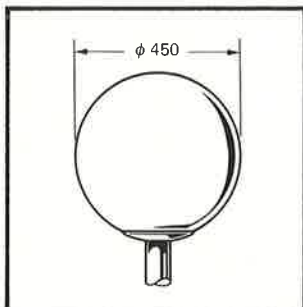


Bowl type Clear or smoked sphere

Material Acrylic or Polycarbonate

Weight 1.1Kg 1.8Kg

Decorative unit Sheet steel painted Cylinder

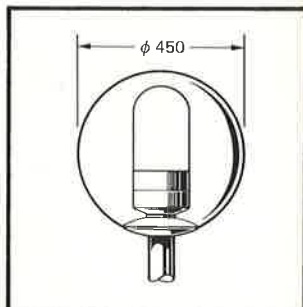


Bowl type Frosted sphere

Material Acrylic or Polycarbonate

Weight 1.3Kg 1.8Kg

Decorative unit None required



Bowl type Clear or smoked sphere

Material Acrylic or polycarbonate

Weight 1.1Kg 1.8Kg

Decorative unit Dome

SPECIFICATION

Complies with BS 4533 2.2 Class 1 insulation. This lantern must be earthed.

Degree of Protection IP 54.

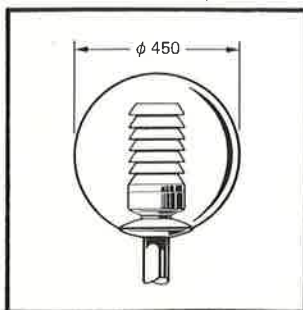
To specify state:

Post-top lantern with choice of eight bowl styles and three internal decorative units, all to be interchangeable, with control gear and electrical units for HPL, SON, GLS or MLL lamps. Similar to Philips NPP, HPP or SPP.

RANGE OF OPERATION

240V 50Hz supplies
Normal outdoor operation

Country of Origin: Made in Holland

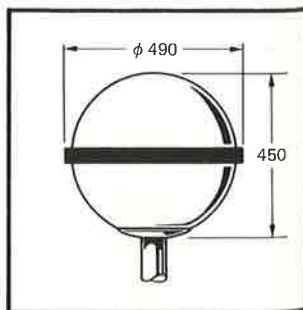


Bowl type Clear or smoked sphere

Material Acrylic or Polycarbonate

Weight 1.1Kg 1.7Kg

Decorative unit Anodised Aluminium Louvre
256

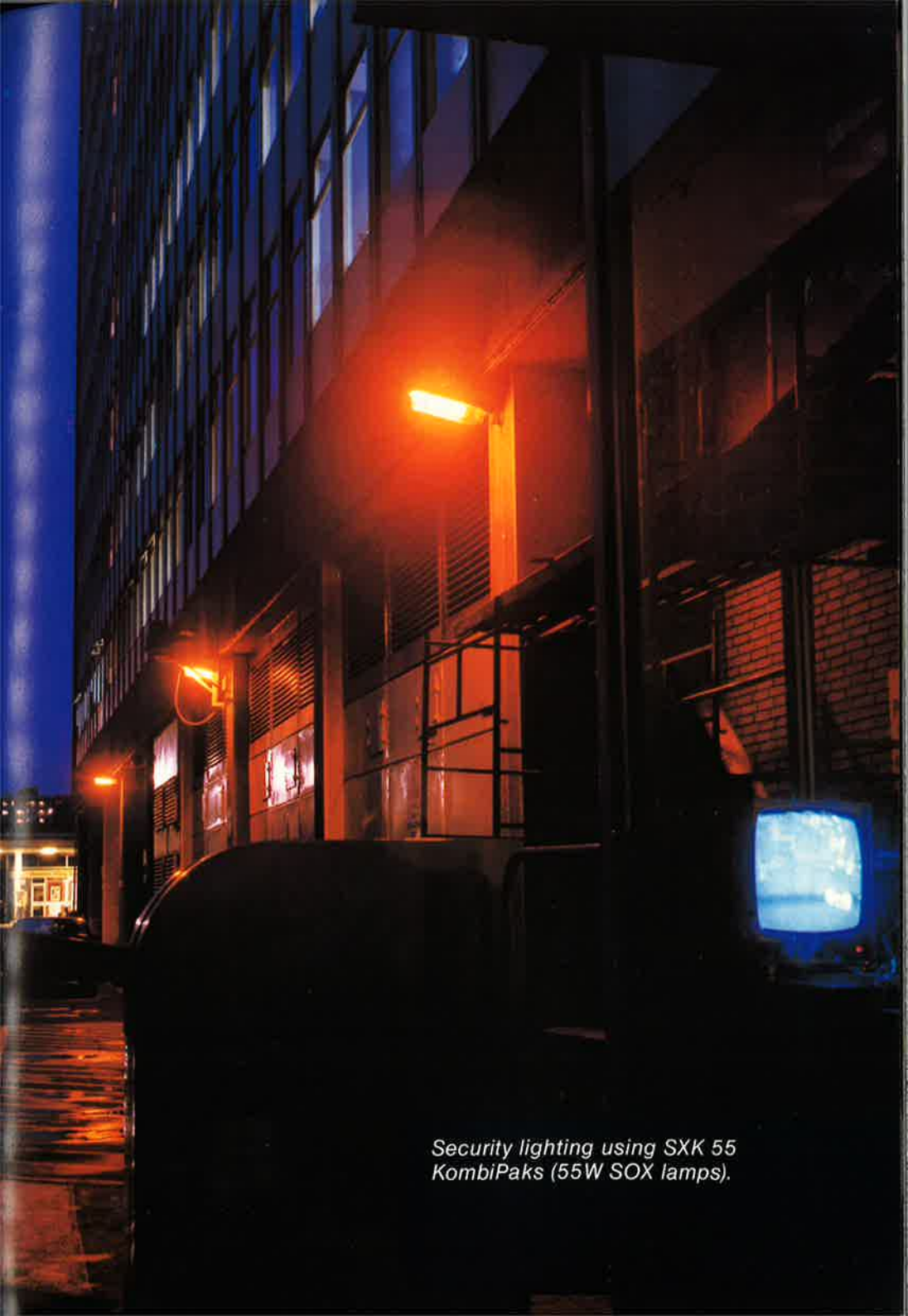


Bowl type Opal sphere with ring

Material Low pressure polythene

Weight 2.4Kg

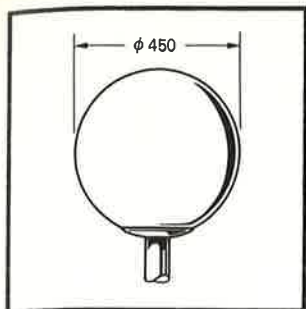
Decorative unit None required



*Security lighting using SXK 55
KombiPaks (55W SOX lamps).*



Smokey finish SPP 133 with louvre electrical unit.

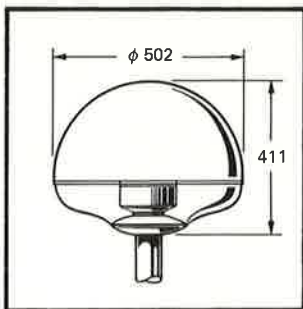


Bowl type Opal sphere

Material Low pressure polythene

Weight 2.0Kg

Decorative unit None required

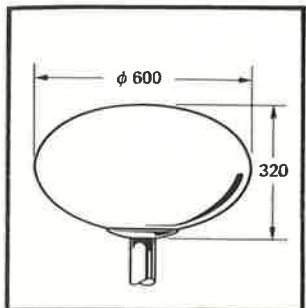


Bowl type Mushroom

Material GRP and polycarbonate

Weight 3,2Kg

Decorative unit None required

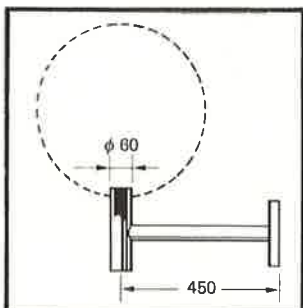


Bowl type Opal ellipse

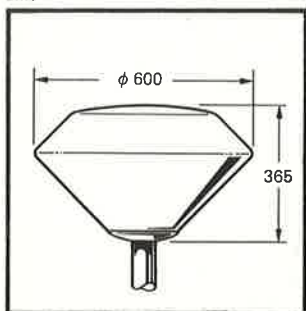
Material Low pressure polythene

Weight 2.3Kg

Decorative unit None required



Wall bracket for NPP, HPP and SPP range



Bowl type Opal cone

Material Low-pressure polythene

Weight 2.3Kg

Decorative unit None required

WEIGHTS, MATERIALS & ORDERING DETAILS

Catalogue No.	Description	Weight	Material
Bowls			
H/N/SPP/131	Opal sphere with black rim	2.4Kg	Low pressure polythene
H/N/SPP/133	Opal sphere	2.0Kg	Low pressure polythene
H/N/SPP/133/ACC	Clear sphere	1.1Kg	Acrylic
H/N/SPP/133/ACS	Smoked sphere	1.1Kg	Acrylic
H/N/SPP/133/ACT	Frosted sphere	1.3Kg	Acrylic
H/N/SPP/133/PCC	Clear sphere	1.7Kg	Polycarbonate
H/N/SPP/133/PCS	Smoked sphere	1.7Kg	Polycarbonate
H/N/SPP/133/PCT	Frosted sphere	1.8Kg	Polycarbonate
H/N/SPP/134	Opal ellipse	2.3Kg	Low pressure polythene
H/N/SPP/136	Opal cone	2.3Kg	Low pressure polythene
H/N/SPP/137	Mushroom	3.2Kg	Grey GRP and clear polycarbonate
Decorative units			
ZPP/133/01	Louvre		Anodised aluminium
ZPP/133/02	Cylinder		White lacquered steel
ZPP/133/031*	Dome		Glass, white trim
ZPP/133/032*	Dome		Glass, yellow trim
Electrical units			
	For lamp type		
HPP-50W	50W HPL-N	2.3Kg	
HPP-80W	80W HPL-N	2.5Kg	
HPP-125W	125W HPL-N	2.7Kg	
SPP-50W	50W SON	2.6Kg	
SPP-70W	70W SON	2.8Kg	
NPP/01**	MLL, GLS and bowl reflector lamps up to 100W		
NPP/00	GLS up to 150W MLL up to 160W		

Optional Accessories

ZPP/08	Spigot adaptor for 76mm poles
ZPP/09	Wall bracket

Notes:— *The domed glass unit must not be used with HPL-N lamps rated over 80W.

**Supplied with an anodised aluminium cover for use in clear or smoked bowls

Please order in the form given in the following example. Note that lamps must be ordered separately:—

- 10 Philips clear spheres H/N/SPP/133/ACC
- 10 Philips decorative units ZPP/133/01
- 10 Philips electrical units SPP-70W
- 10 Philips 70W SON lamps

Further details of electrical units are contained in Data Sheet PL 1890

Made in Holland

INTERMEDIATE



CI/SIB	(90.6)
UDC	696.6:628.971

NPP, HPP & SPP

Electrical units for decorative post-top lanterns

A range of electrical units complete with control gear (where applicable) and ES lampholder, for use with the H/N/SPP range of decorative post-top lanterns. Full details of the lanterns are contained in Data Sheet PL 1889.

RANGE

- SPP-50W for 50W SON lamp
- SPP-70W for 70W SON lamp
- HPP-50W for 50W HPL-N or HPL-N de Luxe lamp
- HPP-80W for 80W HPL-N or HPL-N de Luxe lamp
- HPP-125W for 125W HPL-N or HPL-N de Luxe lamp
- NPP/00 for GLS lamps up to 150W, MLL lamps up to 160W & Carbon Filament lamps up to 115W.
- NPP/01 for GLS, MLL or bowl reflector lamps up to 100W.

APPLICATIONS

For use in the H/N/SPP range of post-top lanterns, in situations such as:—

- Residential areas
- Shopping precincts
- Public parks and gardens
- Leisure centres
- Hotel forecourts
- Hospitals
- Car parks

Handbook Ref.	3.2.11
PL No.	10/79 1890/1
Replaces	PL 1890

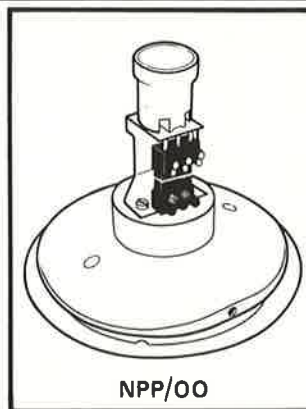
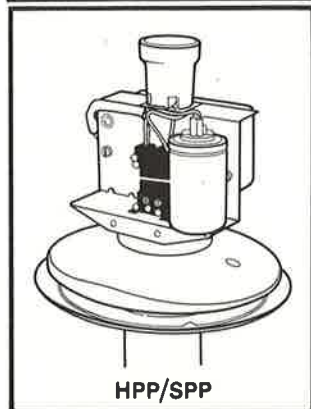
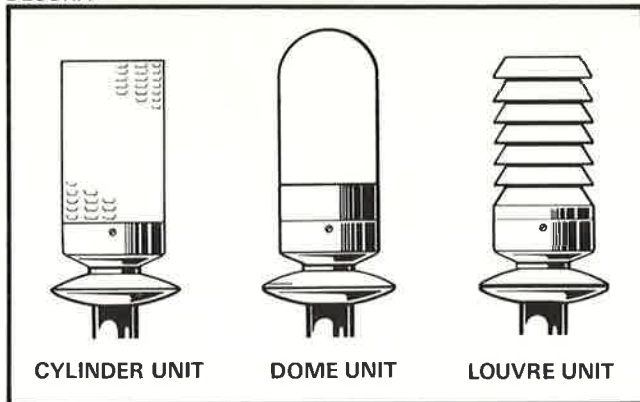
8

RESIDENTIAL & AMENITY

FEATURES

- All electrical units fit any of the decorative units in the range.
- Easy to assemble and install.
- Standard Philips control gear components ensure good availability of replacement spares.
- Elegant shape of base continues contour of bowls.
- Designed to fit directly to 60mm poles, or to 76mm poles with spigot adaptor which is invisible in use.

DECORATIVE UNITS



MATERIALS & FINISH

Base plate: Anodised aluminium

Lampholders: Porcelain

Gear components: Standard Philips range (see Lighting Handbook for catalogue Nos. of replacement spares).

SPECIFICATION

Complies with BS 4533 2.2 Class I insulation. This lantern must be earthed.

To specify state:

Post-top lantern with choice of eight bowl styles and three internal decorative units, all to be interchangeable, with control gear and electrical units for HPL, SON, GLS or MLL lamps. Similar to Philips NPP, HPP or SPP.

RANGE OF OPERATION

240V 50Hz supplies

Normal outdoor operation

ELECTRICAL DATA

Catalogue No.	For lamp type	Circuit Current (a)	Circuit Watts	Cap
SPP-50W	50W SON	0.38	61	ES
SPP-70W	70W SON	0.60	86	ES
HPP-50W	50W HPL-N	0.37	62	ES
HPP-80W	80W HPL-N	0.4	88	ES
HPP-125W	125W HPL-N	0.7	137	ES
NPP/00	GLS max 150W; MLL max 160W	—	—	ES
NPP/01	GLS, MLL & BR max 100W	—	—	ES

Full details of the NPP, HPP & SPP lanterns for municipal lighting, and comprehensive ordering details, are contained in Data Sheet PL 1889.

ORDERING DETAILS

Control Gear contained in Electrical units is as follows:—

Catalogue No.	Ballast	Capacitor	Ignitor
NPP/00	None	None	None
NPP/01	None	None	None
SPP-50W	L4054	L4008/7	None
SPP-70W	L4074	L4010/07	None
HPP-50W	L4053	L4008/07	None
HPP-80W	L5080	L4008/07	None
HPP-125W	L5125	L4008/07	None

Made in Holland

Ballasts and Capacitors made in UK.

CI/SIB	(63.8)
UDC	696.6 : 628.978

SNK 70

70W SON KombiPak

A high-quality lantern-bulkhead luminaire with aluminium canopy, supplied as a KombiPak complete with 70W SON lamp, integral control gear and all fixing accessories; for wall mounting as a security or amenity lantern.

RANGE

SNK 70 – KombiPak complete with luminaire with integral control gear and polycarbonate diffuser, 70W SON lamp, universal wall bracket for mounting on flat surfaces or corners, Rawbolts, photocell and durium-tipped masonry drill bit.

APPLICATIONS

Suitable for use in commercial, public and industrial areas such as:-

- Security fences and boundaries
- Gatehouses
- Precincts
- Forecourts
- Car parks
- Loading bays
- Bus and railway stations
- Access roads



Handbook Ref

3.2.12

To reorder this data sheet quote

7.79 PL 1892

Replaces

NEW

FEATURES

- Easily mounted on walls, on flat surfaces or corners.
- High-quality vandal-resistant diffuser gives distribution to Group B roadlighting standards.
- Rigid, durable canopy is a high-pressure aluminium die-casting.
- Polycarbonate diffuser is hinged for easy relamping and maintenance.
- Integral control gear is mounted on hinged gear tray for easy access.
- 70W SON lamp gives excellent efficiency (around 65 Lumen/Watt).
- 70W SON lamp has a warm white appearance with colour rendering capable of reproducing blue surfaces clearly and enhancing red or yellow surfaces. Complexions and skin tones are flattered by the light.

MATERIALS & FINISH

- Diffuser:** Polycarbonate
- Canopy:** High-pressure die-cast aluminium
- Bowl clips:** Stainless steel
- Gear tray:** Precoated sheet steel

SPECIFICATION

- Type compliance with BS 4533 2.2 Class I
- Degree of Protection IP23
- Conforms with distribution requirements for Group B roads

To specify state:

Luminaire for 70W SON lamp, supplied as a KombiPak complete with lamp, integral control gear, photocell and fixing accessories. Distribution to be approved for use on Group B roads. Similar to Philips SNK 70.

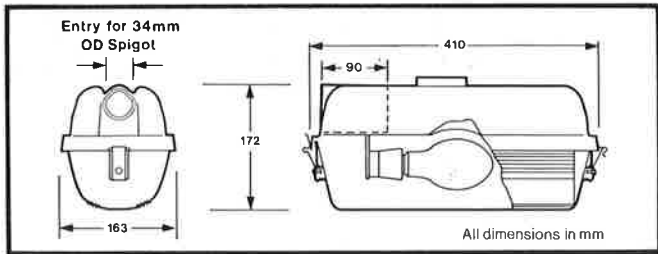
RANGE OF OPERATION

- 240V 50 Hz supplies. Normal outdoor operation.



Lamp: Made in Holland
Fitting: Made in UK

DIMENSIONS



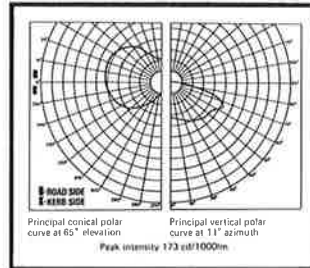
How to get the best from your Security KombiPak

This simple table shows you how to mount your KombiPak lanterns to gain the maximum spread of light and therefore the most cost-effective illumination. For straight runs, for example along a wall:-

Mounting Height H	Spacing A	Distance from wall effectively illuminated B
3.0m	12m	4.5m
3.5m	14m	5.3m
4.0m	16m	6.0m
4.5m	18m	6.8m
5.0m	20m	7.5m
5.5m	22m	8.8m
6.0m	24m	9.6m

Therefore, as a general rule, for any mounting height, the spacing between lanterns is approximately 4H and the depth of effective illumination from the wall at ground level is 1.5H. For corner siting, it is important to remember that half the spacing will be necessary on either side of the corner. For example, if a lantern is corner-mounted at 5m height, the lanterns on either side will need to be at a 10m spacing.

LIGHT DISTRIBUTION DIAGRAM



PHOTOMETRIC DATA

Light Output Ratios

Light Output Ratios: 0.71
 Downward Light Output Ratio: 0.63

LAMP & CONTROL GEAR DATA

Lamp type	Initial Lumens	Lamp Volts V	Lamp Current A	Circuit Current A	Circuit Watts	Ballast type	PF Capacitor	Lamp cap
70W SON	5800	90	1.0	0.5	85	L4074	L4010	ES

Weight (Lantern only with control gear and lamp) 4.1 Kg.

ORDERING DATA

Catalogue No.	Description	Packing Quantity
SNK 70	Luminaire complete with integral control gear, mounting accessories and 70W SON lamp	1
70W SON	Spare lamp	40

OUTDOOR FLOODLIGHTING

	Page
HNF001 Floodlight Projector	PL1761/1 265
HNF002	PL1760/1 269
NNF010	PL1765/2 273
HNF012	PL1740/1 277
Tivoli	PL1219/1 279
HNF006	PL1758/1 281
Apollo Tungsten Halogen Floodlight	PL1764/1 285
HNF003	PL1267/1 287
QVF410, 411, 412 Tungsten Halogen Floodlight	PL1743 291
DVF102 Par 56 Spot Floodlight	PL1288/1 293
DHF016	PL1289/1 295
R7756, R7758, R7788, R7798	PL1759/2 297

C1/S1B
(90.6)

UDC
696.6:628.971

HNF 001

Floodlight projector

A general-purpose high quality floodlight with wide or narrow beam light distribution, for use with mercury halide or high-pressure sodium lamps.

RANGE

Available in narrow or wide beam forms to take two 400W mercury halide lamps Type MBI/H, two 400W high-pressure sodium lamps Type SON/T or a single 1000W SON/T lamp.

A pre-wired control gear box enclosed to IP54 is available to operate the 400W SON/T lamp (Cat. No. PAS 400, see Data Sheet PL1744).

APPLICATIONS

General-purpose floodlighting, in situations such as:-

- Sports grounds
- Railway marshalling yards
- Car parks
- Buildings
- Major road constructions (high mast work)
- Shipping yards
- Skating rinks



Handbook Ref.

3.4.1

To reorder this data sheet quote

12.77 PL 1761/1

Replaces

PL 1761

FEATURES

- High-grade aluminium reflector gives accurate beam control.
- Easy-to-operate stainless steel clips permit rear cover to be hinged down to facilitate lamp changing.
- Cast-on beam aiming sight and protractor scale permit quick and simple daylight adjustment.
- Reflector housing and rear cover are strong cast aluminium; low copper content ensures excellent corrosion resistance even in coastal and industrial areas.
- Ozone-resistant neoprene gaskets give dust and jetproof seal of front glass and rear cover.

DIMENSIONS & WEIGHT

mm (Inches)	mm (Inches)
A - 705 (27.75)	G - 258 (10.16)
B - 525 (20.67)	H - 130 (5.12)
C - 431 (16.97)	J - 422 (16.61)
D - 250 (9.84)	K - 485 (19.09)
E - 21 (0.83)	L - 572 (22.52)
F - 21 (0.83)	

Weight of luminaire complete with lamp - 17.5 kg (38.55 lb.)

MATERIALS & FINISH

- Reflector housing and rear cover:** Cast aluminium.
- Front glass:** Toughened glass plate secured with stainless steel clips.
- Sealing gaskets:** Rubber. Ethylene propylene.
- Mounting bracket:** Stainless steel.

RANGE OF OPERATION

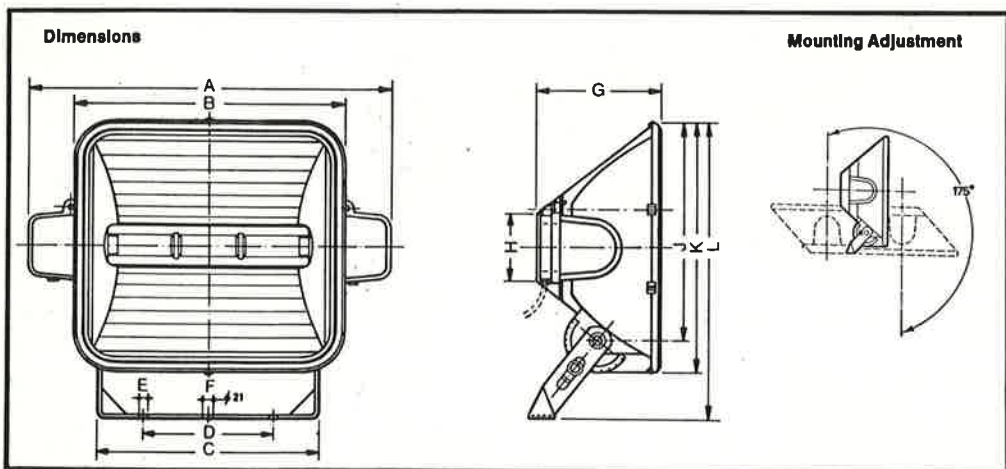
Temperature range (lamp) -18°C to 40°C 240V 50Hz.

SPECIFICATION

- Type compliance with BS 4533 2.2 Class I Floodlight Luminaire Degree of Protection IP55 'Dustproof' 'Jet-proof'.

To specify state:

Floodlight luminaire for mercury halide or high-pressure sodium lamps, corrosion-resistant cast aluminium housing, degree of protection IP55, hinged rear cover for easy access to lamp, substantially as Philips HNF 001.



LAMP DATA

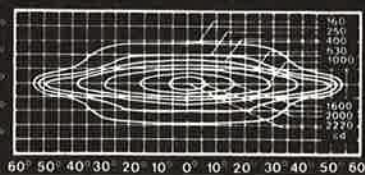
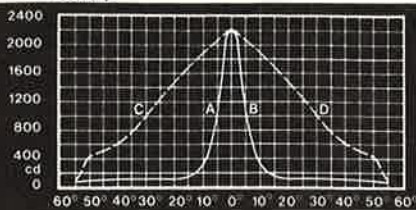
Catalogue Number	Lamp type	Lighting Design Lumens	Lamp Volts	Lamp Current (Amperes)	Total Circuit Watts	Cap	Control gear required per lamp	Ballast	Ignitor	PFC Capacitor
400 MBI/H	Mercury halide (two per luminaire)	29,200	125	3.4	424	GES	L5400BX	S51	2 x L4016/07	
400 SON/T	High-pressure sodium (two per luminaire)	46,500	105 ±15	4.4	440	GES	L4404	S50	2 x L4020/07	
1000W SON/T	High-pressure sodium (one per luminaire)	123,000	110	10.3	1100	GES	L4410	S53	4 x L4025/07	

Further information on Philips lamps and control gear is contained in the following Data Sheets:-

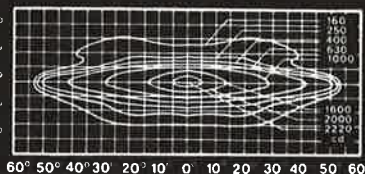
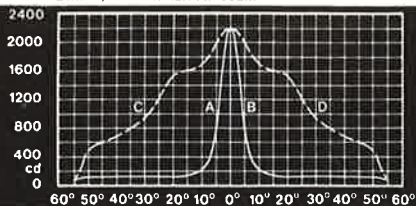
Lamp type	Lamp Data Sheet	Control Gear Data Sheet
MBI/H	PL 1767	PL 1779
SON/T	PL 1776	PL 1778

Light Distribution cd/1000 lm

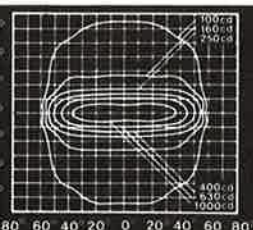
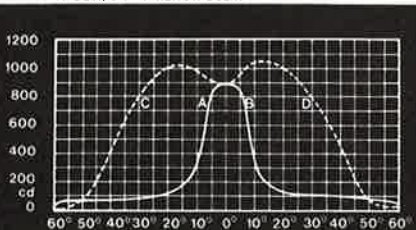
2xSON/T 400W narrow beam



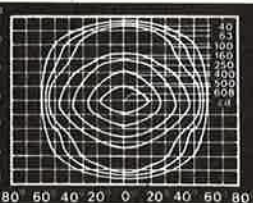
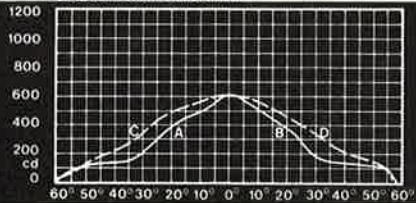
2xMBI/H 400W narrow beam



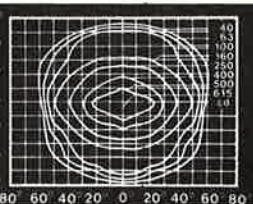
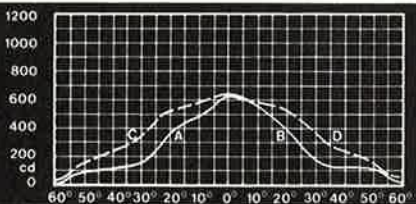
1xSON/T 1k W narrow beam



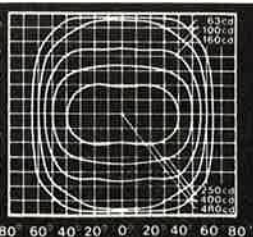
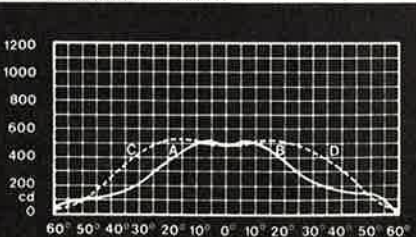
2xSON/T 400W wide beam



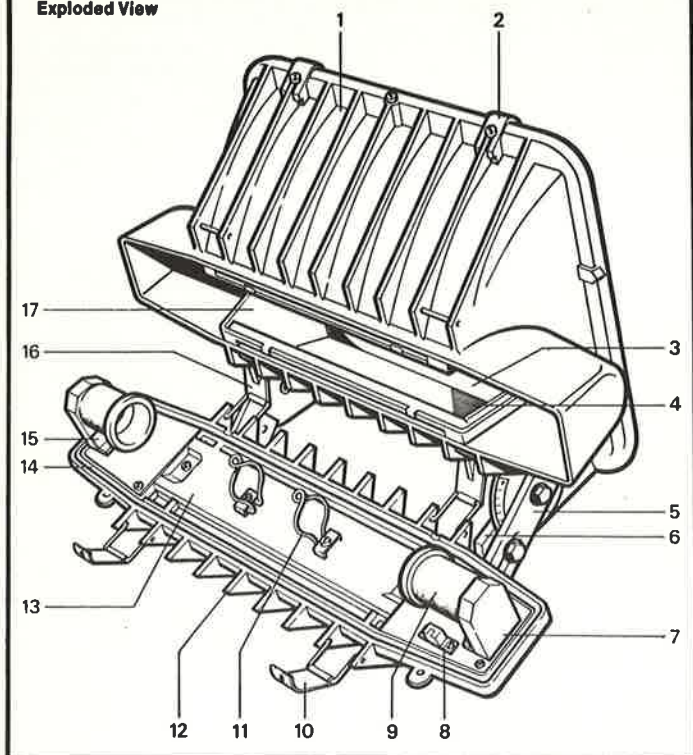
2xMBI/H 400W wide beam



1xSON/T 1k W wide beam



Exploded View



KEY TO ILLUSTRATION

1. Housing; cast aluminium
2. Front-glass clips; stainless steel
3. Front-glass
4. Reflector; aluminium
5. Bracket; stainless steel
6. Clamp
7. Lampholder insulating plate
8. Switch
9. Lampholder
10. Closing clips, top (2 ×); stainless steel
11. Lamp support; spring steel
12. Rear cover; cast aluminium
13. Reflector rear cover
14. Gasket; silicone
15. Lampholder bracket
16. Closing clips, bottom (2 ×); stainless steel
17. Side reflector

ORDERING DATA

Catalogue Number	Light Distribution	Suitable lamp types	Packing quantity
HNF 001/1	Narrow beam	1 × SON/T 1 kW	Individually packed
HNF 001/2	Wide beam	1 × SON/T 1 kW	Individually packed
HNF 001/3	Narrow beam	2 × SON/T 400W or 2 × MBI/H 400W	Individually packed
HNF 001/4	Wide beam	2 × SON/T 400W or 2 × MBI/H 400W	Individually packed

Please order in the form given in the following example, in multiples of the packing quantity. Note that lamps and control gear components should be ordered separately.

12 Philips floodlight luminaires narrow beam HNF 001
 24 Philips high-pressure sodium lamps 400W SON/T
 24 Philips ballast units L4404
 24 Philips ignitors S50
 48 Philips capacitors L4020/07

An external control gear box for housing 1 set of 400W MBI/H or 400W SON/T control gear is also available. Catalogue number R8416.

A pre-wired gear box is available for the 400W SON/T lamp. Catalogue number PAS 400.

Made in Holland

CJ/SIB	(90.6)
UDC	696.6:626.973

HNF 002

Floodlight projector

A range of general-purpose floodlights with wide or narrow beam light distribution, for use with mercury halide lamps.

RANGE

Available in two models for mercury halide lamps, with wide or narrow beam light distribution.

APPLICATIONS

General-purpose floodlighting, in situations such as:-

- Sports grounds
- Railway marshalling yards
- Car parks
- Buildings
- Major road construction work
- Shipping yards
- Skating rinks



Handbook Ref.

3.4.2

To reorder this data sheet quote

12.77 PL1760/1

Replaces

PL 1760

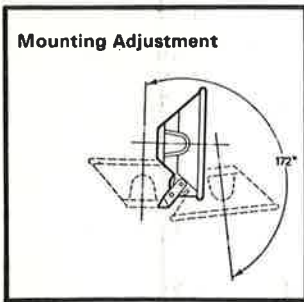
FEATURES

- High-grade aluminium reflector gives accurate beam control.
- Easy-to-operate stainless steel clips permit rear cover to be hinged down to facilitate lamp changing.
- Cast-on beam aiming sight and protractor scale permit quick and simple daylight adjustment.
- Reflector housing and rear cover are strong cast aluminium; low copper content ensures excellent corrosion resistance even in coastal and industrial areas.
- Ozone-resistant neoprene gaskets give dust and jet proof seal of front glass and rear cover.

DIMENSIONS & WEIGHT

mm (Inches)	mm (Inches)
A - 707 (27.83)	G - 285 (11.22)
B - 545 (21.45)	H - 188 (7.40)
C - 431 (16.96)	J - 588 (23.14)
D - 250 (9.84)	K - 676 (26.61)
E - 21 (0.83)	L - 755 (29.72)
F - 21 (0.83)	M - 150 (5.91)

Weight of luminaire complete with lamp - 24.5 kg (54 lb.)



MATERIALS & FINISH

- Reflector housing and rear cover:** Cast aluminium.
- Front glass:** Toughened glass plate secured with stainless steel clips.
- Sealing gaskets:** Rubber ethylene propylene.
- Mounting bracket:** Stainless steel.

RANGE OF OPERATION

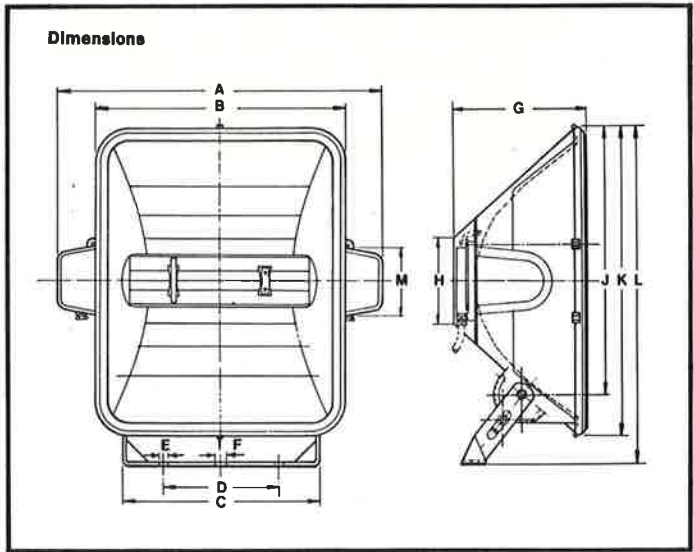
Temperature range (lamp) -18°C to 40°C. 240V 50Hz (MBI/U), 415V 50Hz (MBI/H lamp).

SPECIFICATION

- Type compliance with BS 4533 2.2 Class I Floodlight Luminaire Degree of Protection IP55 'Dustproof' 'Jet-proof'.

To specify state:

Floodlight luminaire for mercury halide lamp, corrosion-resistant cast aluminium housing, degree of protection IP55, hinged rear cover for easy access to lamp, substantially as Philips HNF 002.



LAMP DATA

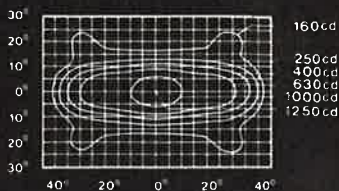
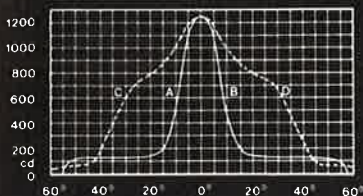
Cat. No.	Lamp type	Lighting Design Lumens	Lamp Volts	Lamp Current (Amperes)	Total Circuit Watts	Cap	Ballast	Ignitor	PFC Capacitor
2kW MBI/H	Mercury halide 2000W	170,000	240	9.0	2080	GES	L4991	126689	4 x L4020/07
2kW MBI/U	Mercury halide 2000W	171,000	135	16.5	2080	GES	2 x L4990	S52	4 x L4025/07

Further information on Philips lamps and control gear is contained in the following Data Sheets:-

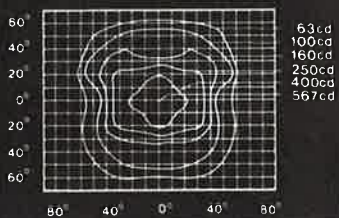
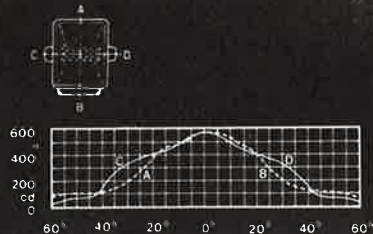
Lamp type	Lamp Data Sheet	Control Gear Data Sheet
MBI/H } MBI/U }	PL 1767	PL 1779

Light Distribution cd/1000 lm

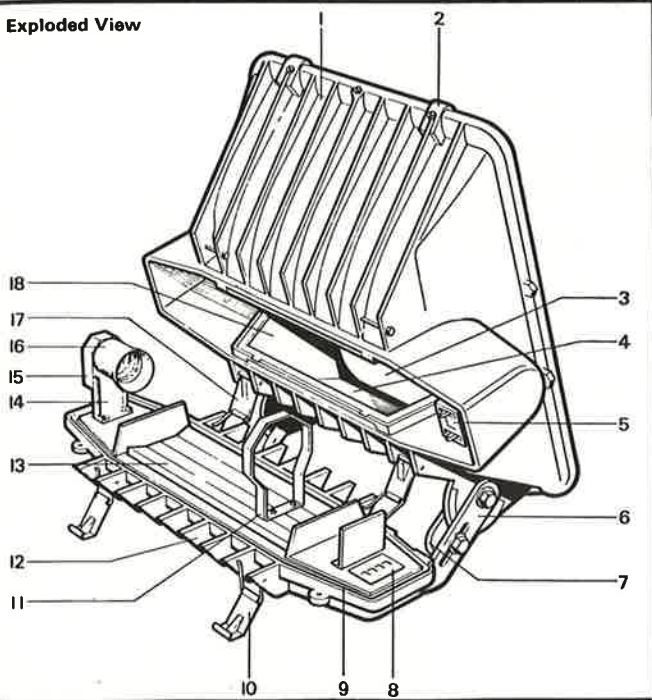
1x MBI/H2k W narrow beam



1x MBI/H2k W spread beam



Exploded View



1. Housing; cast aluminium
2. Front-glass clips; stainless steel
3. Front-glass; toughened glass
4. Reflector; aluminium
5. Contact block
6. Bracket; stainless steel
7. Clamp
8. Connection block
9. Gasket; silicone rubber
10. Fixing clips, top (2 x); stainless steel
11. Lamp support; spring steel
12. Rear cover; cast aluminium
13. Reflector rear cover
14. Lampholder bracket
15. Lampholder insulating plate
16. Lampholder
17. Fixing clips, bottom (2 x); stainless steel
18. Side reflector

ORDERING DATA

Cat. No.	Light Distribution	Suitable lamp types	Packing quantity
HNF 002/1	Narrow beam	MBI/H 2 kW or MBI/U 2 kW	Individually packed
HNF 002/2	Wide beam	MBI/H 2 kW or MBI/U 2 kW	Individually packed

Please order in the form given in the following example, in multiples of the packing quantity. Note that lamps and control gear components should be ordered separately.

- 6 Philips floodlight luminaires HNF 002/1
- 6 Philips mercury halide lamps 2 kW MBI/U
- 12 Philips ballast units L4990
- 6 Philips ignitors 552
- 24 Philips capacitors L4025/07



Made In Holland



CI/SIB
(90.6)

UDC
696.6 : 628.973

NNF 010

Floodlight Projector

A general-purpose floodlight projector with a spun-aluminium reflector fixed by means of stainless steel clips to a cast aluminium rear housing. Degree of protection IP54.

For use with PowerWhite mercury fluorescent lamps up to 700W rating, high-pressure sodium lamps SON and SON/T of 250 and 400W rating, Mercury halide lamp of 400W rating and GLS lamps of 1000W rating.

Note: MBI lamps for use within $\pm 20^\circ$ of horizontal only.

RANGE

NNF 010 floodlight projector - available in narrow beam and wide beam versions.

APPLICATIONS

General-purpose floodlighting, in situations such as:-

- Sports grounds
- Buildings
- Railway marshalling yards
- Large road constructions (high mast installations)
- Docks
- Security lighting

9

FLOODLIGHTING

Handbook Ref.

344

To order this Data Sheet quote '1177' PL1765/1

Replaces

PL1765

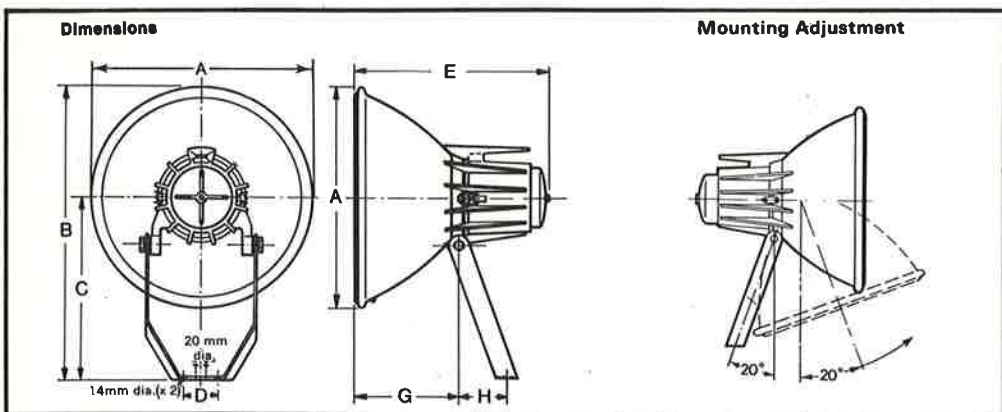
FEATURES

- Spun parabolic reflector housing of high purity aluminium also acts as the specular reflector.
- Focussing device enables the light distribution to be controlled very precisely.
- Available in narrow or wide beam versions for a wide range of applications.
- Lamp is very simply changed, by releasing toggles holding reflector to rear housing, without affecting focussing adjustment.

- Toughened front glass is sealed to reflector housing by means of a ethylene-propylene joint to render the luminaire dust and splashproof, IP54.
- The reflector housing itself is supported by the mounting bracket; its setting is therefore not affected by lamp changing.
- Aluminium rear cover, held by one captive screw, is easily removed to give access to mains connection block and focussing device. The mains entry is sealed by means of a gland.

MATERIALS & FINISH

- Reflector housing:** Spun high purity aluminium.
- Rear housing:** Cast aluminium.
- Lampholder:** GES, porcelain.
- Rear cover:** Aluminium.
- Front glass:** Toughened glass plate, sealed with ethylene-propylene gasket.
- Reflector housing clips:** Stainless steel.
- Mounting bracket:** Steel plate, hot-dipped galvanised.



DIMENSIONS & WEIGHT

mm (Inches)	mm (Inches)
A - 576 (22.68)	E - 500 (19.69)
B - 753 (29.65)	G - 275 (10.83)
C - 465 (18.31)	H - 125 (4.92)
D - 90 (3.54)	

Weight of luminaire complete with lamp:-
8.5 kg. (18.72 lb.)

LAMP DATA

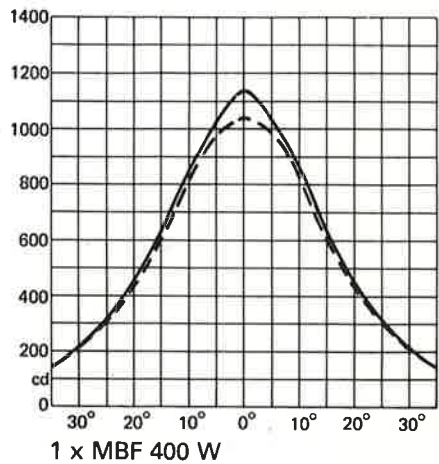
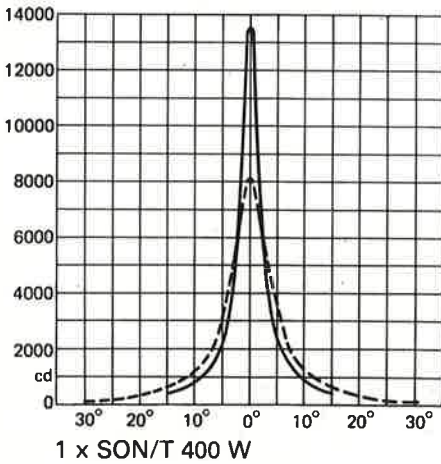
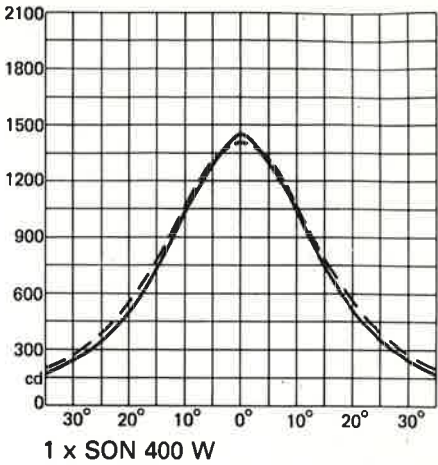
Catalogue Number	Lamp type	Lighting Design Lumens	Lamp volts	Lamp current (Amperes)	Total circuit Watts	Cap	Ballast	Ignitor	PFC capacitor
700W MBF/U	PowerWhite mercury fluorescent	36,500	140	5.6	730	GES	L4700BX	—	2 x L4016/07
400W MBF/U	PowerWhite mercury fluorescent	21,300	140	3.2	424	GES	L5400BX	—	L4020/07
400W SON	High-pressure sodium	45,000	105	4.4	440	GES	L4404	S50	2 x L4020/07
400W SON/T	High-pressure sodium tubular	46,000	105	4.4	440	GES	L4404	S50	2 x L4020/07
1000W	GLS	17,300	240	4.17	1000	GES	—	—	—
400W MBI/H	Mercury Halide lamps	29,200	125	3.4	424	GES	L5400BX	S51	2 x L4016/07

Further information on Philips lamps and control gear is contained in the following Data Sheets:

Lamp Type	Lamp Data Sheet	Control Gear Data Sheet
MBI/U	PL 1767	PL 1779
MBF/U	PL 1768	PL 1779
SON/T	PL 1776	PL 1778

Light Distribution cd/1000 lm

Narrow beam _____
 Wide beam - - - - -

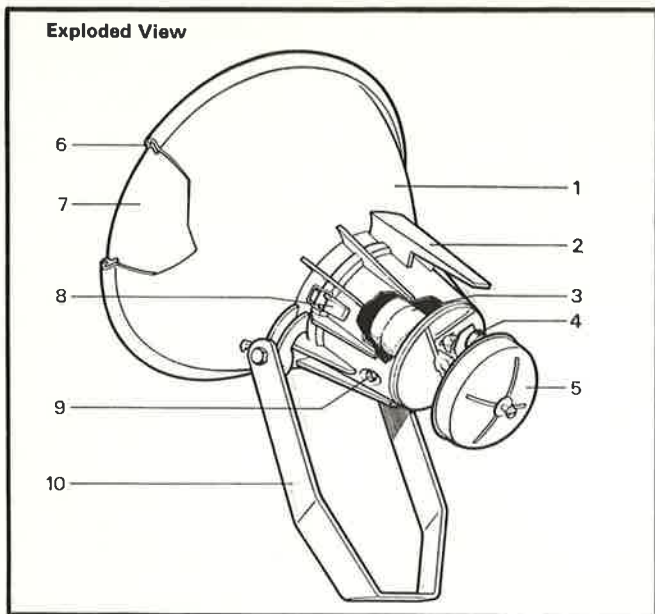


BEAM CHARACTERISTICS

	400W MBF	700W MBF	400W SON	400W SON/T
Narrow beam	2 x 17°*	2 x 22°*	2 x 15°*	2 x 2½°
Wide beam	2 x 17°*	2 x 22°*	2 x 15°*	2 x 4°

*With the ovoid bulb type, the difference between narrow and wide beam versions is only 1-2°.

Exploded View



KEY TO ILLUSTRATION

1. Reflector; anodised aluminium
2. Housing with grip; die-cast aluminium
3. Lampholder GES; porcelain
4. Adjusting knob; brass nickel-plated
5. Rear cover; aluminium plate
6. Gasket; ethylene-propylene
7. Front-glass; toughened glass
8. Clip (2 x); stainless steel
9. Gland; brass nickel-plated
10. Bracket; steelplate, hot dipped, galvanised

ORDERING DATA

Catalogue Numbers Complete Luminaire	Description	Component parts Rear housing/ lampholder assy.	Reflector and glass
NNF 010/1	Narrow beam floodlight projector	NNF 010/3	NNF 010/4
NNF 010/2	Wide beam floodlight projector	NNF 010/3	NNF 010/5

Please order in the form given in the following example:

36 Philips floodlight projectors NNF 010/1

36 Philips PowerWhite mercury fluorescent lamps 700W MBF/U.

Note that lamps should be ordered separately.

Luminaires and components are supplied individually packed.

Made in Holland.

CI/SIB
(90.6)

UDC
696.6:628.973

HNF 012

Floodlight for 2kW MBI Mercury Halide lamp

A cast aluminium floodlight for one 2kW MBI/U or MBI/H Mercury Halide lamp, with the degree of protection IP55 'Dustproof', 'Jetproof'. The luminaire has an asymmetric distribution (beam width $1 \times 12^\circ / 1 \times 28^\circ$ vertical, $2 \times 50^\circ$ horizontal), and is ideal for the side-lighting of sports and training fields at a low mounting height (15m) and fixed aiming angle.

RANGE

HNF 012 floodlight luminaire, complete with mounting bracket and interchangeable lampholder compartment. The control gear is separately mounted.

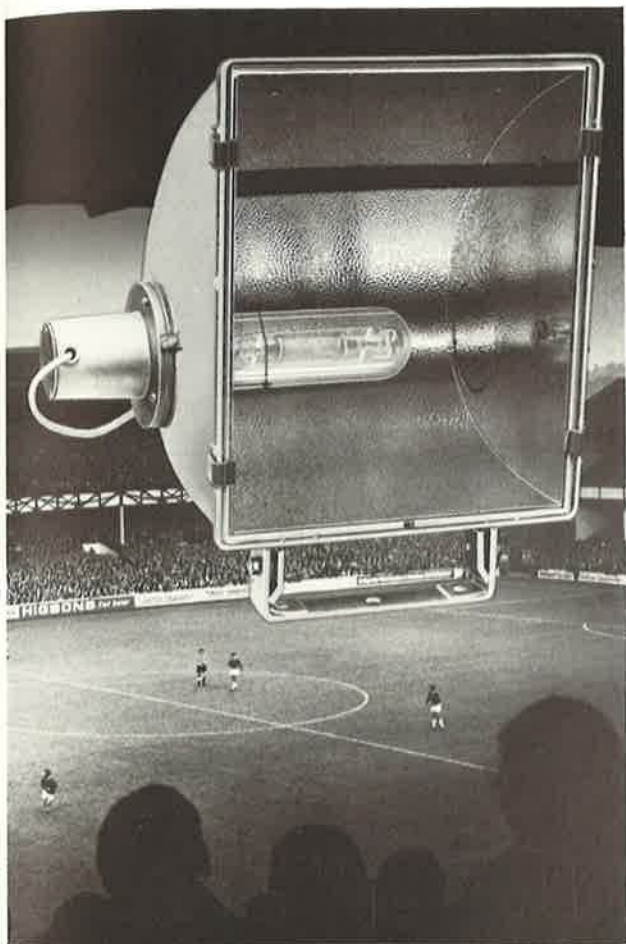
APPLICATIONS

Suitable for the side-lighting of large areas both indoors and outdoors such as:

- Football grounds
- Rugby and hockey fields
- Running tracks and training fields
- Sports and leisure centres
- Tennis courts
- Skating rinks
- Marshalling yards
- Ship yards

FEATURES

- Specially-designed optical system with built-in louvre reduces number of luminaires required in side-lighting installations.
- High-grade anodised aluminium reflector gives accurate beam control.
- Built-in louvre provides excellent glare control.



Handbook Ref.

3.4.5

To reorder this data sheet quote 11.77 PL 1740/1

Replaces PL 1740

■Asymmetric optics give good light coverage from a low mounting height of 15m.

■The lampholder casting is attached to one side of the reflector housing by means of three stainless steel screws. A hinged door is provided on the other side of the reflector housing, immediately opposite the lampholder, to allow easy lamp changing (see diagram). The positions of the hinged door and the lampholder casting are inter-changeable to allow floodlights to be mounted side-by-side (see diagram).

■Lampholder casting, hinged door and front glass are sealed with silicone rubber gaskets to provide a jetproof and dustproof seal with the degree of protection IP55.

■Cast-on beam aiming device allows daytime adjustment.

■Mounting bracket can be fixed either below or above the floodlight.

■Reflector housing, lampholder casting and side door are cast aluminium; low copper content ensures excellent corrosion resistance even in coastal and industrial areas.

MATERIALS & FINISH

Reflector housing, lampholder casting and side door: Cast aluminium.

Front glass: 5mm toughened glass plate secured with stainless steel clips.

Sealing gaskets: Silicone rubber.

Mounting bracket: Steel, hot-dipped galvanised finish.

SPECIFICATION

■Type compliance with BS 4533 2.2 Class I Floodlight Luminaire.

■Degree of protection IP55 'Dust-proof', 'Jetproof'.

To specify state:

■Floodlight luminaire for 2kW mercury halide lamp, with asymmetric light distribution of beam $1 \times 12^\circ/1 \times 28^\circ$ vertical and $2 \times 50^\circ$ horizontal, corrosion-resistant cast aluminium housing, suitable for an installed height of 15m, substantially as Philips HNF 012.

RANGE OF OPERATION

Temperature range (lamp) —18°C to 40°C.

240V 50Hz (MBI/U lamp).

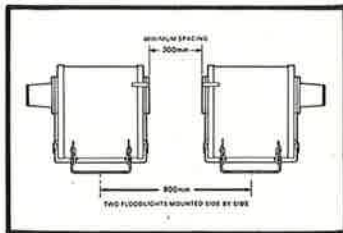
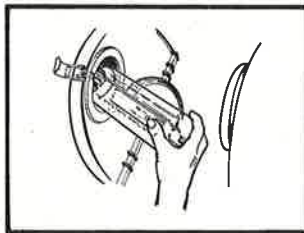
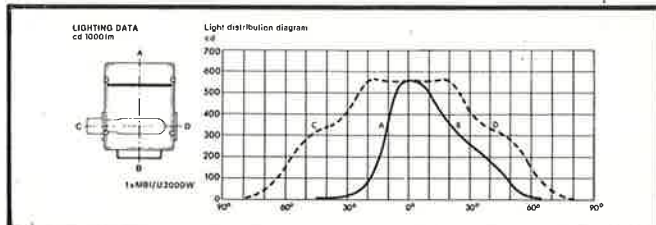
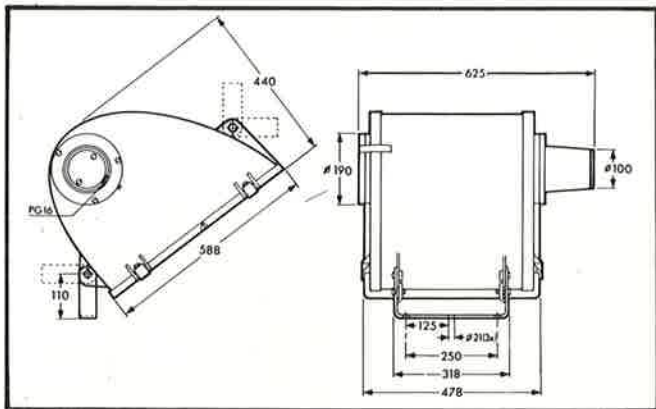
415V 50Hz (MBI/H lamp).

Lamp: Made in Holland.

Fixture: Made in Holland.

DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Description	Weight including lamp (kg)	Lighting design Lumens	Supply voltage V	Lamp voltage V	Lamp current A	Total circuit Watts	Cap
Floodlight HNF 012 with 2kW MBI/H lamp	23.6	170,000	415	240	9.0	2080	GES
Floodlight HNF 012 with 2kW MBI/U lamp	23.6	171,000	240	135	16.5	2080	GES



ORDERING DATA

Description	Floodlight only	Lamp only	Ballast	Ignitor	Capacitor
Floodlight with gear and 2000 MBI/H lamp	HNF 012	2kW MBI/H	L4991	126689	4 x L4020/07
Floodlight with gear and 2000 MBI/U lamp	HNF 012	2kW MBI/U	2 x L4990	S52	4 x L4025/07

Packing quantities

Floodlight luminaires: individually packed.
Lamp 2kW MBI/H: packs of 4.
Lamp 2kW MBI/U: packs of 4.

CI/SIB
(90.6)

UDC
696.6:628.973

TIVOLI DHF 015

outdoor floodlight luminaire for PAR 38 spot and flood lamps

The Philips Tivoli floodlight is intended for use in any small floodlighting application where versatility is of prime importance.

RANGE

DHF 015 body offering alternative mountings
DHF base
DHF spike
for use with full range of PAR 38 clear and coloured lamps.
(except coolspot)

APPLICATIONS

Applications include:

- Floodlighting shrubs, trees and bushes in gardens and parks
 - Farm yards and buildings
 - Driveways
 - Statues
 - Terraces and patios
 - Building facades
- and other areas where a directional beam of light is required.



Top: DHF 015 mounted on base plate, with PAR 38 lamp
Bottom: DHF 015 mounted on ground spike, with PAR 38 lamp

Handbook Ref.

3.46

To reorder this data sheet quote 11.77 PL 1219/1

Replaces

PL 1219

FEATURES

- The body of the floodlight is made of asbestos "Phillite" in an attractive shade of dark green. The body is fitted with an ES lampholder.
- The floodlight can be mounted three ways, using the base plate for wall mounting or pole mounting (the disc of the base plate unit being removed) or using the ground spike.
- The base plate is fully rotational through 360° for ease of adjustment.
- The base plate and the ground spike, both of aluminium alloy, are easily attached to the floodlight body by a locking screw.
- A silicone rubber gasket mounted between the housing and the lamp ensures a jet proof seal.
- The Tivoli floodlight is splashproof IP34 and is double insulated Class II.
- Two cable glands are provided – one open and one blind – offering the facility of through wiring, if required.
- The floodlight is mechanically locked and requires the use of a screw driver to gain access for the mains wiring.

IMPORTANT: loosen the two screws on the rear of the housing before attempting to unscrew the body. Failure to loosen the screws will result in damage to the floodlight.

MATERIALS & FINISH

Floodlight body: Green asbestos "Phillite"

Gasket: Silicone rubber

Base: Die-cast aluminium

Spike: Aluminium

SPECIFICATION

- Type compliance with BS4533 2.5
 - International Protection category IP34.
 - Class II electrical protection (double insulated).
- To specify state:**
- PAR 38 lamp luminaire for outdoor floodlighting similar to Philips Tivoli DHF 015. The luminaire shall comply with BS4533 2.5 and protection requirements IP34 and Class II electrical.

RANGE OF OPERATION

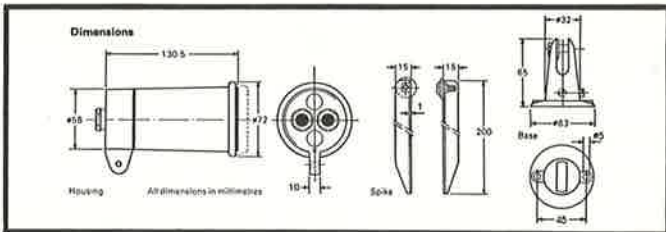
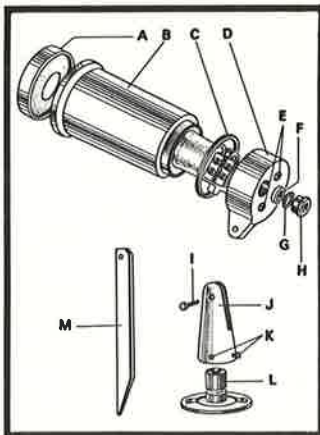
Supply Voltage: 240V 50Hz nominal.

Earthing: Tivoli DHF 015 has Class II electrical protection and an earth lead is not required.

Ambient Temperature: For use in normal outdoor conditions.

INSTALLATION

The method of mounting the Tivoli DHF 015 is as follows:-



1 The baseplate or spike should be fixed before the floodlight is wired and mounted.

2 The supply cable should be of suitable current rating and have an outside diameter which will ensure an adequate seal within the gland.

3 For access to the mains terminals loosen the screws (E) approximately four turns and then unscrew and remove the front housing (B).

4 Loosen the open cable gland (H) and feed in the supply cable. Make the electrical connections to the appropriate terminal block. Tighten the cable gland and replace the front housing and tighten the locking screws (E).

5 Mount the body to the base plate or ground spike and insert the lamp through the sealing ring (A).

6 For mounting on a pole of suitable diameter, remove the base plate (L) and connecting the pigot (J) to the pole by tightening the two screws (K).

LAMP DATA:

Description	Watts	Volts	Finish	Cap	Pack Quantity
PAR 38 spot	100	240	Clear	ES	15
PAR 38 flood	100	240	Clear	ES	15
PAR 38 flood	100	240	Blue	ES	15
PAR 38 flood	100	240	Yellow	ES	15
PAR 38 flood	100	240	Green	ES	15
PAR 38 flood	100	240	Red	ES	15
PAR 38 spot	150	240	Clear	ES	15
PAR 38 flood	150	240	Clear	ES	15
PAR 38 spot	150	240	Red	ES	15
PAR 38 spot	150	240	Green	ES	15
PAR 38 spot	150	240	Yellow	ES	15
PAR 38 spot	150	240	Blue	ES	15

DHF 015 body, base plate, spike and PAR 38 lamps made in Holland.

ORDERING DATA:

Catalogue No.	Description	Pack Quantity	Weight Kg.
DHF 015	Floodlight body	4	0.235
DHF Base	Base plate for floodlight body	12	0.090
DHF Spike	Spike for floodlight body	12	0.040

ACCESSORIES & SPARES

W9225	Spare sealing ring for DHF 015	Bulk
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C/SIB

(90.6)

UDC

696.6 : 628.973

HNF 006

Floodlight projector

A high-performance and very durable floodlight projector with a spun-aluminium reflector held in a cast ring, to which the cast aluminium rear housing is attached by means of stainless steel clips. For use with mercury halide lamps rated at 2kW, mercury fluorescent PowerWhite lamps rated at 1kW and 2kW, and high-pressure sodium lamps rated at 1kW.

Note: Mercury fluorescent lamps
UK marking MBF = Philips
International marking HPL-N
Mercury halide lamps
UK marking MBI = Philips
International marking HPI

RANGE

HNF 006 floodlight projector available in narrow beam and wide beam versions, with lampholder assemblies for the following lamps:-

Mercury halide 2kW

Mercury fluorescent PowerWhite 1kW

Mercury fluorescent PowerWhite 2kW

High-pressure sodium 1kW SON/T

APPLICATIONS

General-purpose floodlighting, particularly in such arduous environments as:-

- Sports grounds
- Buildings
- Railway marshalling yards
- Large road constructions (high mast installations)
- Football and sports stadia
- Shipping yards
- Quarries

Handbook Ref.

3.4.7

To reorder this data sheet quote

3.78 PL 1758 /1

Replaces

PL 1758



9

FLOODLIGHTING

FEATURES

- Sturdy construction and excellent performance make the luminaire suitable for many outdoor applications.
- Spun parabolic reflector housing of high-purity aluminium also acts as the specular reflector.
- Available in narrow or wide beam versions, and with a wide choice of lamps, to suit most needs.
- Lamp is very simply changed, by releasing toggles holding reflector to rear housing.
- Toughened front glass is sealed to the reflector housing by means of a ethylene-propylene gasket to render the luminaire splash proof. IP54.

■Built-in aiming sight and protractor scale permit simple daytime adjustment.

■The reflector housing itself is supported on the mounting bracket; its setting is therefore not affected by lamp changing.

■Cast-on handle simplifies removal of rear casting.

■Castings of low copper content (0.05%) ensures high resistance to corrosion.

■Luminaire finished in grey lacquer.

MATERIALS & FINISH

Reflector housing: Spun aluminium, grey lacquer finish.

Rear housing: Diecast from low copper content aluminium, grey lacquer finish.

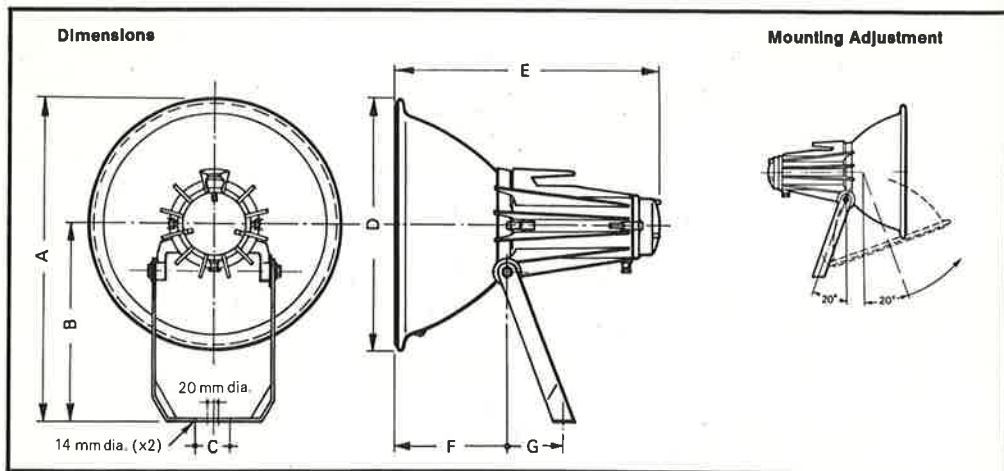
Lampholder: GES, porcelain.

Rear cover: Diecast aluminium, grey lacquer finish.

Front glass: Toughened glass plate, sealed with ozone resistant ethylene-propylene gasket.

Reflector housing clips: Stainless steel.

Mounting bracket: Steel plate, hot-dipped galvanised.



DIMENSIONS & WEIGHTS

mm (Inches)	mm (Inches)
A - 920 (36.22)	E - 690 (27.17)
B - 588 (23.15)	F - 297 (11.69)
C - 100 (3.93)	G - 163 (6.42)
D - 664 (26.14) diameter.	

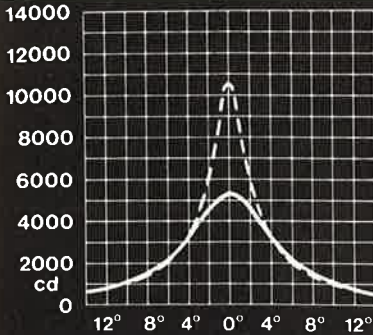
Weight of luminaire complete with lamp:
18.3 kg (35.9 lb.)

BEAM CHARACTERISTICS

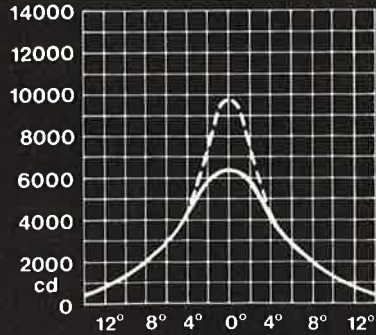
	MBI/U 2kW	SON/T 1kW	MBF 2kW	MBF 1kW
Narrow Beam	2 × 4°	2 × 2.5°	2 × 26°	2 × 22°
Wide Beam	2 × 6°	2 × 6°	—	—

Light Distribution cd/1000lm

High Pressure Sodium 1kW

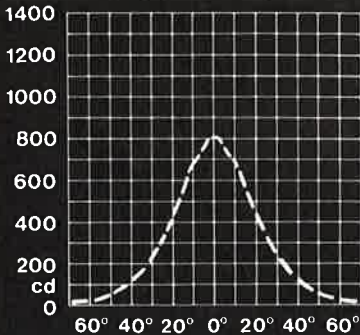


Mercury Halide 2kW

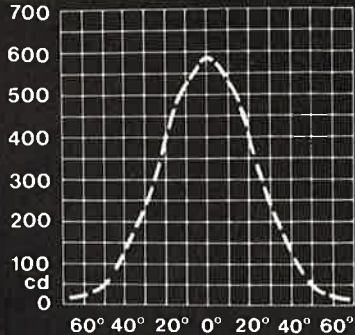


— Wide beam - - - - Narrow beam

Mercury Fluorescent 1kW



Mercury Fluorescent 2kW



- - - - Narrow and Wide beam

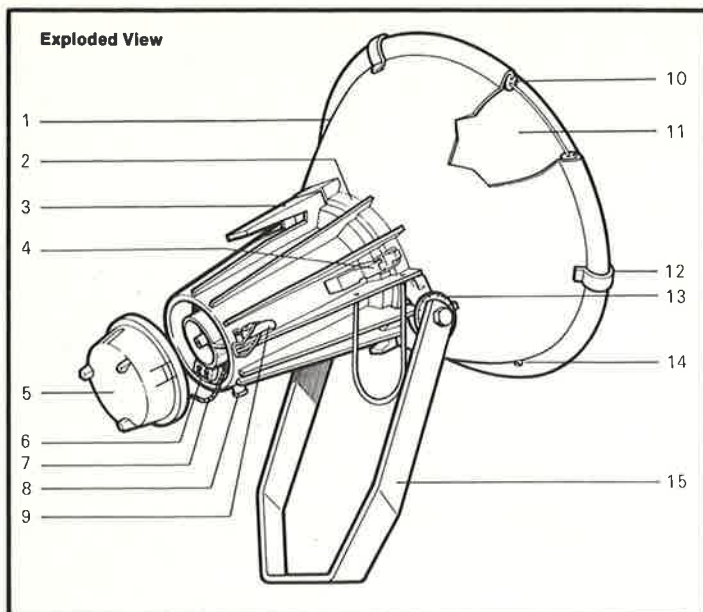
With these lamps both reflector types produce a similar light distribution.

LAMP DATA

Catalogue number	Lamp type	Lighting design lumens	Lamp volts	Lamp current (Amperes)	Total circuit Watts	Cap	Ballast	Ignitor	PFC capacitor
2kW MBI/U	Mercury halide 2kW	171,000	135	16.5	2080	GES	2 × L4990	S52	4 × L4025/07
1kW MBF/U	Mercury fluorescent PowerWhite 1kW	52,200	145	7.3	1040	GES	L4990	—	2 × L4025/07
2kW MBF/U	Mercury fluorescent PowerWhite 2kW	110,000	270	8.0	2080	GES	L4991	—	3 × L4025/07
1kW SON/T	High-pressure sodium tubular 1kW	123,000	110	10.3	1100	GES	L4410	S53	4 × L4025/07

Further information on Philips lamps and control gear is contained in the following data sheets:

Lamp type	Lamp data sheet	Control gear data sheet
MBI/U	PL 1767	PL 1779
MBF/U	PL 1768	PL 1779
SON/T	PL 1776	PL 1778



KEY TO ILLUSTRATION

1. Reflector; spun aluminium, grey lacquer finish
2. Reflector ring; cast aluminium
3. Housing with grip; cast aluminium
4. Clip (2 x); stainless steel
5. Rear-cap; cast aluminium
6. Connection block
7. Earth connection rear-cap
8. Gland; aluminium
9. Clip (2 x); stainless steel
10. Gasket; ethylene-propylene
11. Front-glass; toughened glass
12. Clip (3 x); stainless steel
13. Vernier scale
14. Vent screw
15. Bracket; steelplate, hot dipped, galvanised

ORDERING DATA

Cat.No.	Description
HNF 006/1	Narrow beam floodlight projector for 2kW MBI/U lamp
HNF 006/2	Wide beam floodlight projector for 2kW MBI/U lamp
HNF 006/3	Narrow beam floodlight projector for PowerWhite, and SON/T lamps
HNF 006/4	Wide beam floodlight projector for SON/T lamps
	Component parts:
HNF 006/5	Lampholder assembly for 2kW MBI/U lamp
HNF 006/6	Lampholder assembly for PowerWhite and SON/T lamps
HNF 006/7	Narrow beam reflector and glass
HNF 006/8	Wide beam reflector and glass

Complete luminaires and component parts individually packed.

Please order in the form given in the following example :

- 16 Philips floodlight projectors HNF 006/1
- 16 Philips mercury halide lamps 2kW MBI/U
- 32 Philips ballast units L4990
- 16 Philips ignitors S52
- 64 Philips PFC capacitors L4025/07

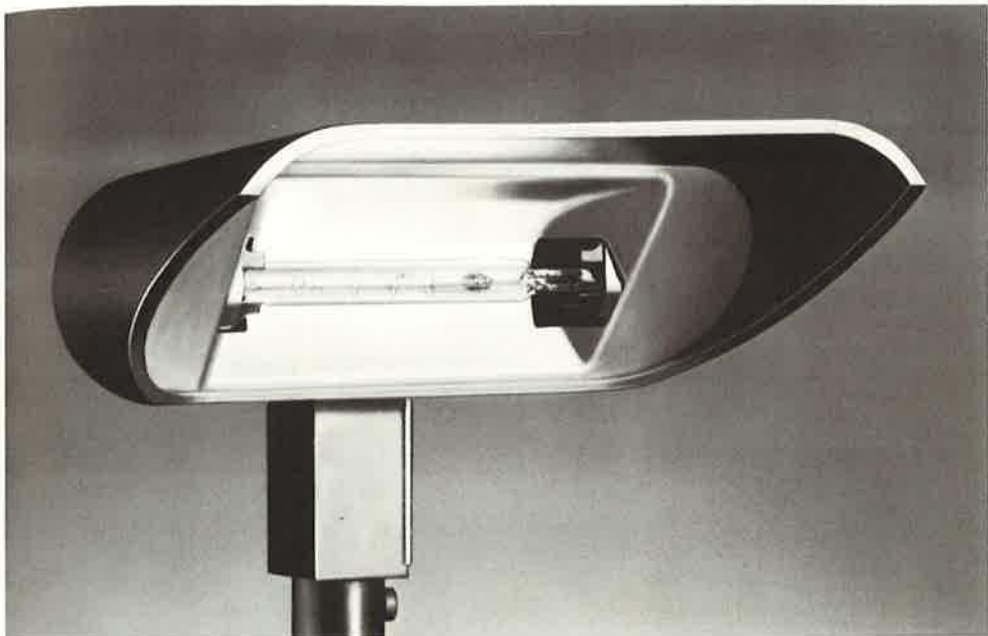
Note: Mercury fluorescent lamps
 UK marking MBF = Philips
 International marking HPL-N
 Mercury halide lamps
 UK marking MBI = Philips
 International marking HPI

Made in Holland

CI/SIB	(90.6)
UDC	696.6:628.973

APOLLO

Tungsten Halogen Floodlights



9

A high-quality open-body floodlight, designed for use with Philips 300W and 500W tungsten halogen linear lamps. Its high design standards, makes the luminaire a ready solution to many floodlighting problems in commercial or industrial environments.

RANGE

Both Apollo 500 and 300 KombiPaks are available complete with rated lamp, wall mounting bracket, plugs and screws.

The following optional accessories are available:-

- Wireguard
- Spigot cap for mounting on the end of poles
- U-bolt clamp for 48mm (1½ in. GAS) diameter pole.
- Universal mounting bracket.

APPLICATIONS

Suitable for most floodlighting applications, particularly where appearance is important, in situations such as:-

- Floodlighting gardens and statues
- Security lighting around factories, building sites and offices
- Outdoor sports complexes
- Shop facade lighting
- Car parks
- Farm yards
- Work lighting on scaffolding
- School playgrounds

Handbook Ref.

3.4.8

To reorder this data sheet quote

2.78 PL 1764/1

Replaces

PL 1764

FLOODLIGHTING

FEATURES

■ Attractive new-styled body, die-cast from corrosion-resistant aluminium alloy. Body painted with polyester-based paint, to provide full protection against all outdoor weather conditions.

■ Optically-designed aluminium alloy reflector, chemically brightened and anodised.

■ Spring-loaded porcelain lamp-holders have heat-resisting leads welded to high-temperature terminals; the metal lampholder housings are designed to ensure adequate heat dissipation. The simple integrated lampholder design avoids excessive temperatures at the lamp pinch.

■ Large friction area between floodlight body and knuckle joint enables adjustment to remain fixed.

■ Wiring is taken through knuckle joint to low temperature mains wiring chamber.

■ Mains wiring chamber contains a terminal block with an insulation shield; a tapped boss provides an easily-accessible screw-down earth terminal.

■ Cover for mains wiring chamber sealed with a Neoprene gasket.

■ Entry is tapped for 20mm threaded conduit.

■ Designed in compliance with BS 4533, and suitable for ambients up to 25°C.

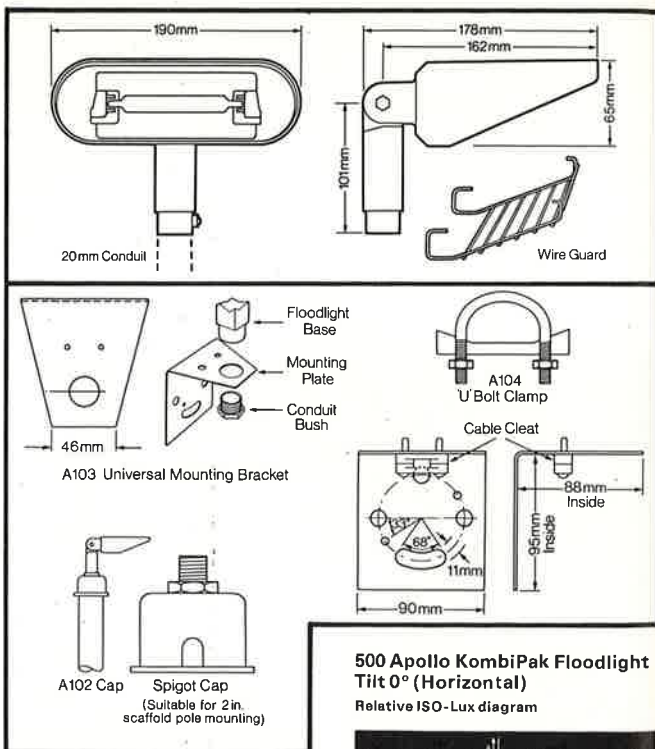
MATERIALS & FINISH

Body: Aluminium alloy (LM24) die-cast, finished brown, heat-resisting and weatherproof gloss paint.

Mains wiring chamber: Aluminium alloy die-casting, finished black heat-resisting and weatherproof paint.

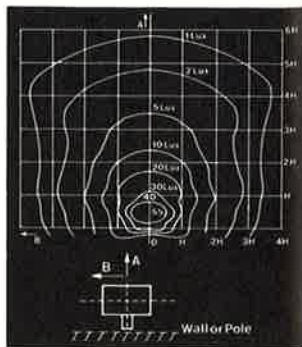
Lampholders: Porcelain R7s-15, spring-loaded and fitted with heat-dissipating covers.

DIMENSIONS



500 Apollo KombiPak Floodlight Tilt 0° (Horizontal)

Relative ISO-Lux diagram



INSTRUCTIONS

The Lux figures shown apply to a mounting height (H) of 5m.

Figures for other mounting heights can be obtained by multiplying the Lux figures shown by a correction factor given below.

Mounting height	Correction factor
8	0.39
7	0.51
6	0.69
5	1.00
4	1.58

WEIGHT

Luminaire complete with lamp: 0.55 kg

Lamp: Made in Holland

Fitting: Made in UK

LAMP DATA

Catalogue Number	Type	Voltage	Wattage
7785R	K1 Tungsten halogen	240/250	500
12113R	K9 Tungsten halogen	240/250	300

ORDERING DATA

Catalogue Number	Description
A500	Apollo KombiPak complete with 500W lamp and mounting bracket
A300	Apollo KombiPak complete with 300W lamp and mounting bracket
A101	Wireguard
A102	Spigot cap (for 2 inch scaffold pole mounting)
A103	Universal mounting bracket
A104	U-bolt clamp for 48mm (1 7/8 in. GAS) pole

Please order in the form given in the following example:—

24 Philips Apollo floodlights A500 KombiPaks

24 Philips Apollo floodlights A300 KombiPaks

Apollo packs and accessories are individually packed.

C/SIB	(90.6)
UDC	696.6:628.973

HNF 003

Floodlight Projector

A range of floodlights that combines both efficiency in performance with versatility in application where optical efficiency and mechanical durability are required. Degree of protection IP55.

RANGE

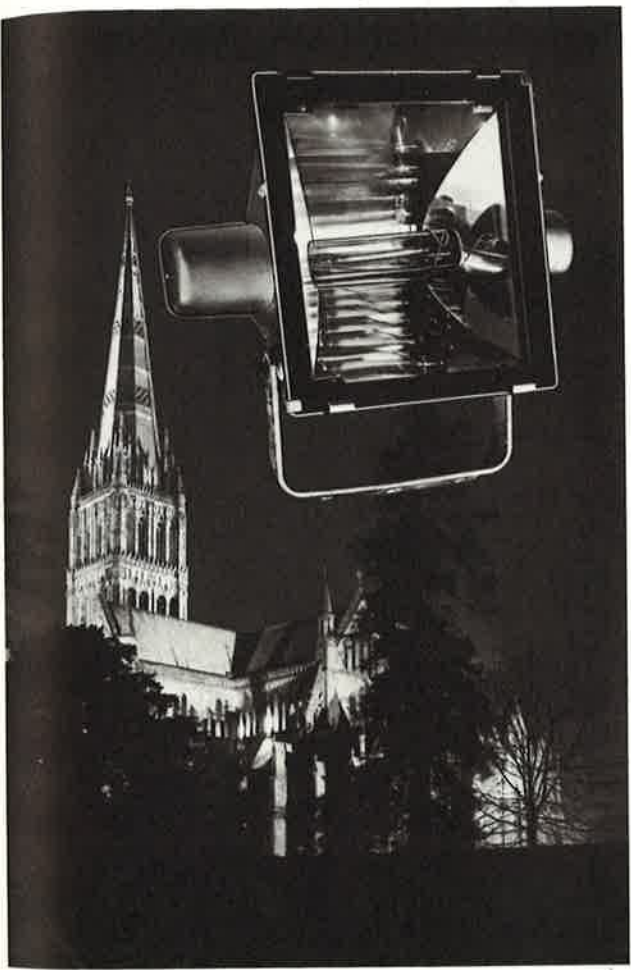
Available in both narrow and wide beam versions for 1 x 400W SON/T or 1 x 400W MBI/H lamps.

A pre-wired control gear box enclosed to IP54 is available to operate the 400W SON/T lamp (Cat. No. PAS 400, see Data Sheet PL1744).

APPLICATIONS

Applications include:

- Sports grounds
- Marshalling yards
- Car parks
- Skating rinks
- High mast roadlighting
- Indoors sports halls
- Shipyards
- Floodlighting buildings
- Security lighting



Handbook Ref.	3.4.9
To reorder this data sheet quote	11.77 PL 1267/1
Replaces	PL 1267

FLOODLIGHTING

FEATURES

Careful choice of materials ensures a non-corrodible luminaire to give a long life in fairly arduous conditions.

■ A silicone rubber gasket for jet-proof and dustproof sealing of front glass.

■ The floodlight housing and rear cover are high pressure die-cast aluminium.

■ The castings have a low copper content for excellent corrosion resistance in coastal and industrial outdoor conditions.

■ Reflectors made of high grade aluminium for precise beam control.

■ A cast, beam-aiming sight and protractor scale for accurate daylight adjustment.

■ Access for lamp installation and replacement made simple by the removal of the rear cover. Particularly important when the floodlights are mounted on a gantry.

■ Easily operated clips on the rear cover can be opened only with a simple tool and closed by hand. This ensures the floodlight cannot be opened by unauthorised persons.

■ Luminaire is dustproof and jetproof. Degree of protection IP55.

MATERIALS & FINISH

Housing and rear cover: high pressure die-cast aluminium.

Reflectors: High grade aluminium.

Clips: Stainless steel

Front glass: 5.5 mm thick toughened plate glass.

Gaskets: Silicone rubber.

SPECIFICATION

■ Type compliance with BS 4533 2:2

■ International Protection category IP55

■ Class I electrical protection (this luminaire requires an earth connection).

To specify state:

A die-cast aluminium luminaire for 1 x SON/T 400W and 1 x MBI/H 400W lamps, similar to Philips HNF 003. The luminaire shall comply with BS 4533 2:2 and shall meet protection requirements IP55 and Class I electrical.

KEY TO ILLUSTRATION

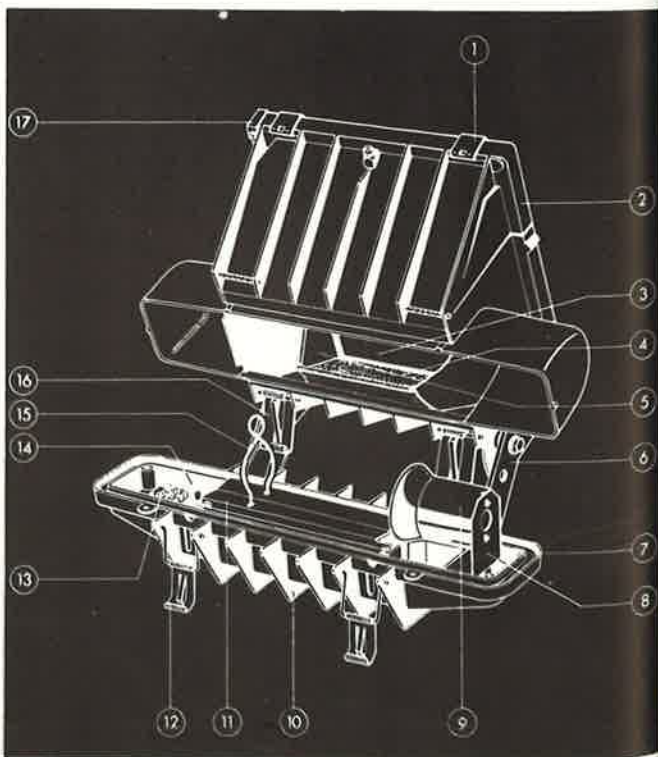
1. Front glass clips (4 x)
2. Housing
3. Front glass
4. Parabolic reflector
5. Side reflector
6. Bracket
7. Gasket rear cover
8. Lampholder bracket
9. Lampholder
10. Rear cover
11. Rear reflector
12. Closing clip top (2 x)
13. Terminal block
14. Cable entry
15. Lamp support
16. Closing clip bottom (2 x)
17. Safety bracket (2 x)

SERVICING

Access to the lamp compartment for maintenance is by releasing the 2 top closing clips (12) and the 2 bottom closing clips (16). The floodlight rear housing then hinges backwards.

To replace front glass:

Remove the two safety brackets. Open the four clips by placing a screwdriver in the appropriate holes.



LAMP DATA

Cat. No.	Lamp type	Lighting Design Lumens	Lamp Volts	Lamp Current (Amperes)	Total Circuit Watts	Cap	Ballast	Ignitor	PFC Capacitor
400 MBI/H	Mercury halide 400W	29,200	125	3.4	424	GES	L5400BX	S51	2 x L4016/07
400 SON/T	High-pressure sodium 400W	46,500	105	4.4	440	GES	L4404	S50	2 x L4020/07



Centre Point - illuminated with a total of only 33 SON/T lamps (21 x 400W and 12 x 1,000W) in HNF001 and NNF010 luminaires.



Lilleshall Sports Centre using six 400W SON/T lamps in HNF003 luminaires on each mast.

RANGE OF OPERATION

Supply voltage:

240V 50Hz nominal.

Control Gear is required to run the lamp.

Earthing:

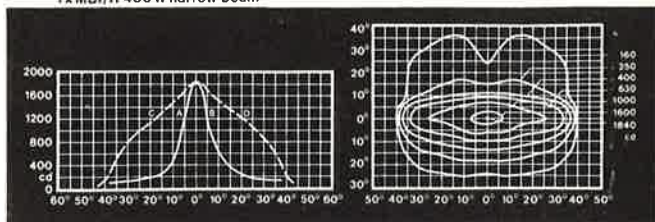
HNF 003 has Class I electrical protection. An earth is therefore required.

Ambient Temperature:

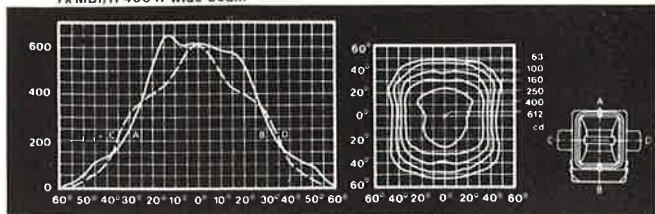
Max. 40° C.

Light Distribution cd/1000 lm

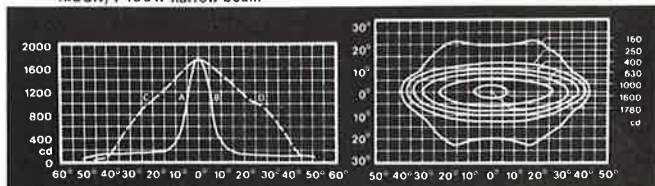
1x MBI/H 400W narrow beam



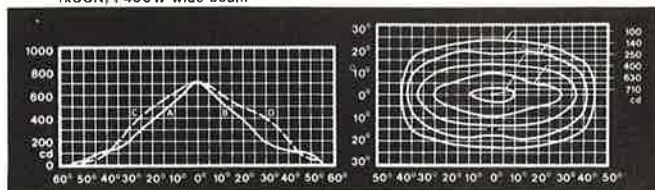
1x MBI/H 400W wide beam



1xSON/T 400W narrow beam



1xSON/T 400W wide beam

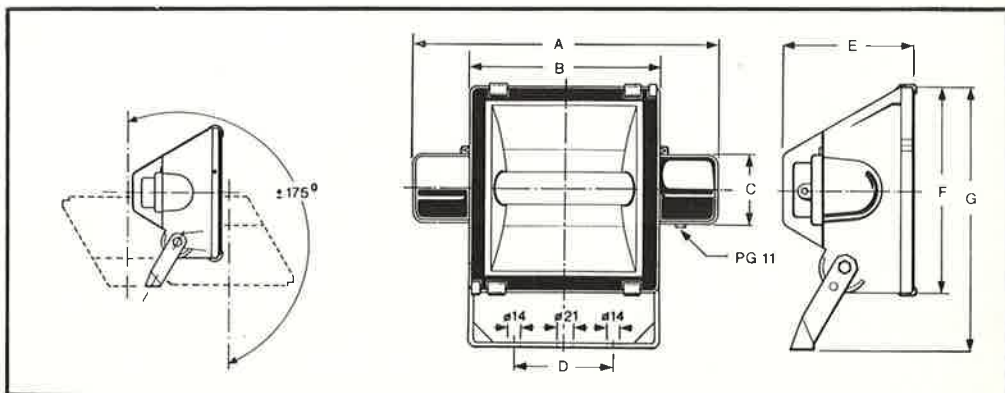


DIMENSIONS & WEIGHTS

mm (Inches)

- A - 495 (19.49)
- B - 308 (12.13)
- C - 100 (3.94)
- D - 170 (6.69)
- E - 238 (9.37)
- F - 350 (13.78)
- G - 435 (17.13)

Weight of luminaire complete with lamp - 7.3kg (16.08lb.)



ORDERING DATA

Cat. No.	Light Distribution	Suitable Lamp types	Packing quantity
HNF 003/1	Narrow beam	MBI/H 400W or SON/T 400W	Individually packed
HNF 003/2	Wide beam	MBI/H 400W or SON/T 400W	Individually packed

Please order in the form given in the following example, in multiples of the packing quantity. Note that lamps and control gear components should be ordered separately.

6 Philips floodlights HNF 003/1

6 Philips high-pressure sodium lamps 400 SON/T

6 Philips ballasts L4404

6 Philips ignitors S50

12 Philips capacitors L4020/06

An external control gear box for housing 1 set of 400W MBI/H or 400W SON/T control gear is also available, Catalogue No. R3416.

A pre-wired gear box is available for the 400W SON/T lamp, Catalogue No. PAS 400.

Further information on Philips lamps and control gear is contained in the following Data Sheets:

Lamp type	Lamp Data Sheet	Control Gear Data Sheet
MBI/H	PL 1767	PL 1779
SON/T	PL 1776	PL 1778



Technical Data

For explanation of IP system see leaflet C.I.S. 38.

HNF 003, Lamps and Ignitors made in HOLLAND. Ballasts and Capacitors made in U.K.

C/SIB (90.6)

UDC

696.6 :628.973

QVF 410, 411, 412

Floodlight Projector

The Philips range of corrosion resistant, Halogen floodlights, combines optical efficiency with ease of installation and light weight construction. Heat and impact resistant, VAR front glass with stainless steel wire guard.

RANGE

The standard floodlight fitting is available in three sizes

- 500W
- 1000W - Tungsten Halogen lamps.
- 1500W

APPLICATIONS

Applications include:

- Sports fields
- Sports halls
- Security lighting
- Facades
- Advertising signs
- Pedestrian crossings
- Factory perimeters
- Building sites
- Sound and light shows
- Skating rinks
- Swimming pools
- Car parks
- Golf links
- Fountains
- Statues
- Racecourses

FEATURES

- The optic is of an asymmetrical type and available in two beam widths viz. medium beam $1 \times 8^\circ/1 \times 14^\circ$
wide beam $1 \times 20^\circ/1 \times 30^\circ$



Handbook Ref.

3.4.10

To reorder this data sheet quote 12.77 PL 1743

Replaces PL 1269

- Due to the high-operating temperature and in accordance with the CEE safety regulations the lampholders are situated outside the mirror compartment.

- Hermetically sealed and totally corrosion resistant.

- Stainless steel clips for easy splashproof closing.

- Simple maintenance.

- Heat resistant VHR front glass.

- Heat resistant silicone rubber gasket.

- The light weight permits the use of inexpensive poles of simple construction.

- High quality integral mirror system is faceted to give maximum beam control.

- Ideal floodlighting for areas where heavy duty systems are not obligatory.

- Adjustable both vertically and horizontally.

- Stainless steel wire guard for protection against vandalism.

MATERIALS & FINISH

Reflector housing: extruded aluminium, anodised.

Conduit box: pressure die-cast aluminium.

Side-panels: pressure die-cast aluminium.

Glass rim: pressure die-cast aluminium.

Front glass: Heat resistant VHR glass.

Front glass seal: silicone rubber.

Wire guard: stainless steel.

SPECIFICATION

- Type compliance with BS4533 2:2.

- International Protection category IP54, splashproof.

- Class I electrical protection (this luminaire requires an earth connection).

To specify state:

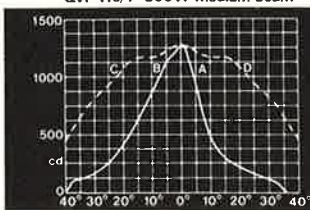
Tungsten Halogen Luminaire with light weight aluminium body giving an asymmetric beam. The luminaire shall be fitted with an integral stainless steel wire guard, and shall meet protection requirement IP54 and Class I electrical. Similar to Philips QVF 410, 411 or 412.

DIMENSIONS, WEIGHTS & ORDERING DATA

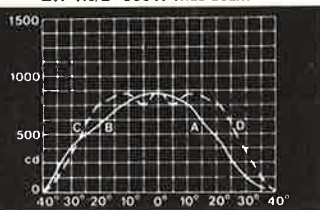
Catalogue Number	Description	Lamp	Weight kg	Dimensions			
				L	D	F	H
QVF 410/1	Medium Beam Floodlight	500W	2.57	220	170	220	295
QVF 410/2	Wide Beam Floodlight	500W	2.57	220	170	220	295
QVF 411/1	Medium Beam Floodlight	1000W	3.20	292	170	220	295
QVF 411/2	Wide Beam Floodlight	1000W	3.20	292	170	220	295
QVF 412/1	Medium Beam Floodlight	1500W	3.80	357	170	220	295
QVF 412/2	Wide Beam Floodlight	1500W	3.80	357	170	220	295

Light Distribution Diagram

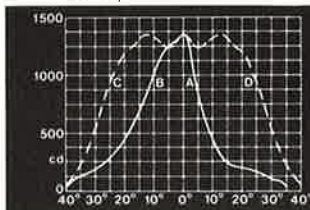
QVF 410/1 - 500W medium beam



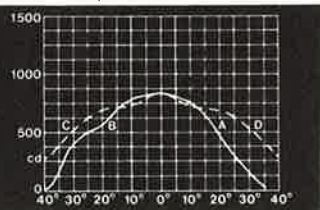
QVF 410/2 - 500W wide beam



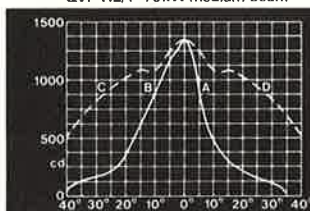
QVF 411/1 - 1 kW medium beam



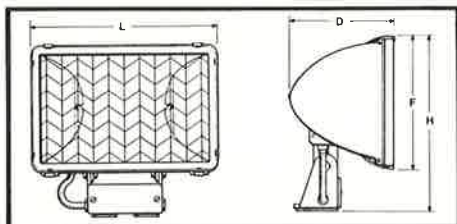
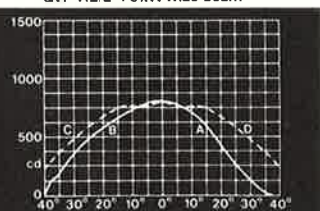
QVF 411/2 - 1 kW wide beam



QVF 412/1 - 15kW medium beam



QVF 412/2 - 15kW wide beam



LAMP DATA

Type	Catalogue Number	Wattage		Cap	Lighting Design Lumens
		W	V		
K1	7785R	500	120	R7s-15	10,500
K1	7785R	500	240/250	R7s-15	9,500
K4	12013R	1000	120	R7s-15	22,000
K4	12013R	1000	240/250	R7s-15	22,000
K5	13021R	15000	240/250	R7s-15	33,000

Please order in the form given in the following example. Note that lamps should be ordered separately. Luminaires are individually packed.

6 Philips floodlight projectors QVF 410/2
6 Philips tungsten halogen lamps 500W 240/250V Type 7785R

C/STB (90.6)

UDC 696.6:628.973

DVF 102

Floodlight Projector

Corrosion resistant floodlight, particularly suitable for areas where a weatherproof fitting IP34 is required.

RANGE

For use with PAR 56 Narrow Spot, Medium flood and Wide flood lamps.

APPLICATIONS

Applications include:

- "Sound and light" spectacles
- Park lighting
- Poster hoardings
- Festive lighting
- Floodlighting of buildings
- Monuments
- Advertising signs
- Statues
- Gardens etc.

FEATURES

- High-pressure die-cast aluminium housing with cooling fins for heat-dissipation.
- High-pressure die-cast aluminium rear cover with a cable-entry gland.
- High-pressure die-cast aluminium rim, in which the toughened front-glass is fixed.
- Galvanised mild steel bracket allowing all possible mounting positions.
- Silicone gaskets to withstand high operating temperatures.
- Inner-wiring: silicone-covered and glass-fibre protected.
- GLX/16D lampholder.
- Quick release clips for ease of maintenance.



Handbook Ref.

3.4.11

To reorder this Data Sheet quote 11.77 PL 1288/1

Replaces

PL 1288

FLOODLIGHTING

MATERIALS & FINISH

Housing: High pressure die-cast aluminium.

Rear cover: High pressure die-cast aluminium.

Front glass: High pressure die-cast rim holding a toughened front glass.

Trunnion arm: Galvanised mild steel.

Clips: Stainless steel.

Gaskets: Silicone rubber.

SPECIFICATION

■ Type compliance with BS4533 2:2. Enclosure: IEC IP34.

■ Class I electrical protection (this luminaire requires an earth connection).

To specify state:

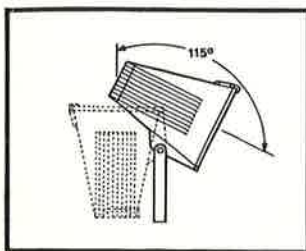
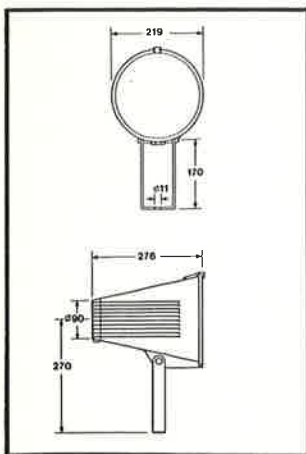
Floodlight of pressure die-cast aluminium for PAR 56 lamps similar to Philips DVF 102 floodlight.

Lamp: PAR 56 Holland

Fitting: Holland

RANGE OF OPERATION

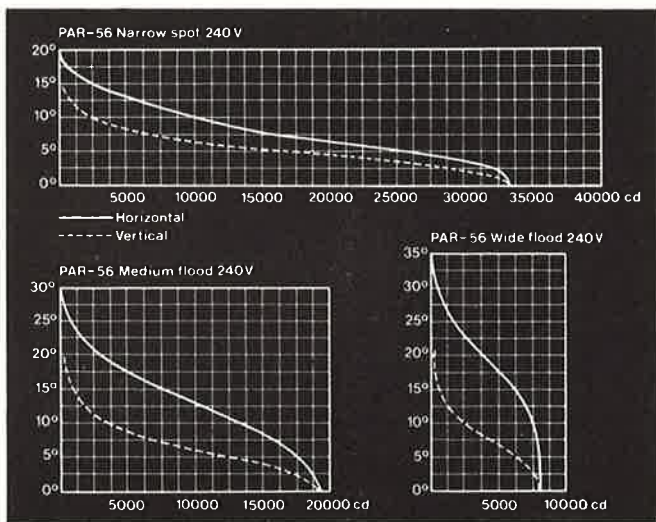
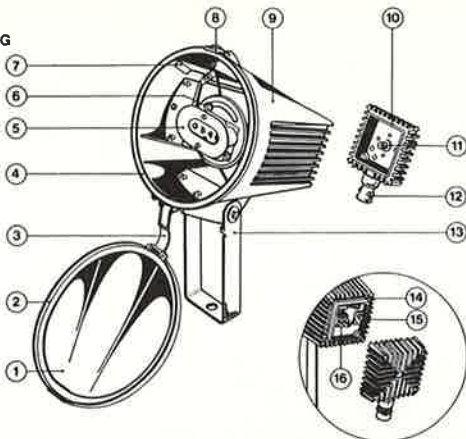
Determined by range of lamps.



ADJUSTMENT POSSIBILITIES

DETAILED DRAWING

1. Front glass
2. Front glass rim
3. Hinge clip
4. Silicone rubber gasket
5. Safety ring
6. Lampholder adjusting screw
7. Spring to keep lamp in position
8. Clip
9. Housing
10. Rear cover
11. Fixing screw
12. Gland
13. Bracket
14. Silicone rubber gasket
15. Earth screw
16. Terminal block



DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Lamp Data

Type	Watts	Beam Pattern	Voltage	Cap
PAR 56	300	Narrow spot	240	GLX/16D
PAR 56	300	Medium flood	240	GLX/16D
PAR 56	300	Wide flood	240	GLX/16D

ORDERING DATA:

Catalogue Number	Weight kg.	Packing Qty.	Dimensions, mm	
			Width	Height
DVF 102	3.0	1	277	385

★Lamps should be ordered separately

C/S/S/B	(90.6)
UDC	696.6:628.973

DHF 016

Floodlight Projector

A corrosion resistant and weather-proof floodlight to IP34, designed for applications where variation in colour and intensity is required.

RANGE

For use with:

- 1 x PAR 38 100W or 150W lamps;
- 1 x MBFR 125W PowerRay Mercury Reflector lamp;
- 1 x Blown bulb Reflector lamp 100/150W.

APPLICATIONS

Applications include:

- "Sound and light" spectacles
- Park lighting
- Poster hoardings
- Festive lighting
- Floodlighting of buildings
- Monuments
- Advertising signs
- Statues
- Gardens etc.

FEATURES

- High-pressure die-cast aluminium housing with cooling fins for heat dissipation.
- High-pressure die-cast aluminium rear cover with cable entry gland.
- High-pressure die-cast aluminium rim, in which the toughened front glass is fixed.
- Galvanised mild steel bracket allowing all possible mounting positions.
- Silicone gaskets to withstand high operating temperatures.
- Inner wiring: Silicone covered and glass fibre protected.
- ES (E27) porcelain lampholder.
- Stainless steel clips and fixing material.



Handbook Ref.

3.4.12

To reorder this Data Sheet quote 11.77 PL 1289/1

Replaces PL 1289

MATERIALS & FINISH

Housing: High pressure die-cast aluminium.

Rear cover: High pressure die-cast aluminium.

Front Glass: High pressure die-cast rim holding a toughened front glass.

Trunnion arm: Galvanised mild steel.

Clips: Stainless steel.

Gaskets: Silicone rubber.

SPECIFICATION

■Type compliance with BS4533 2:2. Enclosure: IEC IP34.

■Class I electrical protection (this luminaire requires an earth connection).

To specify state:

Floodlight of High pressure die-cast aluminium for PAR 38 Blown Bulb and MBFR 125W lamps similar to Philips DHF 016 floodlight.

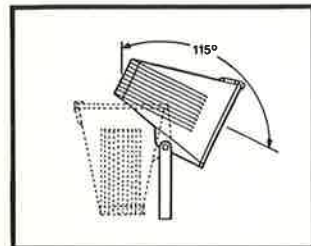
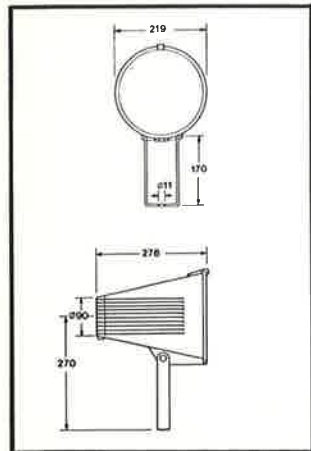
RANGE OF OPERATION

Determined by range of lamps.

Lamp and Fitting: Made in Holland.

LIGHT DISTRIBUTION

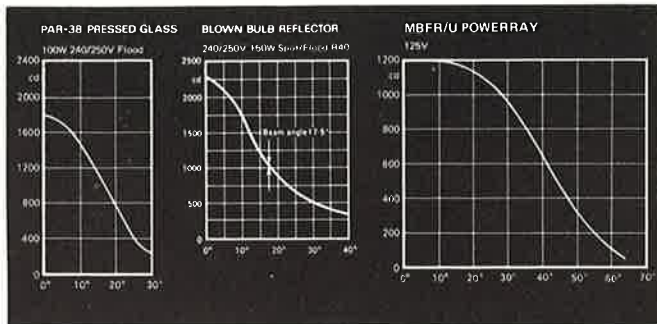
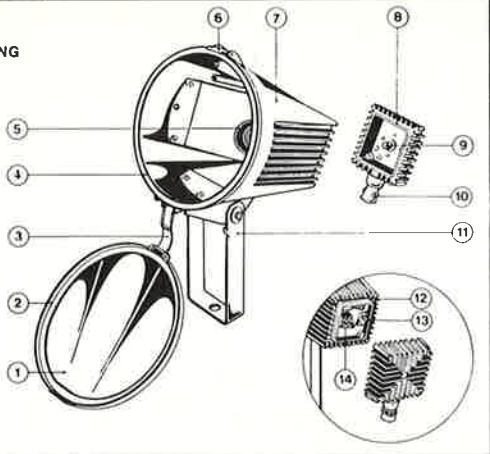
Refer to data sheet of relevant lamp for photometric information.



ADJUSTMENT POSSIBILITIES

DETAILED DRAWING

1. Front glass
2. Front glass rim
3. Hinge-clip
4. Silicone rubber gasket
5. E27 porcelain lampholder
6. Clip
7. Housing
8. Rear cover
9. Fixing screw
10. Gland
11. Bracket
12. Silicone rubber gasket
13. Earth screw
14. Terminal block



DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Lamp Data

Lamp Description	Wattage	Voltage	Cap	Finish
PAR 38 Spot	100	240	ES	Clear
PAR 38 Flood	100	240	ES	Clear
PAR 38 Flood	100	240	ES	Blue
PAR 38 Flood	100	240	ES	Yellow
PAR 38 Flood	100	240	ES	Green
PAR 38 Flood	100	240	ES	Red
PAR 38 Spot	150	240	ES	Clear
PAR 38 Flood	150	240	ES	Clear
PAR 38 Spot	150	240	ES	Yellow
PAR 38 Spot	150	240	ES	Green
PAR 38 Spot	150	240	ES	Red
PAR 38 Spot	150	240	ES	Blue
R30 Blown Bulb	75	240	ES	Diffused
R30 Blown Bulb	100	240	ES	Diffused
R30 Blown Bulb	150	240	ES	Diffused
PowerRay MBFR	125	*	ES	fluorescent coated

*Use with L5125 BX ballast and L4008/07 P.F. Capacitor.

ORDERING DETAILS

Catalogue No.	Weight kg.	Packing Quantity	Dimensions, mm	
			Width	Height
DHF016	3.0	1	276	385

★Lamps should be ordered separately



CI/SIB
(90.6)

UDC
696.6 : 628.971

R7756 R7758 R7788 R7798

Area floodlights

An inexpensive, self-contained floodlight luminaire complete with all control gear secured and wired inside the body, for use with high-pressure sodium, low-pressure sodium and mercury fluorescent lamps.

Note: Mercury fluorescent lamps
UK marking MBF – Philips
International marking HPL-N

RANGE

Available complete with universal mounting kit which enables the luminaire body to be mounted on feet, or secured to 2in., 3in. or 4in. diameter poles. Built-in control gear is supplied for a 150W or 250W high-pressure sodium lamp, a 90W low-pressure sodium lamp or a 250W mercury fluorescent lamp.

APPLICATIONS

Suitable for all external floodlighting applications for which a wide beam is appropriate, such as:-

- Buildings
- Large ground areas
- Car parks
- Work yards
- Marshalling and siding areas
- Outdoor storage areas.

Handbook Ref.

3.4.15

To recorder this data sheet quote

8/79 PL 1759/2

Replaces

PL 1759/1

FEATURES

■ The body is a welded steel fabrication, primed and painted green for high resistance to corrosion.

■ Completely self-contained, with integral control gear – installation is simplified, since the luminaire only needs connection to a suitable supply.

■ Choice of lamp types (high-pressure sodium, low-pressure sodium or mercury fluorescent) makes the luminaire suitable for most applications.

■ Luminaire is wired to 3-way terminal block above cable gland with 20mm bushed cable entry.

■ Individually fused. The gear tray is retained by eight bolts and supported by four captive bolts for easy access to fuse and gear components.

■ Lamp replacement is simplified by removal of the lampholder cover, which allows the lamp to be withdrawn without disturbing the front of the luminaire.

MATERIALS & FINISH

Body: Steel, welded, primed and painted green.

Trunnion arm and universal mounting kit: Wrought iron, galvanised finish.

Front glass: Toughened sheet glass sealed with special rubber strip.

SPECIFICATION

To specify state:

Philips area floodlight with integral control gear using 150W SON, 250W SON, 90W SOX or 250W mercury fluorescent lamp.

ORDERING DATA

Catalogue No.	Description	Packing quantity
R7756/U	Luminaire with control gear for 150W SON lamp	Individually packed
R7758/U	Luminaire with control gear for 250W SON lamp	Individually packed
R7788/U	Luminaire with control gear for 90W SOX lamp	Individually packed
R7798/U	Luminaire with control gear for 250W MBF/U lamp	Individually packed

Please order in the form given in the following example:

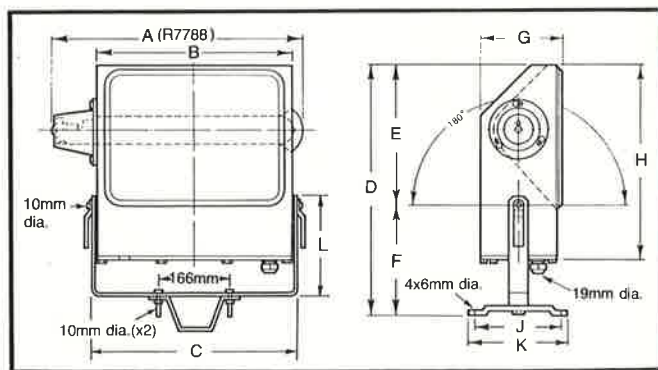
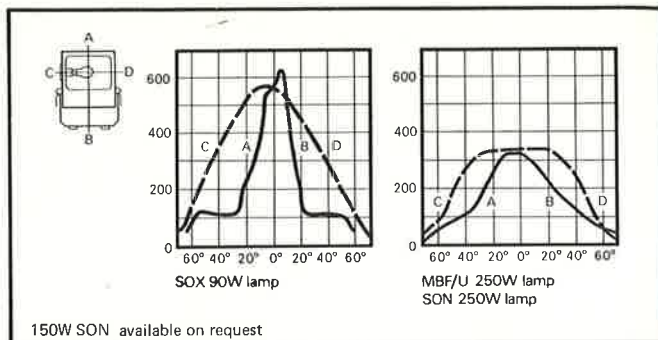
10 Philips area floodlights R7758/U.

Lamps should be ordered separately.

WEIGHTS, ELECTRICAL & TECHNICAL DATA

Body Cat. No.	Lamp type	Weight complete with lamp kg	Lighting Design Lumens	Lamp volts	Circuit current (Amperes)	Total circuit Watts	Cap	Ignitor	Ballast	PF capacitor
R7756/U	SON 150W high-pressure sodium	19.1	13,500	100	0.9	174	GES	SN50	L4154	L4016/07
R7758/U	SON 250W high-pressure sodium	21.4	24,000	100	1.3	280	GES	SN50	L4254	2 × L4018/07
R7788/U	SOX 90W low pressure sodium	17.7	12,250	112	0.5	110	BC	SX70	L6090	L5010/07
R7798/U	HPL-N 250W mercury fluorescent PowerWhite	20.5	12,500	135	1.3	268	GES	—	L5250BX	L4016/07

Light Distribution cd/1000lm



RANGE OF OPERATION

For normal outdoor use.

DIMENSIONS

mm (inches)	mm (inches)
A — 578 (22.75)	G — 190 (7.48)
B — 453 (17.83)	H — 456 (17.95)
C — 472 (18.57)	J — 166 (6.53)
D — 604 (23.77)	K — 190 (7.48)
E — 336 (13.2)	L — 222 (8.74)
F — 268 (10.5)	

Note: Mercury fluorescent lamps
UK marking MBF = Philips
International marking HPL-N.

Luminaire: Made in UK

Lamps: Made in Belgium and UK

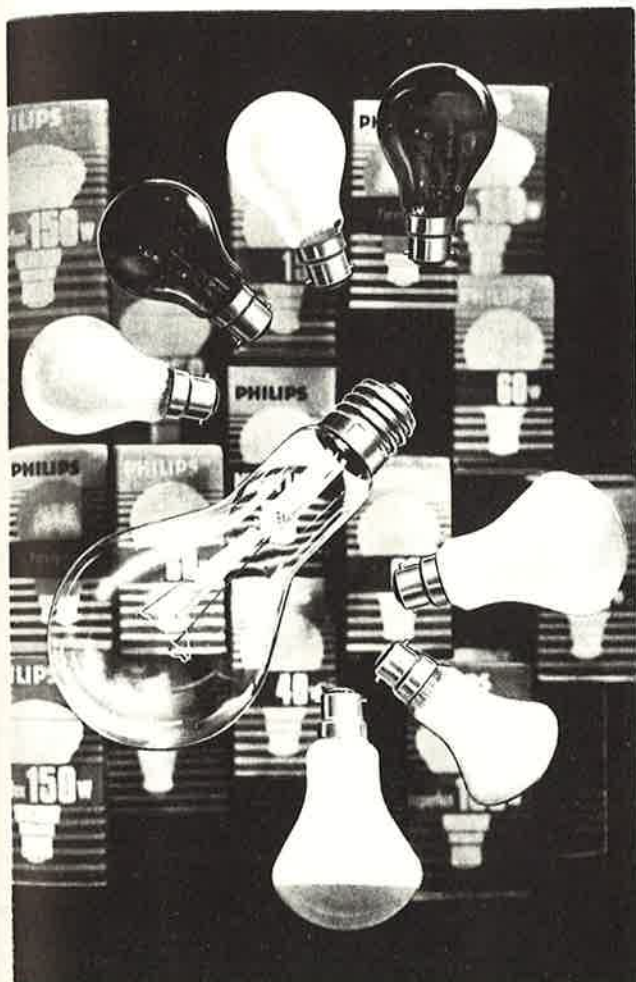
LAMPS

INCANDESCENT

	Page
GLS Lamps	PL1789/1 301
Decorative Lamps	PL1788/1 305
Display Lamps Incandescent	PL1790/1 309
Heat Lamps Reflecta Infra-Red	PL1805 313
IRK Linear Quartz Heat Lamps	PL1814/1 317
Tungsten Halogen Floodlight Lamps	PL1770/3 319
Special Service Lamps	PL1787/1 321

CI/SIB (63.9)

UDC 696.6:628.94



GLS

General lighting service Incandescent lamps

A range of tungsten filament lamps having the advantages of instant light, low installation cost and warmth of colour tone.

RANGE

This Data Sheet covers pear-shaped lamps in clear, pearl, coiled-coil, single-coil and low-voltage versions, K-Mushroom, Superlux, Fireglow and Nightlight lamps.

APPLICATIONS

- Clear bulbs: Used to create sparkle in glass fittings, etc.
- Pearl bulbs: Lightly diffused to reduce filament glare and to soften shadows.
- Argenta bulbs: White internal coating to give a high degree of diffusion and reduced glare. Gives a soothing, restful light.

FEATURES

- Quality: Stringent quality control procedures and meticulous attention to cleanliness result in a high degree of uniformity to specification.
- Safety: Test and inspection procedures are geared to the safety of lamps in service. All GLS lamps of 25 Watts or greater, rated for supply voltages of 100V or more, are internally fused.

10

Handbook Ref.

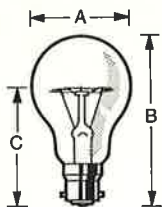
5.1.1

To reorder this data sheet quote

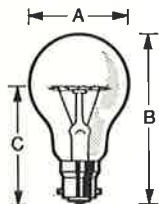
9 79 PL 1789/1

Replaces

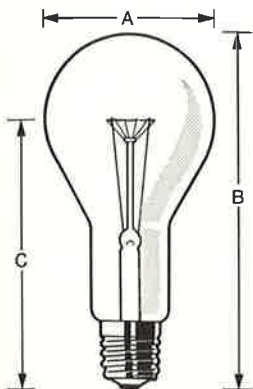
PL1789



GLS Coiled Coil



GLS Single Coil



GLS Single Coil

GLS Coiled-coil

Rating	Dimensions (mm)		C
	A	B	
25W-100W	60	103	70
150W	68	125	90

GLS Coiled-coil - high efficiency

For general use, with more light output than single-coil and long life equivalents.

GLS Single-coil

Rating	Dimensions (mm)		C
	A	B	
15W-100W	60	103	70
150W, 200W	80	160	120
300W, 500W	110	233	178
1000W	130	290	225

GLS Single-coil - normal efficiency

A range of high and low wattage and low voltage types, for use where the benefits of coiled-coil filaments are not applicable.

K-Mushroom

Rating	Dimensions (mm)	
	A	B
40W-100W	60	100
150W	75	120

K-Mushroom - Modern, attractive, compact shape with internal white 'Argenta' finish for maximum diffusion. Gives a softer light and looks neater and more modern when not in use. Coiled-coil filaments. Smaller box sizes.

Superlux

Rating	Dimensions (mm)	
	A	B
60W-100W	60	100
150W	75	120

Superlux - Directional mushroom lamp giving a diffused wide ($2 \times 35\%$) downward beam while retaining some upward light. A useful working light and possible economical alternative to wide beam reflector lamps.

Fireglow

Rating	Dimensions (mm)	
	A	B
60W	60	103

Fireglow - A durable red lacquer creates a warm, glowing flame effect for use in fuel effect fires.

Night light

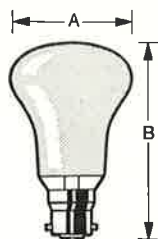
Rating	Dimensions (mm)	
	A	B
8W	60	103

Night light - Gives a sense of security to children and elderly people when used in bedrooms, nurseries, stairways and hospitals. Has a low power consumption for economy.

Wattage	Voltage	Cap	Finish	Packing quantity
25W	240V, 250V	BC	Pearl	25
40W	240V	BC/ES†	Pearl, clear	25, 10 × 10*
40W	250V	BC	Pearl, clear	25, 10 × 10*
40W	220/230V	BC	Pearl	25
60W	240V	BC/ES	Pearl, clear	25, 10 × 10*
60W	250V	BC/ES†	Pearl/clear	25
60W	220/230V	BC	Pearl	25
75W	240V	BC/ES	Pearl	25
75W	250V	BC	Pearl	25
100W	240V	BC/ES	Pearl, clear	25, 10 × 10*
100W	250V	BC/ES†	Pearl, clear	25, 10 × 10*
150W	240V, 250V	BC/ES	Pearl, clear	25, 10 × 10*
150W	250V	BC†/ES	Pearl, clear	25

†Pearl only

*Pearl with BC only



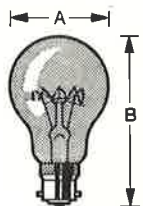
Wattage	Voltage	Cap	Finish	Packing quantity
15W	240V, 250V	BC	Pearl	25
200W	240V, 250V	BC/ES	Pearl, clear	25
300W	240V, 250V	GES	Clear	10
500W	240V, 250V	GES	Clear	10
1000W	240V, 250V	GES	Clear	10
110V lamps				
40W	110V	BC	Pearl	25
60W	110V	BC/ES	Pearl	25
100W	110V	BC/ES	Pearl	25
150W	110V	BC/ES	Pearl	25
200W	110V	BC/ES	Pearl	25
300W	110V	GES	Clear	10
500W	110V	GES	Clear	10
1000W	110V	GES	Clear	10
25V and 50V lamps for emergency lighting				
25W	25V, 50V	BC/ES	Pearl	25
40W	25V, 50V	BC/ES	Pearl	25
60W	25V, 50V	BC/ES	Pearl	25
100W	25V, 50V	BC	Pearl	25
100W	25V	ES	Pearl	25

K. Mushroom



Superlux

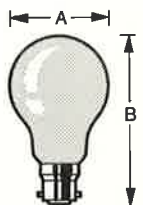
Wattage	Voltage	Cap	Finish	Packing quantity
40W	240V	BC	Argenta	25, 10 × 10
60W	240V	BC	Argenta	25, 10 × 10
100W	240V	BC	Argenta	25, 10 × 10
150W	240V	BC	Argenta	25, 10 × 10



Wattage	Voltage	Cap	Finish	Packing quantity
60W	240V	BC	Argenta	25
100W	240V	BC	Argenta	25
150W	240V	BC	Argenta	25

Fireglow

Wattage	Voltage	Cap	Finish	Packing quantity
60W	240/250V	BC, 3-pin BC	Amber	10 × 10



Wattage	Voltage	Cap	Finish	Packing quantity
8W	240/250V	BC	Pearl	10 × 10

L. Night Light

PERFORMANCE DATA

For General Lighting Service tungsten filament lamps.

Lumen output

Initial rated lumens to BS 161

High efficiency. Pear-shaped 240V

Watts	Lumens
25	225
40	420
60	710
75	940
100	1360
150	2180

Normal efficiency. Pear-shaped

240V		110V	
Watts	Lumens	Watts	Lumens
15	115	25	225
200	2900	40	445
300	4650	60	770
500	8300	100	1420
1000	1840	150	2360
		200	3300
		300	5200
		500	9400
		1000	20200

Lighting design notes

Lighting design lumens are usually taken at about 94% of initial rated lumens.

End of life lumens are typically 90% of initial rated lumens.

Effect of supply voltage on performance

The life expectancy and light output of tungsten filament lamps are highly dependent on supply voltage, as shown in fig. 1 and fig. 2.

These curves may be used as a guide to average performance, but factors such as frequency of switching, vibration and temperature exert a greater influence on expected results as voltage deviates further from normal.

GLS lamps may be operated in any position, but life expectancy may be reduced in positions other than cap-up.

SPECIFICATION

GLS lamps are designed to conform with BS 161 (IEC 64) and related British and European Standards where applicable.

Figure 1

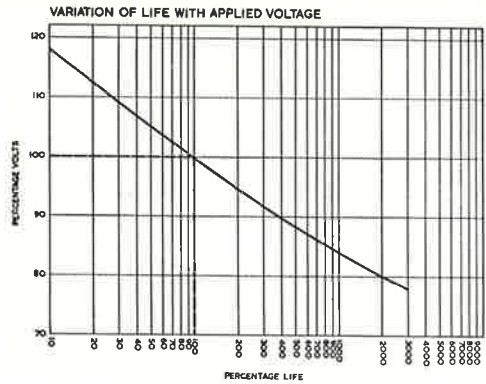
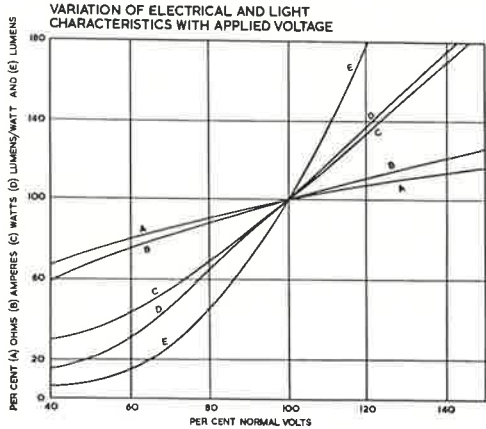


Figure 2



Made in Great Britain.

CI/SIB (63.9)

UDC 696.6:628.94

DECORATIVE incandescent lamps

A range of tungsten filament lamps for use on normal mains supplies, for effect or decorative lighting.

RANGE

This Data Sheet covers internally-coloured pear-shaped GLS lamps, plain and twisted candle lamps, round bulb and tubular types.

For Coloured pygmy lamps see data sheet PL 1787, Special Service Lamps.

APPLICATIONS

- Clear bulbs: Used to create sparkle in glass fittings, chandeliers, etc.
- Pearl bulbs: Lightly diffused to reduce glare and filament images, and to soften shadows.
- Argenta bulbs: White internal coating to give a high degree of diffusion and reduced glare, having an attractive appearance when switched off.
- Argenta rose: Pink tone for restful warmth.

FEATURES

- **Quality:** Stringent quality control procedures and meticulous attention to cleanliness result in a high degree of uniformity to specification.
- **Safety:** Test and inspection procedures are geared to the safety of lamps in service.

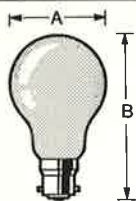


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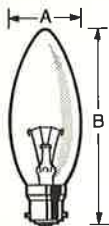
5.1.2

To reorder this data sheet quote 11.79 PL 1788/1

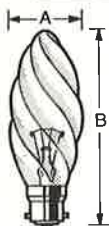
Replaces PL 1788



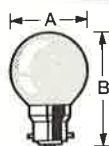
Coloured GLS - Argenta Rose



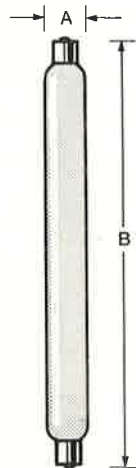
Plain Candle



Twisted Candle



Argenta Lustre



Striplite

Coloured GLS

Rating	Dimensions (mm)	
	A	B
15W-100W	60	103

Coloured GLS - Lamps for mood lighting and parties available in six standard colours: Red, Blue, Green, Yellow, Amber, and Pink. White is available in 15W and 25W ratings only. 15W and 25W ratings can be used outdoors with weatherproof lampholders.

Argenta Rose

60W, 100W	60	103
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Argenta Rose - Gives a soft pink light for an intimate atmosphere.

Plain Candle

Rating	Dimensions (mm)			
	A	B	B	B
	(BC)	(SBC)	(SES)	
25W, 40W, 60W*	35	89	95.5	97
60W	45	125	127	—

Plain Candle - Attractive, slim olive shape in clear, pearl and White Argenta. Clear candles are frequently used in glass chandeliers to create sparkle. All types have coiled-coil filaments for improved light output.

*Clear version only

Twisted Candle

Rating	Dimensions (mm)		
	A	B	B
	(BC)	(SBC)	(SES)
25W	35	97	100
40W, 60W	47	125	127

Twisted Candle - Decorative, slim twisted shape in clear or pearl; an alternative to the plain candle lamp.

Argenta Lustre

Rating	Dimensions (mm)				
	A	B	B	B	B
	(BC)	(SBC)	(ES)	(SES)	
25W, 40W	45	68.5	73.5	70	75

Argenta Lustre - A small, round bulb with an internal white Argenta coating, frequently used where the bulb itself forms part of the design of the fitting.

Striplite

Rating	Dimensions (mm)	
	A	B
30W, 60W	25	221 or 284

Striplite - Double cap, clear or opal, in two lengths. Useful for concealed lighting or for low glare (opal), over mirrors, bedheads, aquaria, etc.

Colorenta

Rating	Dimensions (mm)	
	A	B
60W	38	303

Colorenta - Single cap, inside white, giving a uniform soft, diffuse light over the whole lamp.

Philinea 1

Rating	Dimensions (mm)		
	A	B	
35W	30	300 (12")	
60W	30	500 (20")	
75W	30	610 (24")	

Philinea 1 - Architectural Straight lamp with concealed peg or new flat (S14s) caps in several lengths, with similar surface brightness. Opal White finish.

Philinea 2

Rating	Dimensions (mm)		
	A	B	
35W	30	300 (12")	
60W	30	500 (20")	

Philinea 2 - Architectural Straight lamp with single central concealed flat cap. Opal finish.

Dimensions are nominal

Wattage	Voltage	Cap	Finish	Packing quantity
Coloured GLS				
15W	240/250V	BC	Internally coloured	10 x 10
25W	240/250V	BC	Internally coloured	10 x 10
40W*	240/250V	BC	Internally coloured	10 x 10
60W*	240/250V	BC	Internally coloured	10 x 10
100W*	240/250V	BC	Internally coloured	10 x 10

Argenta rose				
60W	240/250V	BC	Argenta	25
100W	240/250V	BC	Argenta	25

*Not suitable for outdoor use unless protected against rain.

Wattage	Voltage	Cap	Finish	Packing quantity
Plain candle				
25W	240/250V	BC, SBC	Clear, pearl	50 (5 x 10)
40W	240/250V	BC, SBC	Clear, pearl	50 (5 x 10)
60W	240/250V	BC, SBC	Clear, pearl	50 (5 x 10)

Argenta candle				
25W	240/250V	BC, SBC, SES	Argenta	50 (5 x 10)
40W	240/250V	BC, SBC, SES	Argenta	50 (5 x 10)
60W	240/250V	BC, SBC	Argenta	50 (5 x 10)

Wattage	Voltage	Cap	Finish	Packing quantity
25W	240/250V	BC, SBC	Clear, pearl	50 (5 x 10)
40W	240/250V	BC, SBC	Clear, pearl	50 (5 x 10)
60W	240/250V	BC, SBC	Clear, pearl	50 (5 x 10)

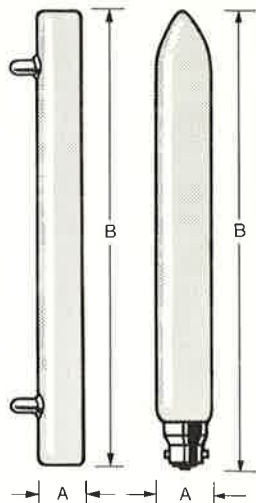
Wattage	Voltage	Cap	Finish	Packing quantity
25W	240/250V	BC, SBC, ES, SES	Argenta	50 (5 x 10)
40W	240/250V	BC, SBC, ES, SES	Argenta	50 (5 x 10)

Wattage	Voltage	Cap	Finish	Packing quantity
30W	240/250V	S15s	Clear, opal	25
60W	240/250V	S15s	Clear, opal	25

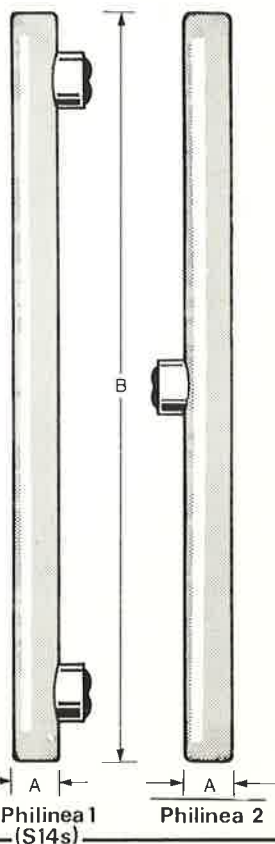
Wattage	Voltage	Cap	Finish	Packing quantity
60W	240/250V	BC	Argenta	25

Wattage	Voltage	Cap	Finish	Packing quantity
35W	240/250V	Peg	Opal	25
60W	240/250V	Peg	Opal	25
75W	240/250V	Peg	Opal	25
35W	240V	S14s	Opal	25
60W	240V	S14s	Opal	25

Wattage	Voltage	Cap	Finish	Packing quantity
35W	240V	Central Peg S14d	Opal	25
60W	240/250V	Central Peg S14d	Opal	25



Philinea 1 Colorenta



Philinea 1 (S14s)

Philinea 2

Effect of supply voltage on performance

In common with all tungsten filament lamps, the life expectancy and light output of decorative lamps are highly dependent on supply voltage. To reduce the effect on expected life of higher supply voltages, decorative lamps are rated nominally for 245V supplies, unless otherwise stated.

The data shown may be used as a guide to average performance, but factors such as frequency of switching, vibration and temperature exert a greater influence on expected results as voltage deviates further from the nominal.

GLS lamps may be operated in any position, but life expectancy may be reduced in positions other than cap-up.

PERFORMANCE DATA for Tungsten Filament Decorative Lamps

Figure 1

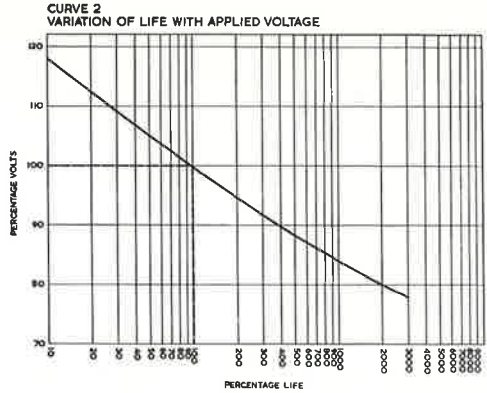
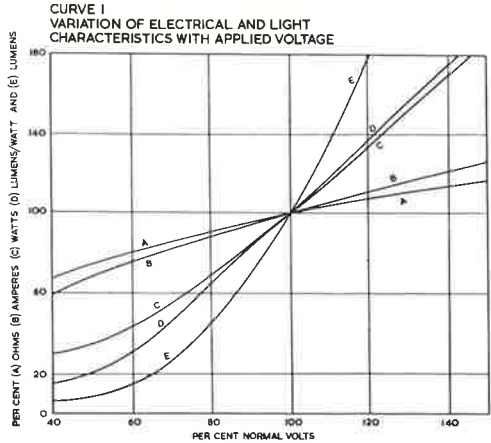


Figure 2



Lamps: Made in UK unless otherwise stated on packaging.

CI/SIB	(63.2)
UDC	696.6:628.976

DISPLAY LAMPS

Incandescent lamps

A comprehensive range of lamps for display and effect lighting in commerce, industry and the home, including pressed glass types also suitable for exterior lighting.

RANGE

This Data Sheet covers internally silvered reflector lamps rated from 40W to 300W in various beam widths and colours and crown silvered lamps from 40W to 100W.

FEATURES

■ **Quality:** Stringent quality control procedures and close attention to filament positioning result in a high degree of uniformity to specification.

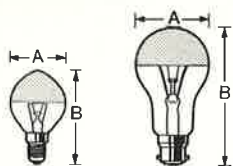
■ **Safety:** Test and inspection procedures are geared to the safety of lamps in service. All GLS lamps of 25 Watts or greater, rated for supply voltages of 100V or more, are internally fused.



10

Handbook Ref.	5.1.4
To reorder this data sheet quote	11.79 PL1790/1
Replaces	PL 1790

Crown Silvered



40W

60W/100W

Rating

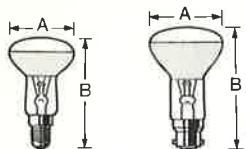
Rating	Max. Dimensions (mm)			
	A	B (BC)	B (ES)	B (SES)
40W	45	—	—	77.5
60W	60	103.5	105.0	—
100W	68	123.0	124.5	—

Crown Silvered – bowl reflector

Principal use is in conjunction with external reflector to give a sharply defined narrow beam of high intensity for accent display work.

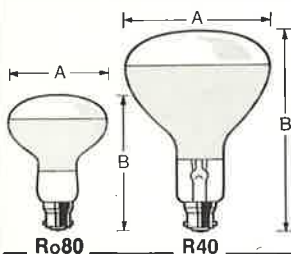
New 40W shape:— The distinctive 'pointed' reflectorised crown gives a brighter and more homogenous beam from parabolic dishes by directing more light onto the dish. Cap temperature rise is also reduced.

Internally Silvered



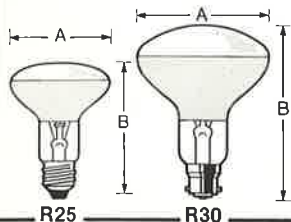
R16

R20



Ro80

R40



R25

R30

Rating

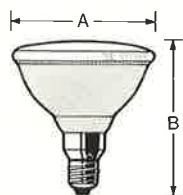
Rating	Max. Dimensions (mm)			
	A	B (BC)	B (ES)	B (SES)
R16 (40W)	50	—	—	86
R20 (40, 60W)	64	101	102.5	—
Ro80 (60, 75, 100W)	80	113	114.5	—
R25 (75, 100W)	80	—	112.0	—
R30 (75, 100W)	95	140	141.5	—
R40 (150W)	125	182	183.5	—

Internally Silvered—blown bulb reflector

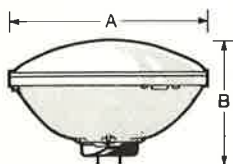
A comprehensive range from narrow spot to wide flood in various voltages to suit lighting applications such as displays, exhibitions, task, reading and indoor spotlighting. Especially effective in Philips display fittings.

Recent introduction is the Ro80 'Disco lamp' in sparkling transparent colours.

Pressed Glass



PAR 38



PAR 56

(Not to scale)

Rating

Rating	Max. Dimensions (mm)	
	A	B
PAR 38 (100, 150W)	136	136
PAR 56 (300W)	179	128

Pressed Glass

Precision-made, efficient lamps of robust construction to give high beam intensity with 2000 hours nominal average life.

PAR38

Full range includes Colour and Cool Spot versions. 150W coloured lamps have stained glass for permanence of colour. All PAR 38 lamps except Cool Spot and 150W coloured lamps may be used for outdoor applications in suitable fittings.

PAR56

Available in three beam widths with an elliptical pattern. Frequently used in high-mounted long-throw applications and in purpose-built fittings where it is located by means of the front rim. Protect from water splashes.

Description	Wattage	Voltage	Cap	Finish	Beam angle†	Beam centre intensity Candelas	Packing quantity
Bowl reflector	40W	240/250V	SES	Clear	—	—	20
Bowl reflector	60W	240/250V	BC, ES	Clear	—	—	25
Bowl reflector	100W	240/250V	BC, ES, 3-pin BC	Clear	—	—	25

Description	Wattage	Voltage	Cap	Finish	Beam angle†	Beam centre intensity Candelas	Packing quantity
R16 flood	40W	240V	SES	Diffused	30°	425cd	25
R20 flood	60W	240/250V	BC, ES	Diffused	32°	700cd	25
Ro80 wide flood	60W	240/250V	BC, ES	Diffused	70°	270cd	25
Ro80 wide flood	75W	240/250V	BC, ES	Diffused	70°	360cd	25
Ro80 wide flood	100W	240/250V	BC, ES	Diffused	70°	530cd	25
Ro80 'Disco lamp'	40W	240V	ES	Transparent colours*	—	—	10
R25 spot	75W	240/250V	ES	Diffused	22°	1350cd	25
R25 spot	100W	240/250V	ES	Diffused	22°	2000cd	25
R30 flood	75W	240/250V	BC, ES	Diffused	35°	700cd	10
R30 flood	100W	240/250V	BC, ES	Diffused	35°	1000cd	10
R40 flood	150W	240/250V	BC, ES	Diffused	35°	2000cd	10
R40 narrow spot	150W	24V	ES	Diffused	10°	20000cd	9
R20 coloured flood	40W	240/250V	BC, ES	Red, blue green, yellow	—	—	12
R30 coloured flood	75W	240/250V	BC, ES	Red, blue green, yellow	—	—	10
R30 coloured flood	100W	240/250V	BC, ES	Red, blue, green, yellow, amber, pink	—	—	10

*Available in blue/yellow/green/red/orange/violet

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Description	Wattage	Voltage	Cap	Finish	Beam angle†	Beam centre intensity Candelas	Packing quantity
PAR38 spot	100W	240V	ES	Clear	16°	4000	15
PAR38 flood	100W	240V	ES	Clear	30°	1800	15
PAR38 narrow spot	150W	24V	ES	Clear	10°	25000	15
	150W	110V	ES	Clear	16°	9500	15
	150W	240V	ES	Clear	16°	7500	15
PAR38 flood	150W	110V	ES	Clear	30°	3400	15
	150W	240V	ES	Clear	30°	3100	15
PAR38 cool spot*	150W	240V	ES	Clear	16°	7000	15
PAR38 coloured flood	100W	240V	ES	Red, blue, yellow, green	30°	—	15
PAR38 coloured spot	150W	240V	ES	Red, blue, yellow, green	16°	—	15
PAR56 narrow spot	300W	240V	GLX16d	Clear	15° x 9°	40000	6
PAR56 medium flood	300W	240V	GLX16d	Clear	25° x 11°	22000	6
PAR56 wide flood	300W	240V	GLX16d	Clear	40° x 16°	9000	6

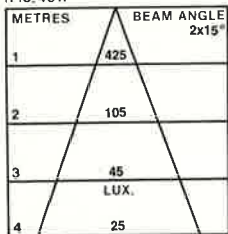
*Dichroic reflector focusses visible light while permitting heat content to pass through. Heat content of beam is reduced by up to 75%. This lamp may only be used in special heat-resisting fittings.

†Beam angle between 50% intensity values. Diagrams overleaf.

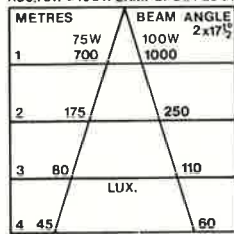
BEAM ANGLE DATA

Internally Silvered

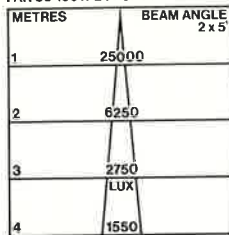
R 16. 40W



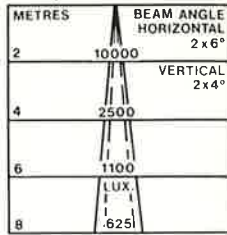
R30.75W & 100W LAMP SPOT/FLOOD



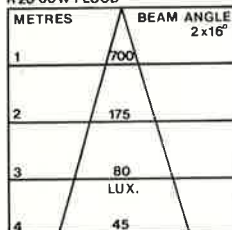
PAR 38 150W 24V SPOT



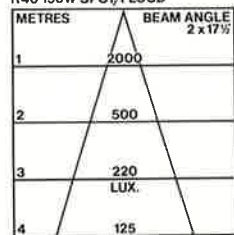
PAR 56. 300W NARROW SPOT



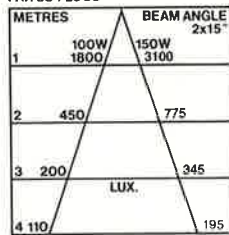
R 20 60W FLOOD



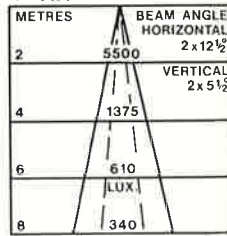
R40 150W SPOT/FLOOD



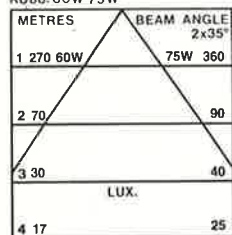
PAR 38 FLOOD



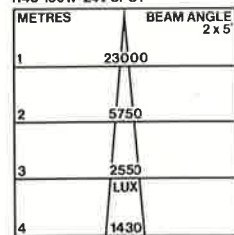
PAR 56. 300W MEDIUM FLOOD



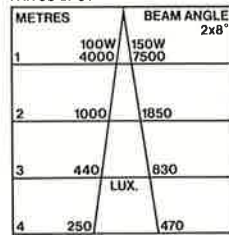
Ro80. 60W 75W



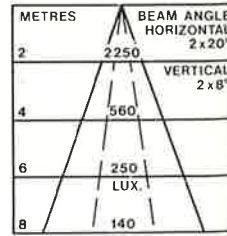
R40 150W 24V SPOT



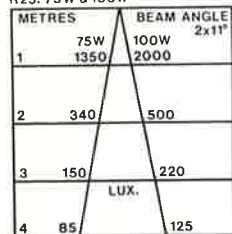
PAR 38 SPOT



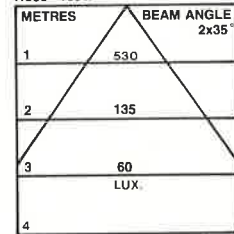
PAR 56. 300W WIDE FLOOD



R25. 75W & 100W



Ro80 100W



Using the Guide

The beam cones are drawn at the angles where the light intensity is 50% of the centre intensity. PAR 56 lamps give an elliptical beam.

The 'Lux' is a measure of the illuminance on a surface (lumens per sq. metre), and the values given are at beam centre for the distances shown.

Lux is calculated by dividing intensity (candelas) by the distance squared (m²), for surfaces at 90° to the beam.

Candela values are shown in the table. The I.E.S. interior Lighting Code recommends:

Shop display 500 Lux
Desk Lighting 500 Lux
Casual Reading 150 Lux

Made in UK unless otherwise stated on packaging

CI/SIB	(63.9)
UDC	696.6:628.94

HEAT LAMPS

Blown bulb internal reflector types

Tungsten filament heat lamps for directional short-wave infra-red heating purposes.

RANGE

IR250WS – 250W rating, normal glass, frosted finish (Industrial use only).

IR300WCH, IR300WRH – 300W rating, hard glass, clear or red finish.

IR375WCH – 375W rating, hard glass, clear finish.

Available to special order only:–

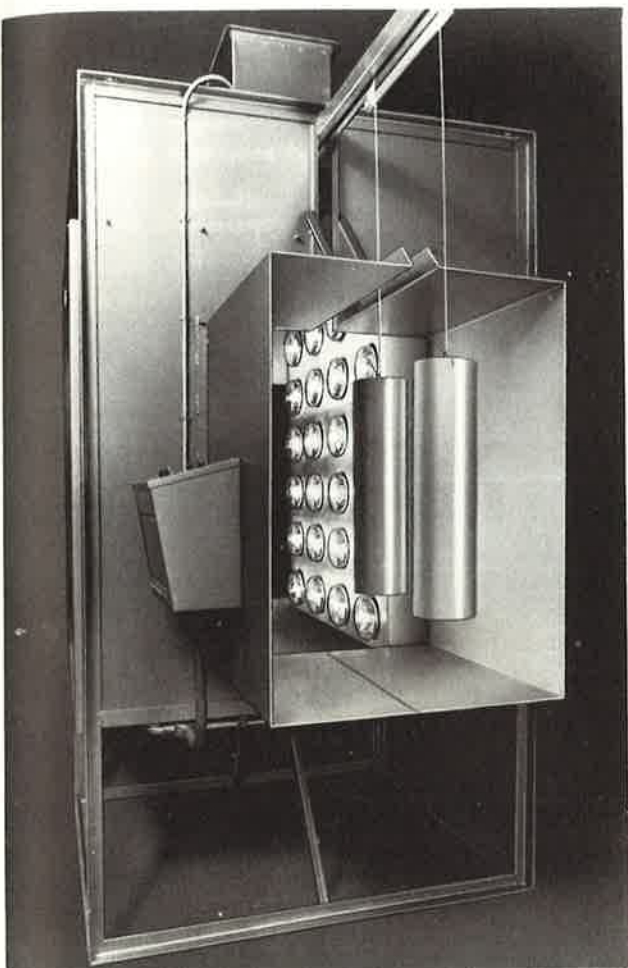
IR150WS – 150W rating, normal glass, frosted finish (Industrial use only).

IR150WRS – 150W rating, normal glass, red finish (Industrial use only).

APPLICATIONS

- Livestock rearing
- Personnel comfort
- Entrance canopies, to provide light and warmth
- Low-intensity process heating
- Paint drying and curing
- Pre-heating

10

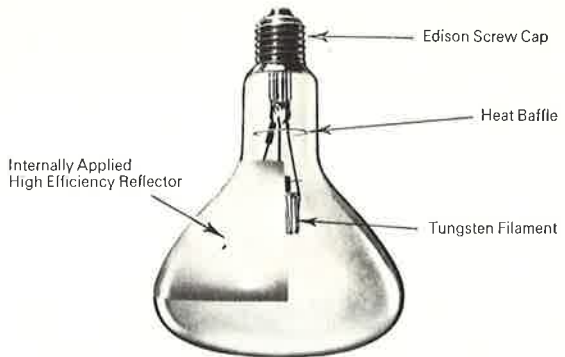


Handbook Ref.	5.1.6
To reorder this data sheet quote	PL 1805
Replaces	PL 8988

FEATURES

- Highly efficient conversion of electrical energy into radiant heat.
- Instant response – no warm-up or cool-down delay.
- High-efficiency parabolic reflector internally applied to bulb maintains installation efficiency.
- 5000 hours average life expectancy.
- Hard glass versions resist thermal shock due to splashing and are therefore suitable for all applications.
- Frosted lamp gives diffused light and heat output; particularly suitable for livestock rearing.
- Red lamp reduces visible light; is suitable for livestock rearing and open-sided process heating ovens.

Construction of Philips Heat Lamp



PROCESS HEATING APPLICATION NOTES

General

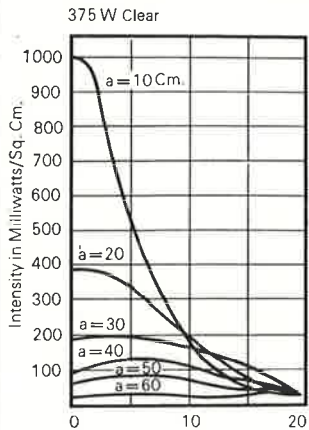
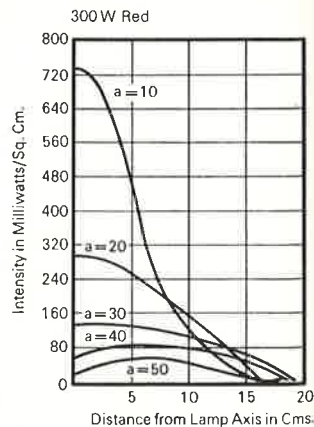
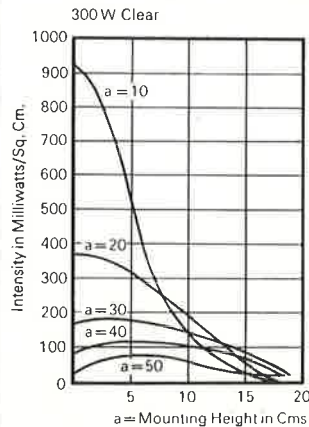
1. Shortwave infra-red penetrates translucent materials, unlike long-wave infra-red from dull or 'black' emitters, which is absorbed at most surfaces.
2. The virtually instant response to switching or dimming has important safety and energy-saving connotations, with flammable products and in batch control applications for example.
3. Infra-red output is unaffected by draughts, and if used on reduced voltage the life expectancy is increased while the output remains shortwave.
4. These lamps are for applications requiring intensities up to 10 kW/m^2 installed. For higher intensities, use Philips Type IRK linear heat lamps.

Equipment design

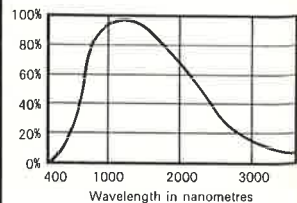
The simplicity of the lamps permits great versatility in the design of installations.

1. Heat lamp spacing and height is predetermined from a small-scale feasibility test, and may be made adjustable in practice.
2. Lamps must not be enclosed in insulated ovens. They heat by direct radiation, and must be given adequate ventilation around lampholders and wiring.
3. For enhanced efficiency on reflective or openwork products, highly reflective aluminium tunnel sides should be used with recessed heat lamps. Philips recessed fitting W4001 is suitable.
4. Heat control is possible by selective switching, series/parallel switching or dimming.

Radiation Intensity in planes perpendicular to lamp axis



Relative Spectral Energy Distribution



GLASS BULBS AND FINISHES

Bulbs are obtainable blown from normal 'soft' glass or from heat-resistant 'hard' glass. Soft glass lamps are marked 'For industrial use only', and must not be used where there is any chance of splashing, as the resultant thermal shock is likely to fracture the bulb.

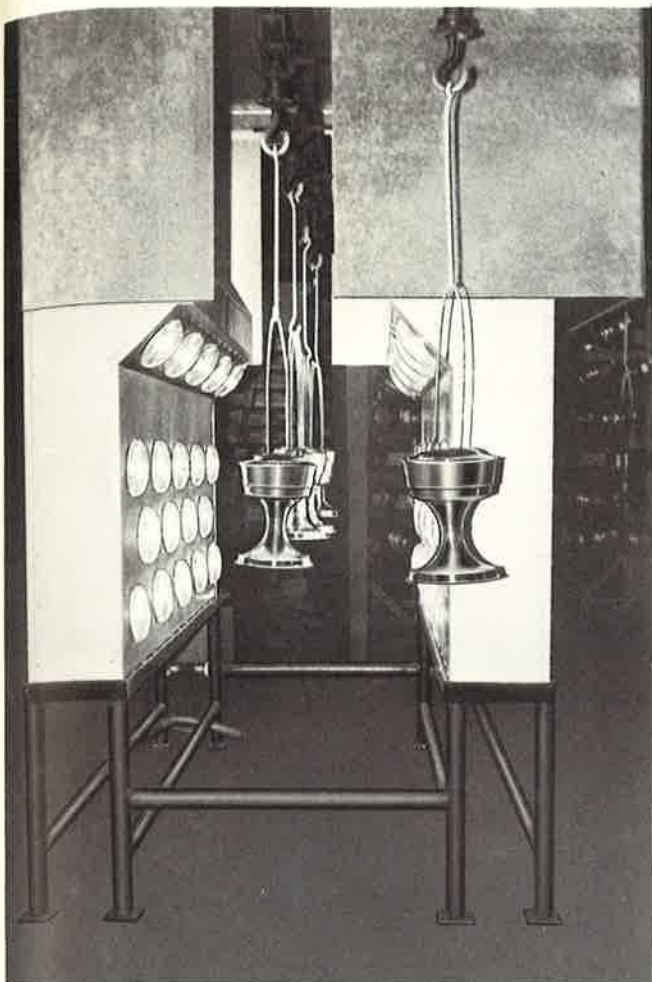
Hard glass lamps have a much greater resistance to thermal shock, and are suitable for all applications.

ORDERING DATA

Please order lamps in the form given in the following example, quoting voltage, wattage and packing quantity:-

36 Philips heat lamps 240/250V, 300W, Type IR300WRH.

10



Drying of protective finish on brass lamps.

Made in Holland.

LAMP DATA

Catalogue No.	Type No.	Wattage	Voltage	Cap	Finish	Glass	Overall length max. (mm)	Bulb diameter max. (mm)	Packing quantity
IR150WS	13346/E44	150	240/250	ES	Frosted	Normal	185	126	Special order only
IR150WRS	13346/E479	150	240/250	ES	Red	Normal	185	126	Special order only
IR250WS	13352/E44	250	110/120 240/250	ES	Frosted	Normal	185	126	9 15
IR300WCH	13374/EO6	300	240/250	ES	Clear	Hard	185	126	9
IR300WRH	13374/E479	300	240/250	ES	Red	Hard	185	126	9
IR375WCH	13344/EO6	375	110/120 240/250	ES	Clear	Hard	185	126	9

Notes:

Colour temperature of filament approximately 2400K.

Average life is 5000 hours at rated voltage, but this may be affected by actual working conditions (vibration, switching frequency, etc.).

These lamps may be operated in any position.

Catalogue suffixes

S - Soft glass.

H - Hard glass.

C - Clear finish.

R - Red finish.

628.94

IRK LINEAR QUARTZ HEAT LAMPS

Tungsten filament heat-lamps for short-wave infra-red radiation in high-intensity applications

RANGE

Standard types rated from 500W to 3kW
High power halogen types 12kW and 20kW

Print drying types 1kW and 2kW

APPLICATIONS

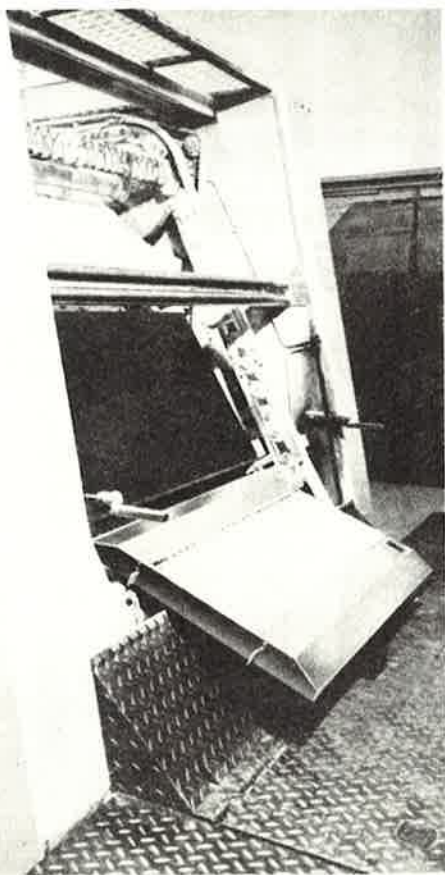
Used with suitable reflector units, IRK heat-lamps can give very high rates of heat transfer, reducing processing times and space requirements, in situations such as:-

- Drying
- Paint drying and baking of powder paints
- Curing applications
- Food preparation
- Stress relieving, expanding, fusing, etc.
- Printing ink drying

FEATURES

- Fast response; full heat output is achieved within 1 second, and the lamps may be dimmed for fast process control.
- Lamp output is reduced by 80% within 1 second of switching off, greatly enhancing safety.
- Provides a highly-efficient, energy-effective source of infra-red radiation.
- Produces product temperatures up to 1350°C.
- Easily focussed for extra intensity.
- Reflectorised versions are available.
- Permit clean, lightweight, simple installations.

IRK Dryer fitted to Roland 800, Printing Press



10

Handbook Ref.

5.1.6/1

To reorder this data sheet quote

10.79 PL 1814/1

Replaces

PL 1814

NOTES FOR USERS

Short-wave infra-red radiation behaves in a manner similar to red light, and penetrates translucent materials, unlike long-wave infra-red from 'dull' or 'black' emitters which is substantially absorbed at many surfaces. It is advisable to conduct small-scale feasibility tests before designing a new installation.

IRK lamps should be mounted flexibly to accommodate differential expansion, and ventilation and/or heat sinks should be provided for the end seals as necessary.

Maximum permissible quartz/metal end seal temperature is 300°C.

Maximum permissible quartz tube temperature is 900°C.

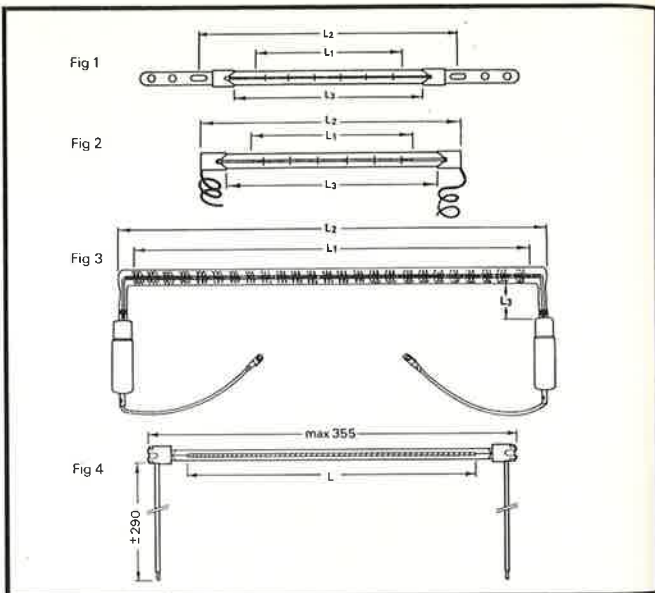
The danger of exceeding these temperatures occurs in high-intensity ovens where considerable re-radiation is taking place (e.g. heating metal sheet or billets to temperatures above 1000°C) and in these circumstances, forced cooling of the envelopes may be required.

Aluminium reflectors will normally require forced-air or water cooling for continuous operation.

Recently-introduced lamp types 13713Z/98 and 13168Z/98 have metal endcaps which may be clipped to an earthed frame, and are equipped with insulated flying leads. **These lamps are for printing ink drying applications only.**

A special lampholder, Type Z9570, is available for use with strip terminated types.

The lamps should not be subjected to vibration or mechanical shock.



General characteristics

All types except 12kW and 20kW:
Filament colour temperature: about 2400K

Average life: 5000 hours at midpoint of voltage range

Peak wavelength: about 1.2 micron

Types 13478K (12kW) and 13785K (20kW):

Filament colour temperature: about 3000K

Tungsten halogen

Peak wavelength: about 1.0 micron

SPECIFICATION

Standard types are designed to conform with the International Standard IEC 240.

ORDERING DATA

Please order in the form given in the following example, quoting Catalogue No., voltage and wattage, and in multiples of the packing quantity:—
12 Philips IRK heat lamps 13195Y 1kW

DIMENSIONS & LAMP DATA

Catalogue No.	Volts	Kilowatts	End connection	Tube	L1 (heated length) (mm)	L2 (fixing centres) (mm)	L3 minimum (mm)	Figure	Operating position*	Packing quantity
13169X	110/130	0.5	Strip	Clear	140 ± 2	241 ± 5	171	1	Any	10
13169X/98	110/130	0.5	Strip	Reflector	140 ± 2	241 ± 5	171	1	Any	10
13169Y	110/130	0.5	Wire	Clear	140 ± 2	241 ± 5	171	2	Any	10
13195Y	220/250	1	Wire	Clear	272 ± 2	348 ± 5	298	2	Horizontal	10
13195X	220/250	1	Strip	Clear	272 ± 2	368 ± 5	298	1	Horizontal	10
13195X/98	220/250	1	Strip	Reflector	272 ± 2	368 ± 5	298	1	Horizontal	10
13713X	220/250	1	Strip	Clear	272 ± 2	368 ± 5	298	1	Vertical	10
13168X	220/250	2	Strip	Clear	280 ± 2	368 ± 5	298	1	Vertical	10
13213X	220/250	2	Strip	Clear	280 ± 2	368 ± 5	298	1	Horizontal	10
13765X	380/420	2	Strip	Clear	410 ± 2	508 ± 5	438	1	Vertical	10
13245X/98	380/420	2	Strip	Reflector	410 ± 2	508 ± 5	438	1	Horizontal	10
13230X	380/420	3	Strip	Clear	700 ± 2	798 ± 5	728	1	Vertical	10
13230X/98	380/420	3	Strip	Reflector	700 ± 2	798 ± 5	728	1	Vertical	10
13478K	220/250	12	Cable	Clear	375 ± 5	400 ± 7	55 ± 5	3	Horizontal	—
13785K	380/420	20	Cable	Clear	665 ± 5	690 ± 7	55 ± 5	3	Horizontal	—
13713Z/98	220/250	1	Special	Clear	272 ± 2	355	290	4	Any	10
13168Z/98	220/250	2	Special	Clear	280 ± 2	355	290	4	Any	10

Notes

*Operating positions: Horizontal ± 15° (these types must not be operated vertically)
Vertical ± 75° (these types previously operated in 'any' position).

CI/SIB	(63.9)
UDC	696.6 : 628.94

TUNGSTEN HALOGEN LAMPS

Linear

A range of linear lamps for horizontal burning ($\pm 4^\circ$), suitable for use in small, lightweight luminaires for a wide variety of floodlighting applications.

RANGE

Linear lamps for operation from 240/250V supplies:-

- K9 - 300W
- K1 - 500W*
- K3 - 750W
- K4 - 1000W*
- K5 - 1500W
- K6 - 2000W

*Also available for operation from 120V supplies.

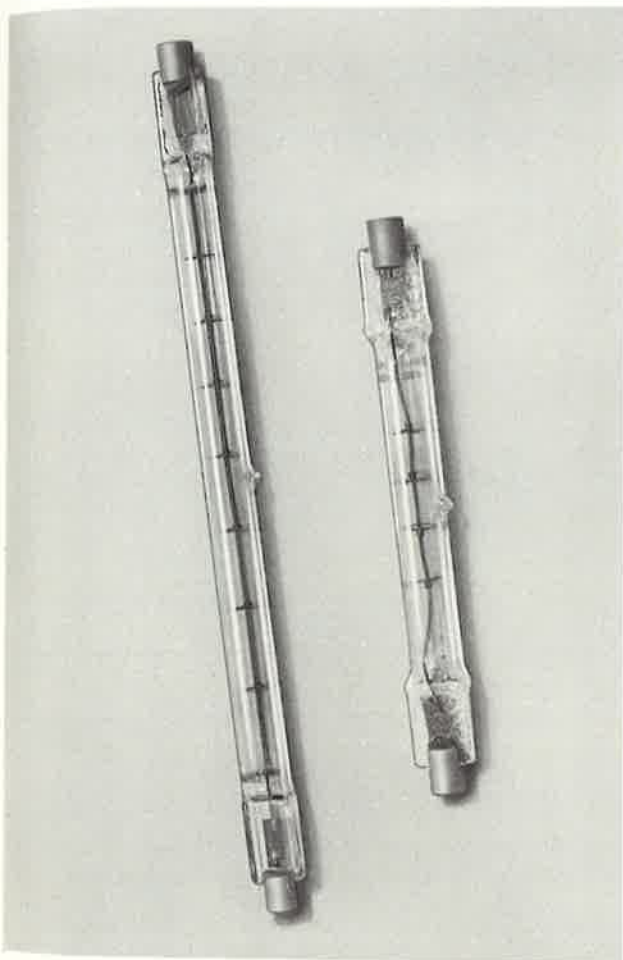
APPLICATIONS

Outdoor applications

- Building sites
- Sports grounds
- Parks
- Large gardens
- Fountains
- Car parks
- Airport aprons

Indoor applications

- Exhibitions
- Shop windows
- Churches



10

Handbook Ref.

5.1.7

To reorder this data sheet quote 9.79 PL 1770/3

Replaces

PL 1770/2

FEATURES

- Excellent colour rendering of tungsten halogen lamps preserves the natural colours of the environment in which the lamps are used.
- Luminous flux output is maintained throughout the life of the lamps due to the halogen regenerative cycle.
- Up to 20% more efficient than a GLS lamp of corresponding rating.
- Compact, easily controllable light source, suitable for use in small, lightweight luminaires.
- Easy to install and maintain.
- Instantaneous light after switch on.

TUNGSTEN HALOGEN LAMP CHARACTERISTICS

The theoretical extended life calculated from the curves below is not always realised in practice as many other causes influence this factor considerably, e.g. Vibration, Handling, Cleaning, Frequency of Switching, etc.

These curves are based on averages of many lamps and can only be used as an approximate guide to performance.

The tungsten halogen cycle

The slow evaporation of a tungsten filament in operation causes particles of tungsten to condense on the relatively cool walls of a conventional lamp, blackening the inside surface. The halogen added to the gas filling of a tungsten halogen lamp combines with the tungsten to form tungsten halide. By constructing the lamp in such a way that the wall temperature is kept above 250°C, the tungsten halide is prevented from condensing and is carried back into the vicinity of the filament.

The high temperature of the filament breaks down the tungsten halide into tungsten and halogen; the metallic tungsten is deposited on the filament and the halogen is released to repeat the cycle.

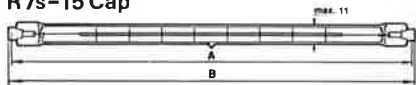
The result is that tungsten halogen lamps do not blacken, but emit their full light output throughout their working life.

BURNING POSITION

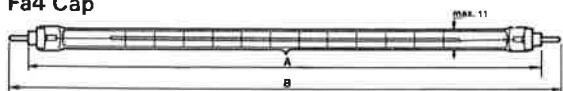


Horizontal $\pm 4^\circ$

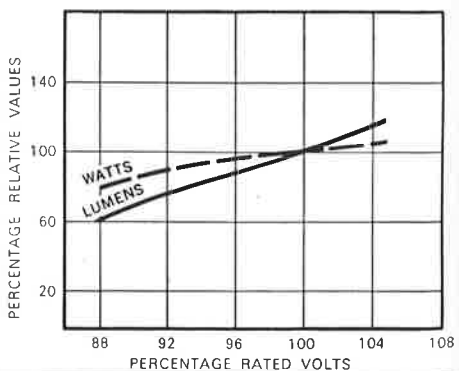
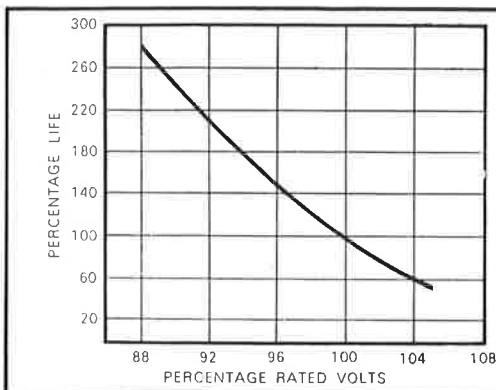
R7s-15 Cap



Fa4 Cap



Note: Dimension A (above) relates to electrical contact centres; Dimension B relates to overall length.



DIMENSIONS, ELECTRICAL & ORDERING DATA

Type	Catalogue Number	Lamp Watts W	Lamp Voltage V	Cap	Nominal Luminous Flux	Width (max.)	Dimensions (mm)		Packing quantity
							A	B max.	
K9	12113R	300	240/250	R7s-15	5,100	11	114.2 \pm 1.6	117.6	12 or 72
K1	7785R	500	120	R7s-15	10,000	11	114.2 \pm 1.6	117.6	12 or 72
K1	7785R	500	240/250	R7s-15	8,500	11	114.2 \pm 1.6	117.6	12 or 72
K3	12117R	750	240/250	R7s-15	15,500	11	185.7 \pm 1.6	189.1	12 or 72
K4	12013R	1000	120	R7s-15	22,000	11	185.7 \pm 1.6	189.1	12 or 72
K4	12013R	1000	240/250	R7s-15	22,000	11	185.7 \pm 1.6	189.1	12 or 72
K5	13021R	1500	240/250	R7s-15	33,000	11	250.7 \pm 1.6	254.1	12 or 72
K6	12110R	2000	240/250	Fa4	44,000	11	322.0 \pm 2.1	334.4	12 or 72

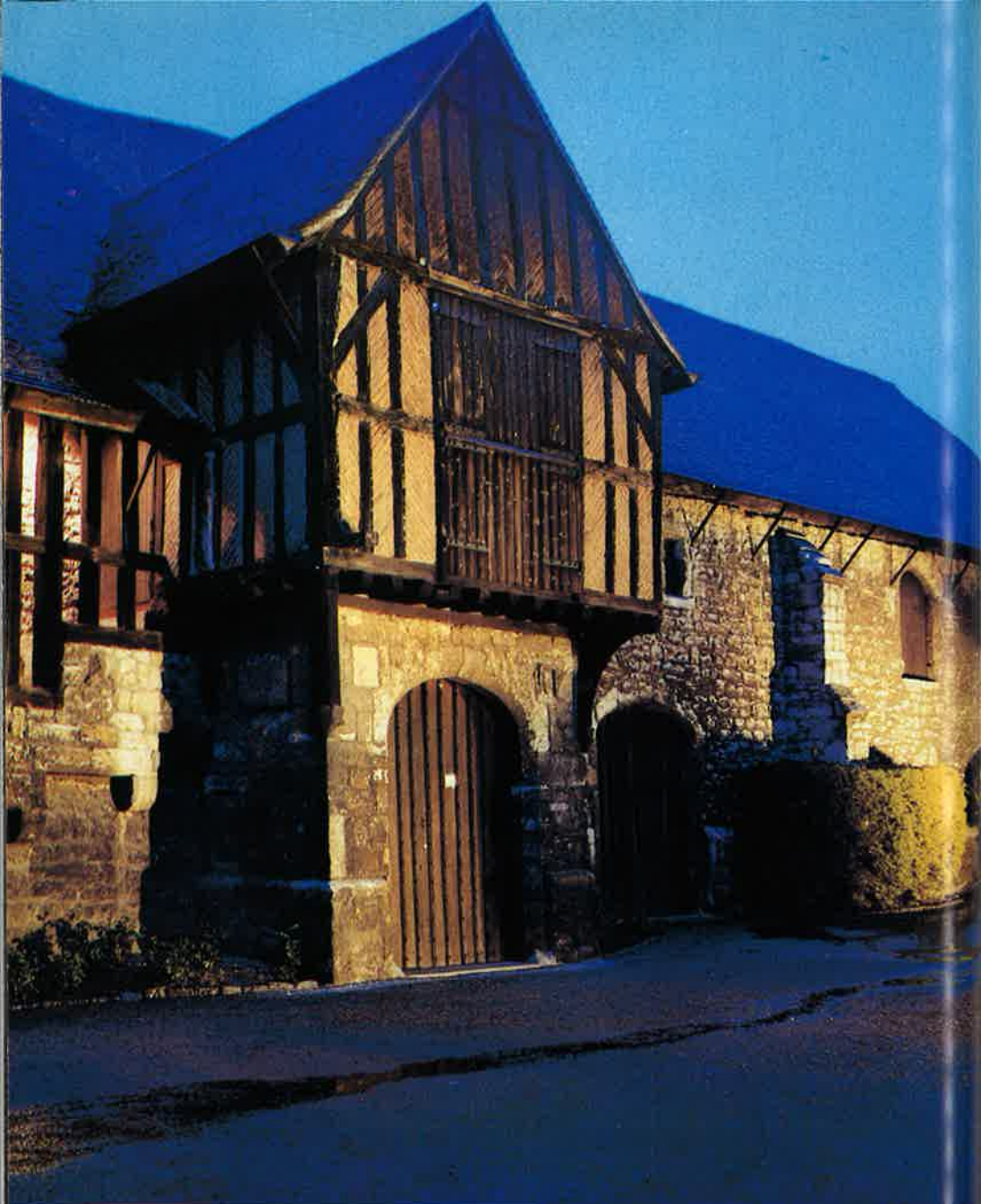
Please order in the form given in the following example, in multiples of the packing quantity:-

72 Philips tungsten halogen lamps 240V 500W Type

Made in Holland.



*Rufford Colliery : illuminated using
85 400W SON/T lamps in 40
HNF001 and 5 HNF003 fittings.
Total installed load only 37kW.*



Tyrwhitt - Drake Museum : This 14th century building uses 4 250W SON/T lamps in HNF003 luminaires for both economy and because the warm light enhances the fabric of the building.

CI/SIB (63.9)

UDC 696.6 : 628.94

SPECIAL SERVICE TYPES

incandescent lamps

A range of tungsten filament lamps manufactured for specific applications, or for special conditions of service.

RANGE

This Data Sheet covers lamps for rough service conditions; sign and coloured sign, pilot and indicator lamps, traffic signal; appliance; baker's oven and tungsten ballast lamps.

Details of traffic signal and Infra-red heat lamps are given on Data Sheets PL 1769 & PL 1805.

FEATURES

- **Quality:** Stringent quality control procedures and meticulous attention to cleanliness result in a high degree of uniformity to specification.
- **Safety:** Test and inspection procedures are geared to the safety of lamps in service.



Handbook Ref.

5.1.10

To reorder this data sheet quote 11.79 PL 1787 /1

Replaces

PL 1787



Rough Service

Rough Service

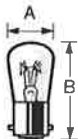
Rating	Dimensions (mm)		
	A	B	B
40W, 60W	60	103	104.5
100W	68	125	—

Rough Service—Reinforced internal construction gives increased resistance to filament breakage due to jolts and vibration. Suitable for use in hand inspection lamps, for industrial machine lighting and similar applications.

Sign

Rating	Dimensions (mm)				
	A	B	B	B	B
	(BC)	(ES)			
15W	28	57	63	60.5	64.5

Sign—A range of pygmy sign lamps with many applications.

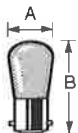


Sign

Internally Coloured Sign

Rating	Dimensions (mm)	
	A	B
15W	28	57

Internally Coloured Sign—Red, blue, white, green, yellow, pink and amber. The lamps may be used externally in suitable holders.

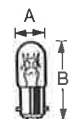


Internally Coloured Sign

Pilot

Rating	Dimensions (mm)			
	A	B	B	B
	(SBC)	(SES)	(E12)	
6/10W	20 (max)	40	46	46

Pilot—Small indicator lamps for many applications.

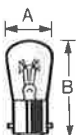


Pilot

Switchboard Indicator

Rating	Dimensions (mm)	
	A	B
10W	28	57

Switchboard Indicator—Special-purpose lamp, for telephone switchboard indication.



Switchboard Indicator

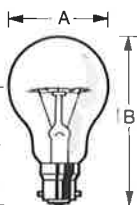
Traffic Signal

Rating	Dimensions (mm)	
	A	B
65W	60	104.5

Appliance

Rating	Dimensions (mm)		
	A	B	B
	(BC)	(ES)	
25W tubular	28.5	61 (max)	—
25W round	45	—	71
40W pear	45	—	90.5

Appliance—Special-purpose lamps, for use in cookers, and other appliances.



Traffic Signal

Baker's Oven

Rating	Dimensions (mm)	
	A	B
60W	60	103

Baker's Oven—Special design to withstand temperatures up to 450°F (232°C).

Tungsten Ballast

Rating	Dimensions (mm)	
	A	B
75W, 80W	60	103

Tungsten Ballast—Special-purpose lamps for series ballast in certain fluorescent fittings for 4ft 40W lamps. Replacement type only.

Dimensions are nominal

Wattage	Voltage	Cap	Finish	Packing quantity
40W	240/250V	BC, ES	Pearl	25
60W	240/250V	BC, ES	Pearl	25
100W	200/250V	BC, ES	Pearl	25
40W	110/120V	BC	Pearl	25
60W	110/120V	BC	Pearl	25
100W	110/120V	BC	Pearl	25

Wattage	Voltage	Cap	Finish	Packing quantity
15W	25V	BC	Clear	100
15W	50V	BC	Clear	100
15W	110V	BC, SBC, ES, SES	Clear	100
15W	120/130V	BC	Clear	100
15W	200/250V	BC, SBC, ES, SES	Clear	100

Wattage	Voltage	Cap	Finish	Packing quantity
15W	200/250V	BC	Internally coloured	100

Wattage	Voltage	Cap	Finish	Packing quantity
6W	100/130V	SBC, SES, E12	Clear	100
10W	200/250V	SBC, SES, E12	Clear	100

Wattage	Voltage	Cap	Finish	Packing quantity
10W	200/250V	BC	Clear	100

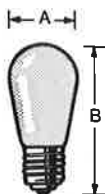
Wattage	Voltage	Cap	Finish	Packing quantity
65W	240V	ES	Clear	25

Wattage	Voltage	Cap	Finish	Packing quantity
25W tubular	240/250V	BC	Clear	100
25W round	240/250V	ES	Pearl	50
40W pear	240/250V	ES	Pearl	100

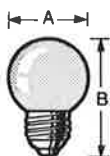
Wattage	Voltage	Cap	Finish	Packing quantity
60W	240V	BC	Clear	25

Wattage	Voltage	Cap	Finish	Packing quantity
75W	150V	3-pin BC	Argenta	25
80W	160V	3-pin BC	Argenta	25

Appliance



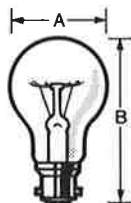
Pear



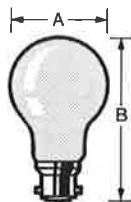
Round



Tubular



Bakers Oven



Tungsten Ballast

10

Effect of supply voltage on performance

In common with all tungsten filament lamps, the life expectancy and light output of special service lamps are highly dependent on supply voltage.

The data shown may be used as a guide to average performance, but factors such as frequency of switching, vibration and temperature exert a greater influence on expected results as voltage deviates further from the nominal.

GLS lamps may be operated in any position, but life expectancy may be reduced in positions other than cap-up.

PERFORMANCE DATA for tungsten filament special service lamps

Figure 1

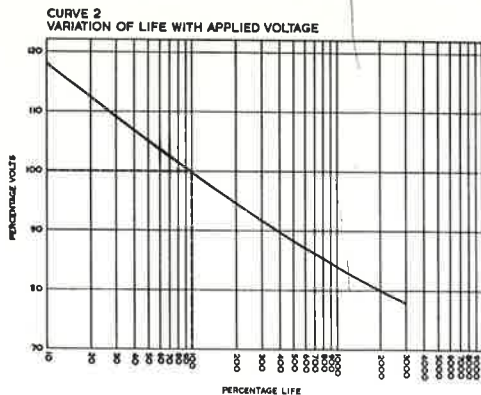
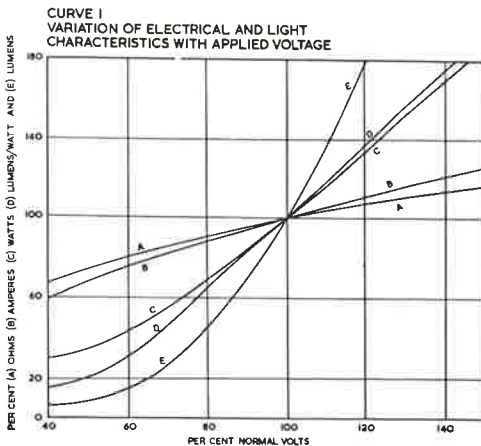


Figure 2



Lamps: Made in UK unless otherwise stated on packaging.

LAMPS

FLUORESCENT

Page

Guide to Fluorescent Lamp Colours	PL1784/1	327
Colour 84 MCFE84	PL1741/1	331
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GUIDE TO FLUORESCENT LAMP COLOURS

**Guide to Philips colours
Comparison of efficacy,
colour rendering index
and colour temperature**

LAMP CHARACTERISTICS

The 'white' light produced by a fluorescent lamp has three principal characteristics:

Efficacy – light output for power input (measured in lumens per Watt).

Colour rendering index – an index of the lamp's ability to render colour.

It ranges from 50 (representing the rendering of the original Warm White colour) to a maximum of 100 (the colour rendering obtained from a complete spectrum light source such as daylight or an incandescent lamp).

Correlated colour temperature – the colour appearance of a white lamp: derived from the colour temperature of the complete spectrum light source nearest in colour appearance to the lamp concerned. The 'temperature' is measured in Kelvin; 3000K is regarded as a warm colour and 4000K as cool in appearance. The colour temperature is not in any way related to the actual running temperature of the lamp, nor is it any guide to the colour rendering index of the lamp. For example, Cool White 33, Trucolor 37 and Colour 84 all have colour temperatures around 4000K; the colour rendering indices are 66, 98 and 85 respectively.



The phosphors of conventional fluorescent lamps are blended to a compromise between the ability to render colours well and efficacy. The choice of lamp depends on the intended application. Lamps in factories, for example, are generally not required to render colours well, but high efficacy is essential for minimum operating costs.

On the other hand, the efficacy of a lamp in a restaurant or social area is secondary to the creation of a pleasant atmosphere by means of good colour rendering.

In commercial applications such as offices and shops, colour fidelity and economical operation are of about equal importance; in dress shops, art galleries and design studios involved in colour matching, colour fidelity is of over-riding importance.

Colour 80 Series lamps, a Philips innovation, eliminate the compromise between good colour rendering and high efficacy. They combine the high efficacy associated with factory lamps with the good colour rendering of de Luxe lamps.

Guide to Fluorescent Lamp colours

Over the years, many lamp colours have been developed, with a wide choice of colour rendering indices and colour temperatures. In order to simplify stockholding by distributors, Philips recommend that emphasis be given to only three colours, which between them are capable of meeting the majority of fluorescent lighting requirements. The Philips three-lamp plan is symbolised in the diagram alongside.

The three first-choice lamps are shown below. The popular factory lamp, White 35, is now complemented by two Philips new-technology Colour 80 Series lamps; Colour 84 for commercial applications and Colour 83 for social applications.

Other lamp colours continue to be available, for use in situations where it is not possible to realise the full advantages of the Colour 80 Series at present. The nearest conventional



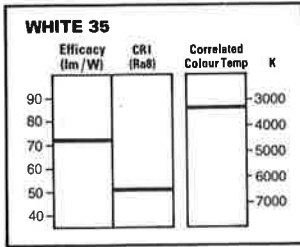
colour for a similar range of applications is listed underneath the preferred first-choice lamp colour. Specialist colours are required for certain applications. Two of these colours are listed on the next page.

Lamp colours - first choice

INDUSTRIAL

White 35

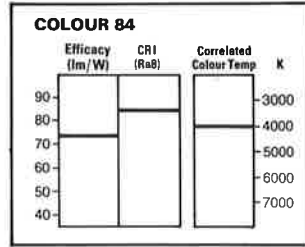
A high-efficacy lamp for use in factories, warehouses and similar installations where high output at low cost is the priority. Also available in batten packs.



COMMERCIAL

Colour 84

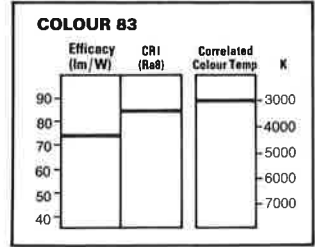
A Colour 80 Series lamp combining high efficacy with good colour rendering. Cool appearance for offices, shops and department stores. Helps to create a businesslike atmosphere.



SOCIAL

Colour 83

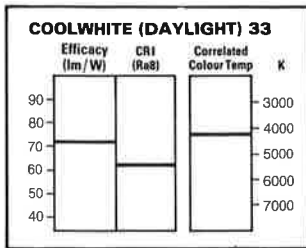
A Colour 80 Series lamp combining high efficacy with good colour rendering. Warm appearance for a relaxing, welcoming atmosphere in hotels, restaurants and other social areas, and for lighting fresh food.



Lamp colours - second choice

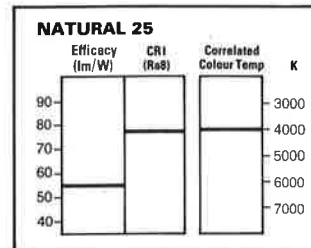
Cool White (Daylight) 33

Cool colour appearance and high light output. An early lamp colour now mainly used for street lighting; otherwise tending to be replaced by White 35.



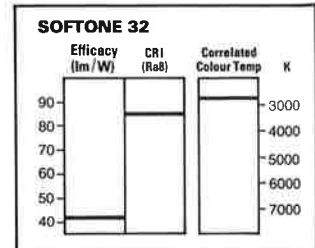
Natural 25

De Luxe colour rendering and cool colour appearance. Used in offices, shops and department stores. An early lamp colour, now tending to be replaced by Colour 84.



Softone 32

Warm appearance and good colour rendering. Used in restaurants, hotels and other social areas. An early lamp colour, now tending to be replaced by Colour 83.



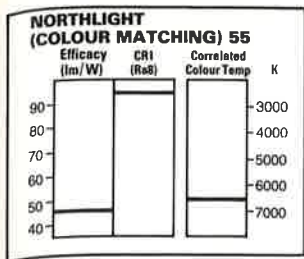
Warm White 29

Warm appearance and high light output. An early lamp colour still used in circular lamps; otherwise tending to be replaced by White 35 or Colour 83, depending on application.

Specialist colours

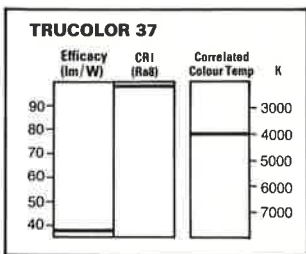
Northlight (Colour Matching) 55

A lamp of cold appearance (6500K) for critical appraisal of colour in the paint and dye industries. Complies with the visible spectrum requirements of BS 950 Part I, but does not include the optional UV component.



Trucolor 37

A cool lamp of the highest fidelity of colour rendering, for use in such applications as museums, art galleries and clinical areas in hospitals.



COLOUR 80 SERIES

(Colour 84 and Colour 83)

A phosphor with concentrated output in the middle of the visible spectrum has a high efficacy but poor colour rendering. Conversely, a phosphor with broad-band output has good rendering but must have a relatively low efficacy. This explains the compromise between efficacy and colour rendering index associated with conventional lamp colours.

With conventional lamps, therefore, the need to conserve energy conflicts with the desirability of good-quality lighting. Lamps have to be selected for the best compromise between light quality and quantity.

Colour 80 Series fluorescent lamps have special phosphor coatings (similar to Colour TV phosphors) with narrow bands of light output centred at wavelengths of about 450nm (blue), 540nm (green) and 610nm (red). These phosphors have been carefully blended for a high colour rendering index, and the concentration of energy in the narrow bands gives a light output higher than that associated with conventional high-efficacy lamps.

The significance of the Philips Colour 80 Series is that the compromise between colour rendering and efficacy has been eliminated. Since all Colour 80 Series lamps are high efficacy and have good colour rendering abilities, the specifier is able to make a choice based on colour appearance (warm or cool) alone.

High colour rendering index of Colour 80 Series lamps compared with ordinary high-efficacy (factory) lamps improves visual clarity, enhancing lighting quality and sometimes enabling light level for comfortable working to be reduced and hence saving energy.

High light output of Colour 80 Series lamps compared with ordinary 'de Luxe' lamps enables number of luminaires to be reduced – typically by up to 30 per cent – in many applications, with corresponding savings in running and maintenance costs.

TLD POWERSLIMMER SERIES (TLD 84, TLD 83)

Powerslimmer TLD is a new range of 26mm diameter krypton-filled fluorescent lamps that can be used as direct replacements for equivalent standard argon-filled 38mm diameter fluorescent lamps in switchstart circuits, and without modification to the circuit or control gear components. Lamps, with a reduction of circuit

power consumption of 8-10 per cent. The lamps are available in 18W 600m, 36W 1200mm and 58W 1500mm ratings, to replace 20W, 40W and 65W 38mm lamps respectively, and with the phosphors Colour 84, Colour 83.

Powerslimmer TLD lamps with krypton filling, compared with equivalent 38mm argon-filled lamps, give about the same light for a circuit power saving of 8-10 per cent.

Powerslimmer TLD lamps fit directly into equivalent standard switchstart luminaires, and power saving is obtained without circuit modifications.

The smaller diameter (26mm) saves 40 per cent in transport and storage space.

The smaller diameter permits the design of smaller, more elegant luminaires.

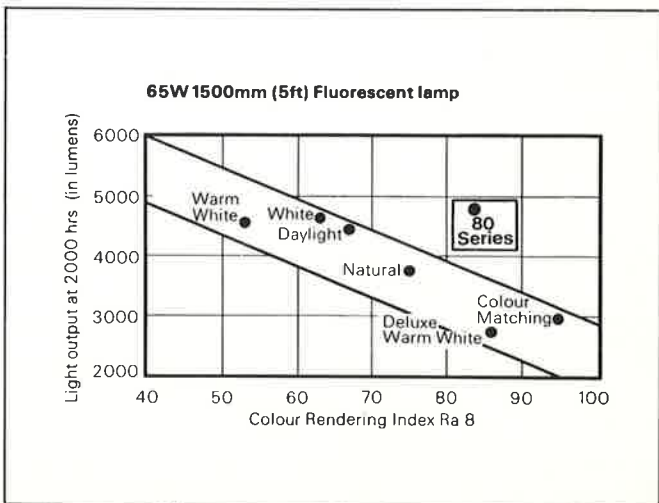


TABLE OF LIGHT OUTPUT, COLOUR RENDERING INDEX & COLOUR TEMPERATURE

The Lumen figures in the table below provide a guide to the comparative efficacies of the various lamp colours. The inclusion of a value is a guide to, but not confirmation of, availability. The figures are Lighting Design Lumens (LDL), average values measured at 2000 hours under BS conditions and used in lighting design calculations.

Prefix/ dia.	Rating	First choice colours			Second choice colours			Specialist colours		
		Colour 84	Colour 83	White 35	Natural 25	Softone 32	Warm White 29	Cool White (Daylight) 33	Trucolor 37	Northlight (Colour Matching) 55
	Correlated colour temperature (K)	4000	3000	3360	4000	2900	2855	4080	4000	6500
	Colour rendering index (Ra8)	85	85	58	77	65	51	62	98	95
MCFE 38mm	125W 2400mm (8ft)	9400	9400	8900	7000	5000	8800	8800	—	5600
	85W 2400mm (8ft)	7200	7200	6800	5300	4000	6700	6500	—	—
	75/85W 1800mm (6ft)	6300	6300	6100	4400	3400	6100	5800	—	3800
	65/80W 1500mm (5ft)	4900	4900	4700	3500	2800	4600	4500	2500	3000
	40W 1200mm (4ft)	3000	3000	2800	2200	1800	2800	2800	1500	1900
	40W 600mm (2ft)	—	—	1700	1400	—	1700	1700	—	1200
MCFE 26mm	20W 600mm (2ft)	1200	1200	1100	850	700	1100	1100	600	750
	30W 900mm (3ft)	—	—	2200	1700	1200	2200	2200	—	2300
Power- slimmer 26mm	15W 450mm (18in)	—	—	800	700	500	800	800	—	—
	58W 1500mm (5ft)	4900	4900	—	—	—	—	—	—	—
TL 16mm	36W 1200mm (4ft)	3000	3000	—	—	—	—	—	—	—
	18W 600mm (2ft)	1200	1200	—	—	—	—	—	—	—
TL 16mm	13W 525mm (21in)	—	—	800	—	600	800	800	—	—
	8W 300mm (12in)	—	—	400	—	300	400	400	—	—
	6W 225mm (9in)	—	—	250	—	—	250	250	—	—
	4W 150mm (6in)	—	—	—	—	—	150	150	—	—

Notes:

- 75/85W lamps: LDL measured at 85W (output is approximately 10% lower at 75W).
- 65/80W lamps: LDL measured at 65W (output is approximately 10% higher at 80W).

CIRCULAR FLUORESCENT LAMPS

Type	Rating/ nominal dia.	Warm White 29
TLEK 60W/29	60W 415mm	3400
TLE 40W/29	40W 415mm	2480
TLEM 40W/29	40W 415mm	2480
TLE 32W/29	32W 315mm	1670
TLE 22W/29	22W 215mm	840

DATA SHEET REFERENCE

Full details of Philips fluorescent lamps are contained in the following Data Sheets:

Lamp type	Data Sheet
MCFE Colour 84	PL 1741
MCFE Colour 83	PL 1885
MCFE White 35	PL 1781

MCFE Natural 25	PL 1780
MCFE Softone 32	PL 1783
MCFE Cool White (Daylight) 33	PL 1781
MCFE Warm White 29	PL 1781
MCFE Trucolor 37	PL 1782
MCFE Northlight (Colour Matching) 55	PL 1773
TLD Powerslimmer 84 & 83	PL 1847

MCFRE/MCFRA Reflectalite	PL 1762
TL 16mm miniature lamps	PL 1763
Circular lamps	PL 1794

EQUIVALENTS LIST

Other make	PHILIPS LAMPS
White	White 35
Warm White	Colour 83 or Warm White 29
Daylight	Colour 84 or Coolwhite (Daylight) 33
Natural	
De Luxe Natural	Colour 84 or Natural 25
Plus White	
De Luxe Warm White	Colour 83 or Softone 32
Warmtone	
Kolor-rite	Trucolor 37
Colour Matching	
Northlight	Northlight (Colour Matching) 55 (BS 950 Part I, visible part, not UV)
Artificial Daylight	

Lamps of different makes should not normally be mixed in an installation. When Philips lamps are being used to replace other types in an existing installation, the guide indicates a lamp that is approximately equivalent. The Philips lamp may be of higher output or improved colour rendering. The correct approach is not to seek a match, but to decide which of the Philips lamps is the best one for the particular application.

CI/SIB
(63.1)

UDC
696.6 : 628.972

COLOUR 84 MCFE 84

High-output fluorescent lamps with high Colour Rendering Index

Colour 84 fluorescent lamps have three narrow bands of light output centred at wavelengths of about 450nm (blue), 540nm (green) and 610nm (red). These wavelengths have been carefully chosen for a high colour rendering index, and the concentration of energy in the narrow bands gives a light output in excess of that normally associated with high efficiency lamps. The mix of phosphors is chosen to give a colour temperature of 4,000K.

RANGE

Available in the following ratings:

MCFE 20W/84 600mm (2ft),
MCFE 30W/84 900mm (3ft)*
MCFE 40W/84 1200mm (4ft),
MCFE 65/80W/84 1500mm (5ft),
MCFE 75/85W/84 1800mm (6ft),
MCFE 85W/84 2400mm (8ft),
MCFE 125W/84 2400mm (8ft).

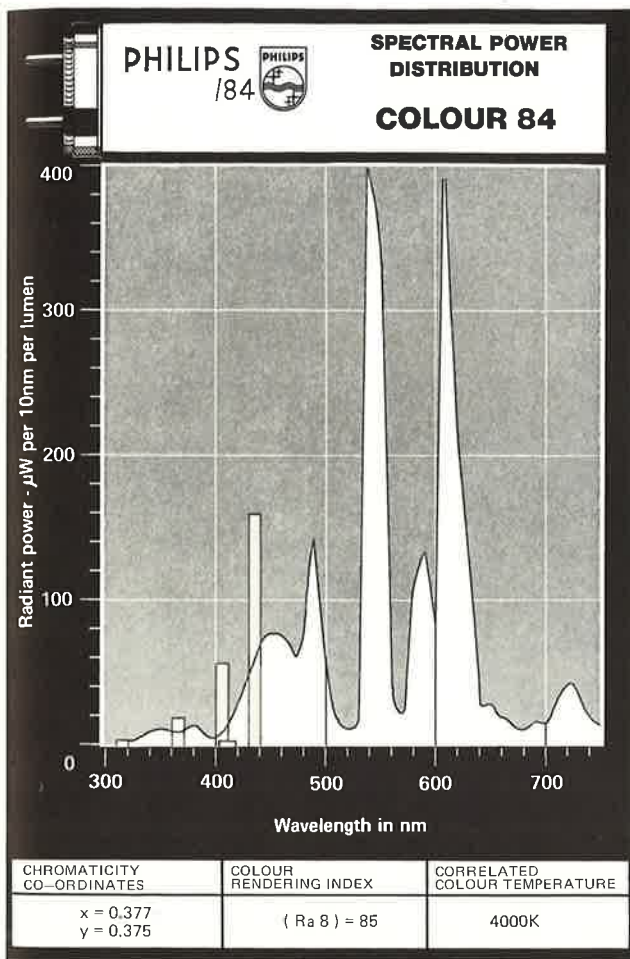
MCFE lamps are for general UK use.
*26mm dia. Others are 38mm dia.

Note: Colour 84 lamps are also made as TLH in sizes of 1200mm (4ft) and 1500mm (5ft) containing an amalgam of indium to maintain light output in high ambient temperatures such as may occur inside enclosed luminaires (Prefix TLH lamps - see Data Sheet PL 1742).

APPLICATIONS

Suitable for use wherever high-efficacy lamps with good colour rendering are appropriate, e.g.:

- Department stores, especially in food and fashion areas
- Retail shops
- General offices
- Board rooms and individual offices



Handbook Ref.

6.22

To reorder this data sheet quote 9.79 PL 1741/1

Replaces PL 1741

FEATURES

- High light output for comparable CRI enables number of luminaires to be reduced by over 30% in many applications, giving large savings in maintenance and running costs.
- High colour rendering index improves visual clarity, enabling light level for comfortable working to be reduced and effecting further economies.
- Low-efficacy lamps with high colour rendering indices, can often be replaced by MCFE 84 lamps on a one-for-two basis, giving a 50% reduction in energy consumption without reducing the overall lighting level.

MATERIALS & FINISH

Tubing: 38mm diameter glass with externally applied silicone coating

Phosphors: New generation Colour 84 coating

SPECIFICATION

■ Type compliance with BS 1853 where applicable.

To specify state:

High-efficacy (not less than 75 lm/W, 65W rating) fluorescent lamp with correlated colour temperature of 4,000K, and colour rendering index not less than 85, substantially as Philips MCFE 84.

RANGE OF OPERATION

Replacement for ordinary fluorescent lamps with conventional phosphors.

LAMP DATA

Correlated colour temperature: 4,000K

Colour rendering index (Ra 8): 85

Chromaticity co-ordinates: $x = 0.377$
 $y = 0.375$

All lamps are MCFE type, with bi-pin caps, and silicone coating, for use in switchstart or starterless circuits.

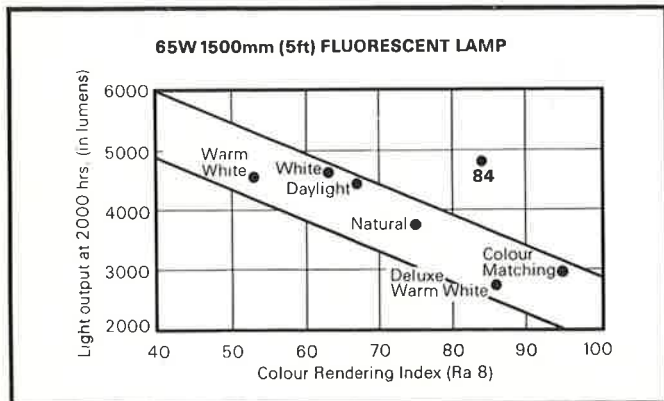
ORDERING DATA

Catalogue No.	Nominal length	Lighting Design Lumens*	Packing quantity
MCFE 20W/84	600mm (2ft)	1200	25
MCFE 30W/84	900mm (3ft)	2350	25
MCFE 40W/84	1200mm (4ft)	3000	25
MCFE 65/80W/84	1500mm (5ft)	4900	25
MCFE 75/85W/84	1800mm (6ft)	6300	25
MCFE 85W/84	2400mm (8ft)	7200	20
MCFE 125W/84	2400mm (8ft)	9400	20

*Lighting Design Lumens (LDL), measured at 2,000 hours, the value used for lighting design purposes.

Please order lamps in the form given in the following example, in multiples of the packing quantity:-

100 Philips fluorescent lamps MCFE 40W/84



Colour 84 lamps combine high output with high CRI

Made in Great Britain

CI/SIB (63.9)

UDC 696.6:628.94

COLOUR 84

with amalgam TLH 84

**Colour 84 fluorescent lamp
with maintained performance
at elevated temperatures
inside luminaires**

A range of indium amalgam lamps which maintain high efficiency at elevated temperatures (such as are reached within enclosed luminaires) and provide the high colour rendering of the Colour 84 three phosphor mix.

RANGE

Available in the following ratings:

TLH 40W/84 1200mm (4ft)

TLH 65/80W/84 1500mm (5ft)

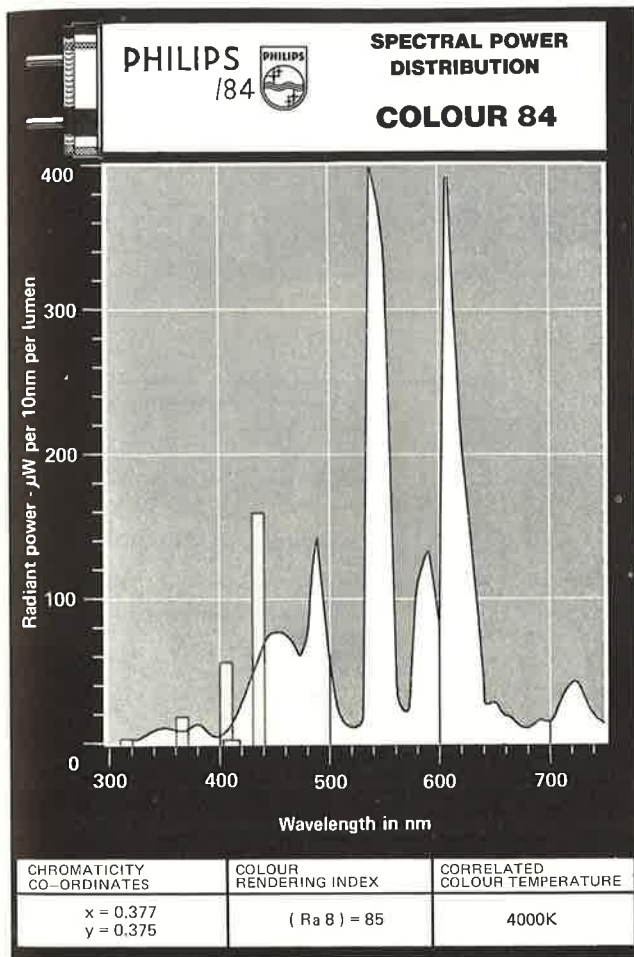
switchstart circuits only.

Note: MCFE 84 lamps non-amalgam are available in a full replacement range up to 125W 2400mm (8ft), for use in switchstart or starterless circuits—see Data Sheet PL 1741.

APPLICATIONS

Suitable for use wherever a high-efficacy lamp with good colour rendering is appropriate, particularly where enclosed luminaires are used, in situations such as:

- Department stores, especially in food and fashion areas
- Retail shops
- General offices
- Board rooms and individual offices



Handbook Ref

6.23

To reorder this data sheet quote 9.79 PL 1742/1

Replaces PL 1742

FEATURES

TLH 84 lamps are manufactured with deposits of indium near one electrode, and a precisely-controlled quantity of mercury.

The mercury forms an amalgam with the indium, which has the property of controlling the mercury vapour pressure. As a result, the light output of the lamp does not fall off as rapidly with temperature rise as does that of an ordinary lamp (see Figure 2). The 'amalgam factor' is a function of the luminaire, and varies from unity for an open luminaire to about 1.3 for a highly enclosed luminaire. The amalgam factor for a typical 2 x 65W enclosed luminaire (such as the Philips A1715S Finesse) is about 1.15, i.e. a gain in light output of 15% if amalgam lamps are used instead of ordinary types (see Fig. 4). This gain, due to the amalgam, is in addition to the gain due to the Colour 84 three phosphor. In addition, amalgam (TLH 84) lamps possess all the advantages of the non-amalgam (MCFE) Colour 84 range, including:-

- High light output for comparable CRI (see Fig. 3) enables number of luminaires to be reduced by over 30% in many applications, giving large savings in maintenance and running costs.

- High colour rendering index improves visual clarity, enabling light level for comfortable working to be reduced and effecting further economies.

- Low-efficacy lamps with high colour rendering indices, can often be replaced by Colour 84 lamps on a one-for-two basis, giving a 50% reduction in energy consumption without reducing the overall lighting level.

New schemes

The amalgam factor of enclosed luminaires specified for new schemes should be applied to the calculations. Fewer luminaires can be used for a given lighting level, reducing installation costs and saving energy.

Existing schemes

Amalgam lamps can be used in existing enclosed luminaires to give an increase in lighting level. Alternatively, fewer lamps can be used in some multi-lamp luminaires, giving a reduced energy bill for the same lighting level.

ORDERING DATA

Catalogue No.	Nominal length	Lighting Design Lumens*	Packing quantity
TLH 40W/84	1200mm (4ft)	3000	25
TLH 65/80W/84	1500mm (5ft)	4900	25

*Lighting Design Lumens (LDL), measured at 2,000 hours, the value used for lighting design purposes.

Please order lamps in the form given in the following example, in multiples of the packing quantity:-
50 Philips fluorescent lamps TLH 40W/84

LAMP DATA

Correlated colour temperature: 4,000K
Colour rendering index (Ra 8): 85
Chromaticity co-ordinates: $x = 0.377$
 $y = 0.375$

All lamps have bi-pin caps and are for use with switchstart circuits only.

SPECIFICATION

- Type compliance with BS 1853 where applicable.

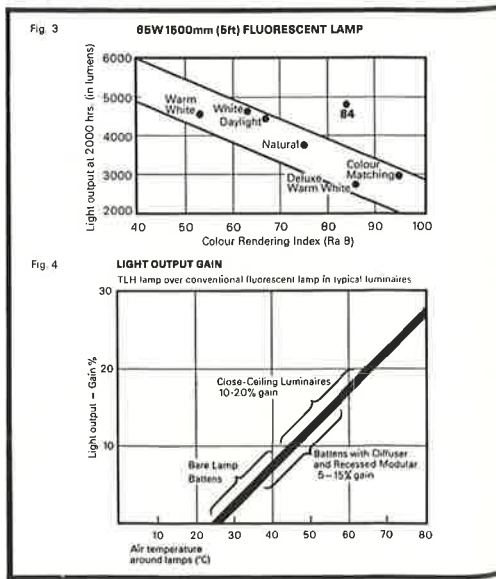
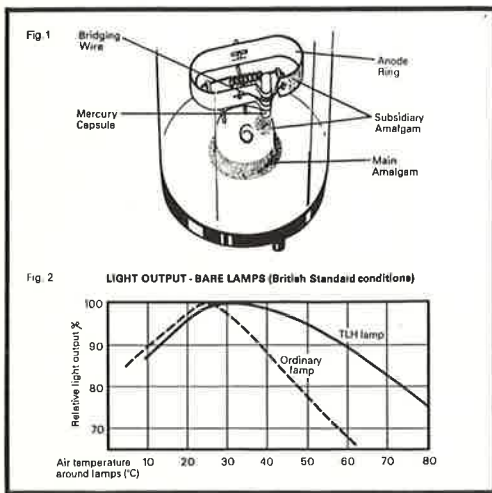
To specify state:

High-efficacy fluorescent lamp with indium amalgam, correlated colour temperature of 4,000K and colour rendering index not less than 85, substantially as Philips TLH 84.

RANGE OF OPERATION

Replacement for ordinary fluorescent lamps with conventional phosphors used in switchstart circuits.

Made in Holland



CI/SIB (63.9)

UDC 696.6:628.94

WHITE 35 WARM WHITE 29 COOL WHITE (DAYLIGHT) 33 FLUORESCENT LAMPS

A range of lamps for installations where high lumen output at low cost is the primary consideration, and where 'De Luxe' colour rendering is not required.

Except where their colours are specifically needed, both Warm White 29 and Cool White (Daylight) 33 are tending to be replaced by White 35.

APPLICATIONS

White 35

A 'High Efficacy' lamp for use in factories, warehouses and similar applications where high light output at low lamp cost is the main requirement. White 35 is the lamp normally supplied in batten packs.

Warm White 29

A 'High Efficacy' lamp with a warmer colour appearance than White 35.

Cool White (Daylight) 33

A 'High Efficacy' lamp with a cooler colour appearance than White 35; now mainly used for road lighting. Previously known as Daylight 33.

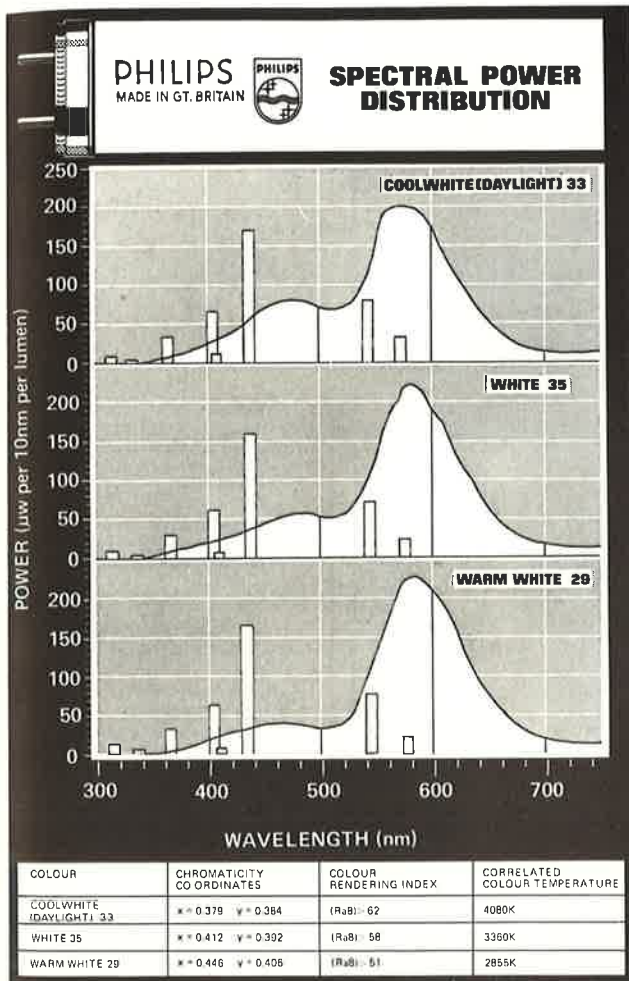
RANGE

A list of nominal lengths and ratings, together with the colours available in each rating, is given in the Ordering Data on the back page of this Data Sheet.

FEATURES

- 'High Efficacy' lamps provide high lumen output and moderate colour rendering at low cost.
- Carefully selected grain size of phosphors maintains light output at a high level.

A lamp with improved colour rendering, such as Colour 84 or Natural 25, is generally more suitable for replacement into installations in offices and shops.



Handbook Ref.

6.24

To reorder this data sheet quote 9.79 PL1781/1

Replaces

PL No. 1781

White 35

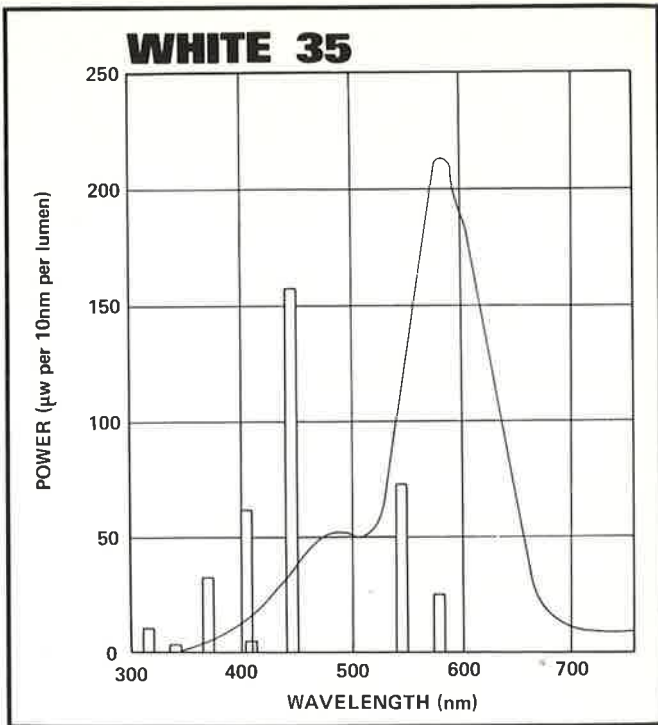
The most popular fluorescent lamp colour for applications in which 'High Efficacy' lamps are used. The colour appearance is intermediate between Warm White 29 and Cool White (Daylight) 33. Main applications are in manufacturing and assembly plants, store rooms and loading bays.

Correlated colour temperature: 3360K

Colour rendering index (Ra8): 58

Chromaticity co-ordinates: $x=0.412$

$y=0.392$



LIGHT OUTPUT

LDL represents Lighting Design Lumens, the lumen value (at 2000 hours) used for lighting design purposes.

WHITE 35

Catalogue Number	Nominal dimensions	LDL
MCFE 125W/35	2400 x 38mm (8ft. x 1½in.)	8900
MCFE 85W/35	2400 x 38mm (8ft. x 1½in.)	6800
MCFE 75/85W/35	1800 x 38mm (6ft. x 1½in.)	6100*
MCFE 65/80W/35	1500 x 38mm (5ft. x 1½in.)	4700**
MCFE 80W/35	1500 x 38mm (5ft. x 1½in.)	4900
MCFE 40W/35	1200 x 38mm (4ft. x 1½in.)	2800
MCFE 40W/35†	600 x 38mm (2ft. x 1½in.)	1700
MCFE 20W/35	600 x 38mm (2ft. x 1½in.)	1100
MCFE 30W/35	900 x 26mm (3ft. x 1in.)	2200
MCFE 15W/35	450 x 26mm (18 x 1in.)	800
TL 13W/35	525 x 16mm (21 x ¾in.)	800
TL 8W/35	300 x 16mm (12 x ¾in.)	400
TL 6W/35	225 x 15mm (9 x ¾in.)	250

WARM WHITE 29, COOL WHITE (DAYLIGHT) 33

Catalogue Number	Nominal dimensions	LDL W.White 29	LDL Cool White (Daylight) 33
MCFE 125W/..	2400 x 38mm (8ft. x 1½in.)	8900	8800
MCFE 85W/..	2400 x 38mm (8ft. x 1½in.)	6700	6500
MCFE 75/80W/..	1800 x 38mm (6ft. x 1½in.)	6100*	5800*
MCFE 65/80W/..	1500 x 38mm (5ft. x 1½in.)	4800**	4700**
MCFE 40W/..	1200 x 38mm (4ft. x 1½in.)	2800	2800
MCFE 40W/..†	600 x 38mm (2ft. x 1½in.)	1700	1700
MCFE 20W/..	600 x 38mm (2ft. x 1½in.)	1100	1100
MCFE 30W/..	900 x 26mm (3ft. x 1in.)	2150	2150
MCFE 15W/..	450 x 26mm (18 x 1in.)	750	750
TL 13W/..	525 x 16mm (21 x ¾in.)	800	800
TL 8W/..	300 x 16mm (12 x ¾in.)	400	400
TL 6W/..	225 x 16mm (9 x ¾in.)	225	225
TL 4W/..	150 x 16mm (6 x ¾in.)	150	150

* LDL measured at 85W.

** LDL measured at 65W.

Some ratings are also available in MCFA versions, with earth strip (see page 4).

† State length when ordering (600mm).

.. Insert lamp colour required (29 or 33).

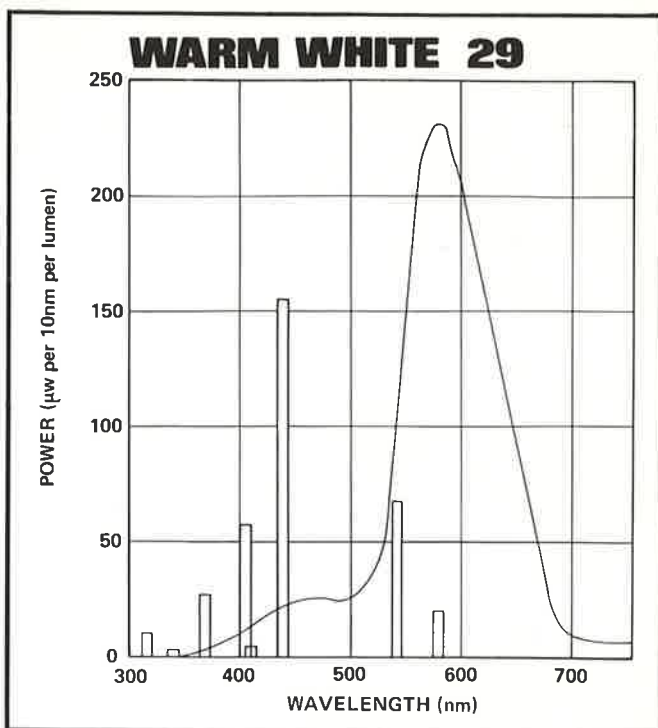
Warm White 29

One of the original fluorescent lamp colours, of warm appearance. Now tending to be replaced by White 35 in industry and by Colour 84 in shops and offices.

Correlated colour temperature: 2855K

Colour rendering index (Ra8): 51

Chromaticity co-ordinates: $x=0.446$
 $y=0.406$



Cool White (Daylight) 33

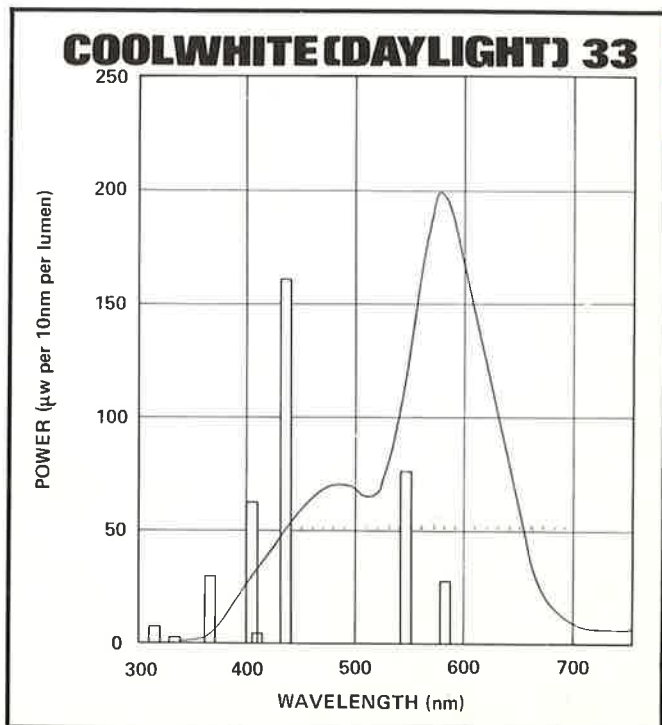
One of the original fluorescent lamp colours of cool appearance. Cool White (Daylight) 33 is used mainly in heavy industry and in loading bays, and is of a colour appearance specified for road lighting.

Except where specifically required for its cool appearance, Cool White (Daylight) 33 should be replaced by White 35.

Correlated colour temperature: 4080K

Colour rendering index (Ra8): 62

Chromaticity co-ordinates: $x=0.379$
 $y=0.384$



DIMENSIONS & ELECTRICAL DATA

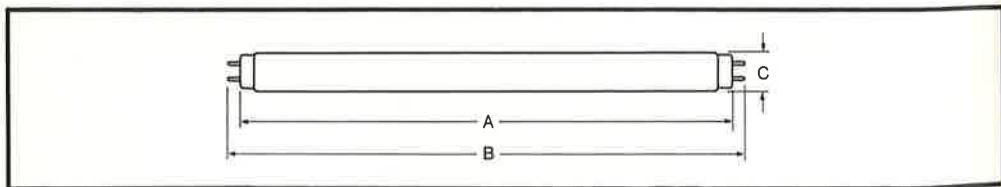
Nominal Rating	B.S. lamp power (W)	B.S. lamp volts (V)	B.S. lamp current (l)	Maximum dimensions		Diameter (C) mm	Approx. Weight g
				Face-to-Face length (A) mm	Overall length (B) mm		
125W 2400mm (8ft)	123	149	0.94	2374.9	2389.1	40.5	610
85W 2400mm (8ft)	84	120	0.80	2374.9	2389.1	40.5	610
75/85W 1800mm (6ft)*	84	120	0.80	1763.8	1778.0	40.5	451
65/80W 1500mm (5ft)**	64	110	0.67	1500.0	1514.2	40.5	360
40W 1200mm (4ft)	39.5	103	0.43	1199.4	1213.6	40.5	292
40W 600mm (2ft)	39.5	103	0.43	589.8	604.0	40.5	156
30W 900mm (3ft x 1in)	30.0	96	0.365	894.6	908.8	28.0	145
20W 600mm (2ft)	19.3	57	0.37	589.8	604.0	40.5	156
15W 450mm (18in x 1in)	14.9	46	0.36	460.0	474.2	28.0	76

NOTES: All above lamps have bi-pln cap G13

*at 85W

**at 65W

The dimensions and electrical data for circular and miniature tubular fluorescent lamps are given on the appropriate data sheets (PL 1794 and PL 1763).



ORDERING DATA

Catalogue No.	Nominal length	Colours available	Packing quantity
MCFE 125W/..	2400mm (8ft)	35, 29, 33	20
MCFE 85W/..	2400mm (8ft)	35, 29, 33	20
MCFE 75/85W/..	1800mm (6ft)	35, 29, 33	25
MCFE 80W/..-BC	1500mm (5ft)	35, 29, 33	25
MCFE 80W/..-BC	1500mm (5ft)	35	25
MCFE 65/80W/..	1500mm (5ft)	35, 29, 33	25
MCFE 65/80W/..	1500mm (5ft)	35	25
MCFE 40W/..	1200mm (4ft)	35, 29, 33	25
MCFE 40W/..	1200mm (4ft)	35, 33	25
MCFE 40W/..†	600mm (2ft)	35, 29, 33	25
MCFE 20W/..	600mm (2ft)	35, 29, 33	25
MCFE 40W/..†	600mm (2ft)	35, 33	25
MCFE 30W/..	900mm (3ft x 1in)	35, 29, 33	25
MCFE 30W/..	900mm (3ft x 1in)	35	25
MCFE 20W/..	600mm (2ft)	35	25
MCFE 15W/..	450mm (18in x 1in)	35, 29, 33	25
MCFE 15W/..	450mm (18in x 1in)	35	25
TL 13W/..	525 x 16mm (21in)	35, 29, 33	25
TL 8W/..	300 x 16mm (12in)	35, 29, 33	25
TL 6W/..	225 x 16mm (9in)	35, 29, 33	25
TL 4W/..	150 x 16mm (6in)	29, 33	25

.. Insert colour number for lamp colour required (35, 29, 33).

†Length must be specified when ordering (600mm).

Please order in the form given in the following example, in multiples of the packing quantity:-

100 Philips MCFE 125W/35 fluorescent lamps.

Note: MCFE lamps are suitable for switch-start and starterless operation and are silicone-coated. Some ratings are available in MCFE form, with an external earth strip; also for switch-start and starterless operation. TL lamps (16mm diam.) are for switchstart circuits only.

OTHER LAMPS

Lamps are also available in most 38mm ratings in Reflectalite form, in which an internal reflector directs light downwards and thereby reduces light loss caused through dust (see Leaflet PL 1762).

MCF 100W lamp available in White 35. A TLM 140W lamp is available in Cool White (Daylight) 33.

Circular lamps are available in Warm White 29 (Data Sheet PL 1794).

Made in Great Britain

30W rating and below in 25/16 mm dia.
Made in Holland

CI/SfB (63.9)

UDC 696.6:628.94

NATURAL 25

Including Data on Colour 34
Fluorescent lamps

Natural 25 is a lamp of cool appearance, with improved colour rendering compared with white lamps, and with higher output than ordinary DeLuxe lamps.

APPLICATIONS

Natural 25 is especially suitable for lighting offices, shops and department stores, where it helps to create a cool and business-like atmosphere.

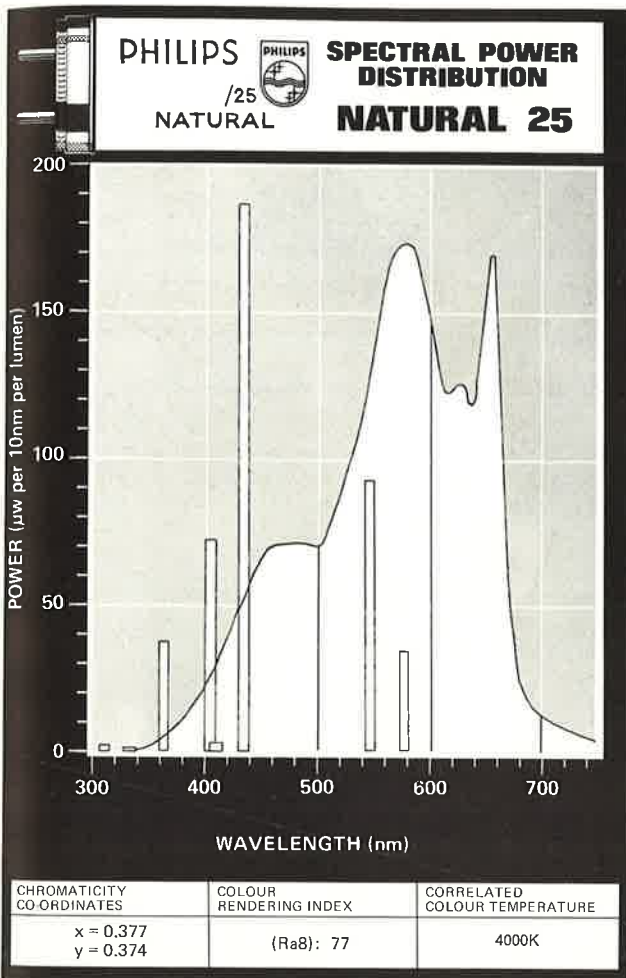
RANGE

Available in the following ratings:

- MCFE 125W/25 2400mm (8ft)
- MCFE 85W/25 2400mm (8ft)
- MCFE 65/80W/25 1500mm (5ft)
- MCFE 40W/25 1200mm (4ft)
- TLD 30W/25 900mm (3ft)
- MCFE 20W/25 600mm (2ft)
- MCFE 40W/25 600mm (2ft)
- MCFE 15W/25 450mm (18in.)

Note: Where new lighting installations are being planned, consideration should be given to the use of "third-generation" lamps such as Colour 84. Colour 84 has a higher output than ordinary DeLuxe lamps, and offers economies in numbers of luminaires and energy consumption.

PHILIPS  SPECTRAL POWER DISTRIBUTION
/25
NATURAL **NATURAL 25**



11

Handbook Ref.

6.25

To reorder this data sheet quote 9.79 PL 1780/1

Replaces PL 1780

NATURAL 25

FEATURES

- Cool appearance creates a pleasant, businesslike atmosphere.
- Improved colour as rendering required for modern decoration schemes.
- Improved facial colour rendering: important for female staff and customers.

COLOUR DATA

Correlated colour temperature: approx. 4000K

Colour rendering index (Ra8): 77

Chromaticity co-ordinates: $x=0.377$
 $y=0.374$

LAMP DATA—NATURAL 25

LDL represents Lighting Design Lumens, the lumen value (at 2000 hours) used for lighting design purposes. All MCFE lamps are silicone-coated types, for switchstart and starterless circuits. TLD lamps are for switchstart circuits only.

Ordering reference	Nominal dimensions	LDL	Packing quantity
MCFE 125W/25	2400 x 38mm (8ft x 1½in.)	7000	20
MCFE 85W/25	2400 x 38mm (8ft x 1½in.)	5300	20
MCFE 75/85W/25	1800 x 38mm (6ft x 1½in.)	4700*	25
MCFE 65/80W/25	1500 x 38mm (5ft x 1½in.)	3600**	25
MCFE 40W/25	1200 x 38mm (4ft x 1½in.)	2300	25
MCFE 40W/25 600mm†	600 x 38mm (2ft x 1½in.)	1400	25
TLD 30W/25	900 x 26mm (3ft x 1in.)	1700	25
MCFE 20W/25	600 x 38mm (2ft x 1½in.)	850	25
MCFE 15W/25	900 x 26mm (3ft x 1in.)	700	25

Notes:— *Measured at 85W.

†Length must be stated when ordering.

**Measured at 65W.

COLOUR 34

Colour 34 has a slightly warmer appearance than Natural 25, and also slightly improved colour rendering, though at somewhat lower lumen output. This lamp is being superseded in most general-purpose applications by Natural 25 or Colour 84.

COLOUR DATA

Correlated colour temperature: approx. 3700K

Colour rendering index: (Ra8): 91

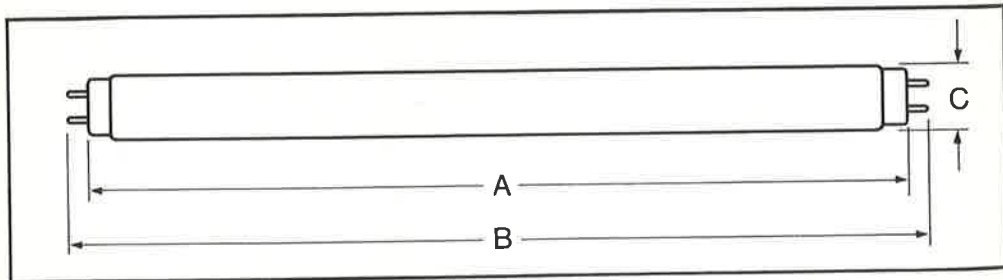
Chromaticity co-ordinates: $x=0.390$
 $y=0.369$

LAMP DATA—COLOUR 34

LDL represents Lighting Design Lumens, the lumen value (at 2000 hours) used for lighting design purposes. All MCFE lamps are silicone-coated, for use in switchstart and starterless circuits.

Ordering reference	Nominal dimensions	Packing quantity
MCFE 125W/34	2400 x 38mm (8ft x 1½in.)	20
MCFE 85W/34	2400 x 38mm (8ft x 1½in.)	20
MCFE 75/85W/34	1800 x 38mm (6ft x 1½in.)	25
MCFE 65/80W/34	1500 x 38mm (5ft x 1½in.)	25
MCFE 40W/34	1200 x 38mm (4ft x 1½in.)	25
MCFE 30W/34	900 x 25mm (3ft x 1in.)	25
MCFE 20W/34	600 x 38mm (2ft x 1½in.)	25

Note:— Lumen output as for Colour Matching 55 (see data sheet PL 1773).



LAMP DIMENSIONS & ELECTRICAL DATA

Nominal Rating	B.S. lamp power (W)	B.S. lamp volts (V)	B.S. lamp current (I)	Maximum dimensions			Approx. Weight (g)
				Face-to-Face length (A) mm	Overall length (B) mm	Diameter (C) mm	
125W 2400mm (8ft)	123	149	0.94	2374.9	2389.1	40.5	610
85W 2400mm (8ft)	84	120	0.80	2374.9	2389.1	40.5	610
75/85W 1800mm (6ft)*	84	120	0.80	1763.8	1778.0	40.5	451
65/80W 1500mm (5ft)**	64	110	0.67	1500.0	1514.2	40.5	360
40W 1200mm (4ft)	39.5	103	0.43	1199.4	1213.6	40.5	292
40W 600mm (2ft)	39.5	103	0.43	589.8	604.0	40.5	156
30W 900mm (3ft x 1in.)	30.0	95	0.365	894.6	908.8	28.0	145
20W 600mm (2ft)	19.3	57	0.37	589.8	604.0	40.5	156

NOTES: All lamps have bi-pin cap G13.

*at 85W.

**at 65W

Not a guide to availability

ORDERING DATA

Please order lamps in accordance with the following example, in multiples of the packing quantity:—

100 Philips MCFE 125W/25 fluorescent lamps.

Made in UK except for 15W and 30W lamps, which are made in Holland.

CI/SfB (63.9)

UDC 696.6 :628.94

SOFTONE 32

Fluorescent lamp

Softone 32 lamps have a warm colour, similar to that of tungsten lamps, and good colour rendering.

The combination of a warm colour similar to that of tungsten lighting and good colour rendering produces a 'social' light that shows colours to good advantage. The lamp also has many applications in the home, eg. for lighting curtains, pictures, cupboards,

RANGE

Available in the following ratings:

MCFE 125W/32	2400mm (8ft)
MCFE 85W/32	2400mm (8ft)
MCFE 75/85W/32	1800mm (6ft)
MCFE 65/80W/32	1500mm (5ft)
MCFE 40W/32	1200mm (4ft)
MCFE 30W/32	900mm (3ft)
MCFE 20W/32	600mm (2ft)
MCFE 15W/32	450mm (18in.)
TL 13W/32	525mm (21in.)
TL 8W/32	300mm (12in.)

APPLICATIONS

Softone 32 lamps are used in hotels, restaurants and other social environments where they help to create a welcoming atmosphere; they are also a preferred lamp for lighting food in shops, and have many applications in the home.

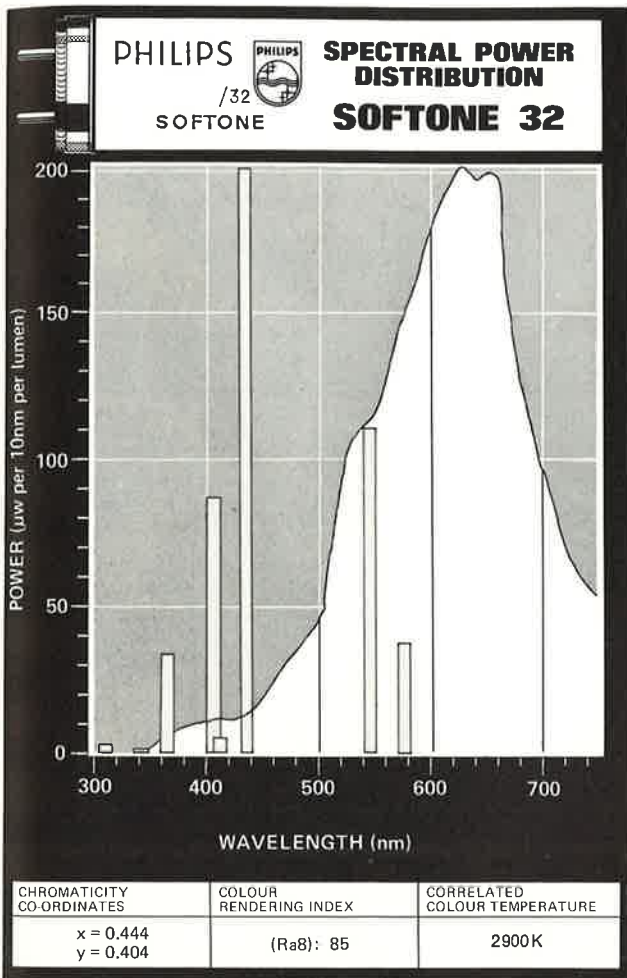
COLOUR 83

Colour 83 is a 'new generation' lamp with high light output.

The colour appearance and rendering are similar to those of Softone 32.

See Data Sheet PL 1885/1.

PHILIPS


**SPECTRAL POWER
DISTRIBUTION**
/32
SOFTONE
SOFTONE 32


WAVELENGTH (nm)

CHROMATICITY
CO-ORDINATES
 $x = 0.444$
 $y = 0.404$
COLOUR
RENDERING INDEX

(Ra8): 85

CORRELATED
COLOUR TEMPERATURE

2900K

Handbook Ref.

6.2.6

To reorder this data sheet quote

9.79 PL 1763/1

Replaces

PL 1783

FEATURES

- Warm colour appearance – similar to filament lighting.
- Good colour rendering – for lighting foodstuffs such as meat, butter, bacon, cheese and fruit.

COLOUR DATA

Correlated colour temperature: approx. 2900K

Colour rendering Index (Ra8): 85

Chromaticity co-ordinates: $x = 0.444$
 $y = 0.404$

LUMEN DATA

LDL represents Lighting Design Lumens, the lumen value after 2000 hours used for lighting design purposes.

Ordering reference	Nominal dimensions	LDL	Packing quantity
MCFE 125W/32	2400 × 38mm (8ft × 1½ in.)	5000	20
MCFE 85W/32	2400 × 38mm (8ft × 1½ in.)	4000	20
MCFE 75/85W/32	1800 × 38mm (6ft × 1½ in.)	3400*	25
MCFE 65/80W/32	1500 × 38mm (5ft × 1½ in.)	2800**	25
MCFE 40W/32	1200 × 38mm (4ft × 1½ in.)	1800	25
MCFE 20W/32	600 × 38mm (2ft × 1½ in.)	600	25
MCFE 30W/32	900 × 26mm (3ft × 1 in.)	1200	25
MCFE 15W/32	450 × 26mm (18 × 1 in.)	500	25
TL 13W/32	525 × 16mm (21 × ¾ in.)	600	25
TL 8W/32	300 × 16mm (12 × ¾ in.)	300	25

Notes:—MCFE lamps are silicone-coated for use in switchstart or starterless circuits.

TL lamps are for switchstart circuits only.

*LDL measured at 85W.

**LDL measured at 65W.

ORDERING DATA

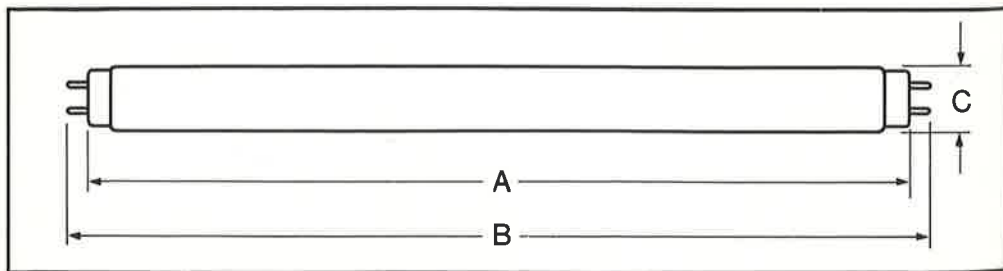
Please order lamps in accordance with the following example, in multiples of the packing quantity:—

100 Philips MCFE 40W/32 fluorescent lamps.

NOTE

Lamps of different makes should not normally be mixed in an installation. The Philips lamp may be of higher output or colour rendering. The correct approach is not to seek a match, but to decide which of the Philips lamps is the best one for the particular application.

38mm lamps Made in UK
26mm and 16mm Made in Holland



LAMP DIMENSIONS & ELECTRICAL DATA

Nominal rating	B.S. lamp power (W)	B.S. lamp volts (V)	B.S. lamp current (I)	Maximum dimensions			Approx. weight (g)
				Face-to-Face length (A) mm	Overall length (B) mm	Diameter (C) mm	
125W 2400mm (8ft)	123	149	0.94	2374.9	2389.1	40.5	610
85W 2400mm (8ft)	84	120	0.80	2374.9	2389.1	40.5	610
75/85W 1800mm (6ft)**	84	120	0.80	1763.8	1778.0	40.5	451
65/80W 1500mm (5ft)**	64	110	0.67	1500.0	1514.2	40.5	360
40W 1200mm (4ft)	39.5	103	0.43	1199.4	1213.6	40.5	292
30W 900mm (3ft × 1in)	30.0	96	0.365	894.6	908.8	28.0	145
20W 600mm (2ft)	19.3	57	0.37	589.8	604.0	40.5	156
15W 450mm (18in × 1in)	14.9	46	0.36	460.0	474.2	28.0	76

NOTES: The above lamps have bi-pin cap G13. *at 85W. **at 65W

The dimensions and electrical data for miniature tubular fluorescent lamps are contained in Data Sheet PL 1763.

CI/SIB
(63.9)

UDC
696.6:628.94

REFLECTALITE

Fluorescent Lamps

A lamp with an internal non-metallic coating between the phosphor and the envelope around approximately two-thirds of the inner circumference. The reflector reduces light losses resulting from dust settling on the lamp and luminaire.

RANGE

Available in White 35 in the following ratings:-

- *MCFRE 125W 2400mm (8ft)
- MCFRE 85W 2400mm (8ft)
- MCFRE 75/85W 1800mm (6ft)
- *MCFRE 65/80W 1500mm (5ft)
- MCFRA 65/80W 1500mm (5ft)
- MCFRE 40W 1200mm (4ft)
- MCFRE 20W 600mm (2ft)

*Also available in Warm White 29 and Cool White (Daylight) 33.

APPLICATIONS

Reflectalite lamps are used to advantage in industrial and commercial areas such as factories, workshops, stores and garages, particularly where luminaire cleaning is difficult or costly. They are also used to provide directional lighting, in suitable luminaires, in shops, departmental stores, displays and showrooms.

FEATURES

- Internal reflector directs light mainly through a 120° window in the downward direction, greatly reducing the effect of dust on the upper surface of the lamp and on the luminaire.
 - Reflectalite maintains a higher service lux level between lamp changes in existing dusty installations.
 - A higher maintenance factor † can be allowed on new installations, thus saving energy and initial cost.
- † see IES Technical Report No. 9.

Does not absorb more than 15% of the light output of conventional fluorescent lamps.



11

Handbook Ref.

6.2.9

To reorder this data sheet quote 9.79 PL 1782/1

Replaces

PL 1782

The reflector layer occupies two-thirds of the circumference of the inner surface of the lamp, and increases light output in the required directions. (See Figures 1 and 2.)

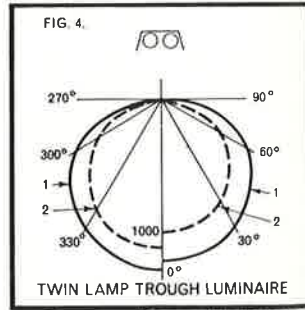
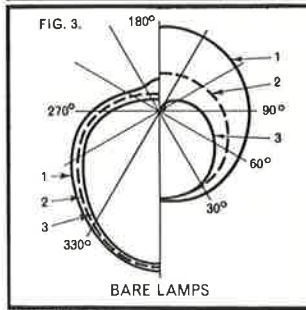
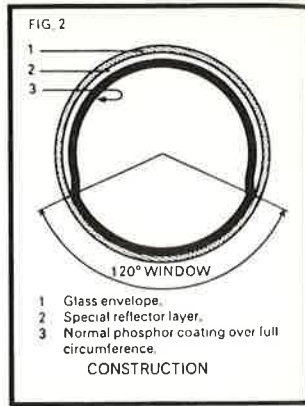
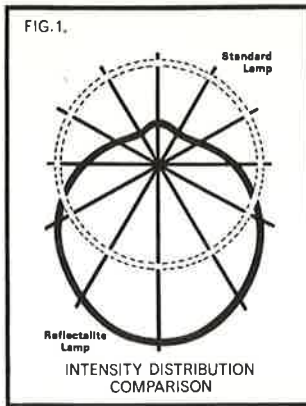
Luminous intensity of the bare lamp in the principal direction is approximately 1.8 times of that of ordinary fluorescent lamps. Dimensions and electrical characteristics are identical with those of standard fluorescent lamps of the same rating.

Reflectalite lamps have a rather lower total output than non-reflector lamps, but have higher light flux utilisation (they maintain about 15% higher lighting levels in service). Cleaning is best integrated with group lamp changes.

Influence of dust collection

In the diagrams Figures 3 and 4, the influence of dust is given for bare lamps and for lamps in a two-lamp trough reflector luminaire respectively.

- Key: 1. Clean lamp (transmission factor = 1).
 2. Normal dust collection (transmission factor = 0.5).
 3. High dust collection (transmission factor = 0).



Light distribution for Reflectalite lamps on the left of the diagrams, and for non-reflective lamps on the right

DIMENSIONS & ELECTRICAL DATA

Nominal Rating	B.S. lamp power (W)	B.S. lamp volts (V)	B.S. lamp current (I)	Maximum dimensions			Approx. Weight (g)
				Face-to-Face length (mm)	Overall length (mm)	Diameter (mm)	
125W 2400mm (8ft)	123	149	0.94	2374.9	2389.1	40.5	610
85W 2400mm (8ft)	84	120	0.80	2374.9	2389.1	40.5	610
75/85W 1800mm (6ft)	84	120	0.80	1763.8	1778.0	40.5	451
65/80W 1500mm (5ft)	64	110	0.67	1500.0	1514.2	40.5	360
40W 1200mm (4ft)	39.5	103	0.43	1199.4	1213.6	40.5	292
20W 600mm (2ft)	19.3	57	0.37	589.8	604.0	40.5	156

ORDERING DATA

Catalogue No.	Nominal length	Colours	Packing quantity
MCFRE 125W/**	2400 mm (8ft)	35, 29, 33	20
MCFRE 85W/35	2400 mm (8ft)	35	20
MCFRE 75/85W/35	1800 mm (6ft)	35	25
MCFRE 65/80W/**	1500 mm (5ft)	35, 29, 33	25
MCFRA 65/80W/35	1500 mm (5ft)	35	25
MCFRE 40W/35	1200 mm (4ft)	35	25
MCFRE 20W/35	600 mm (2ft)	35	25

All lamps are 38 mm dia., with bi-pin caps.

Notes: MCFRE lamps are silicone-coated, for use in switchstart or starterless circuits. MCFRA lamps have an external earthing stripe.

**Insert colour number for the lamp colour required: 35, 29, 33.

Please order lamps in accordance with the following example, in multiples of the packing quantity:

100 Philips MCFRE 125W/35 fluorescent lamps.

Lamp colours

White 35 A high-efficiency phosphor, now the preferred colour for the majority of industrial applications.

Warm White 29 A lamp of warm colour, now tending to be replaced by White 35.

Cool White (Daylight 33) Cool colour appearance which mixes with natural daylight. Now mainly used for road lighting; otherwise tending to be replaced by White 35.

Notes: Because of the high luminance of the window in Reflectalite lamps, they should not be used in bare-lamp batters at mounting heights of less than 5 metres.

Relative Spectral Power Distribution diagrams for the three lamp colours, and a comparative guide to lighting Design Lumens, are given on Data Sheet PL 1781.

Made in Great Britain.

CI/SIB (63.9)

UDC 696.6:628.94

TRUCOLOR 37

Fluorescent lamp

A lamp for installations where it is essential that colours are rendered with high fidelity.

Trucolor 37 has a Colour Rendering Index of almost 100 at a colour temperature of 4000K, and has a double phosphor coating giving long-wave UV reduction. The long-wave UV output is one-third of that from ordinary lamps.

RANGE

Available in the following ratings:

MCFE 65/80W 1500mm (5ft)

MCFE 40W 1200mm (4ft)

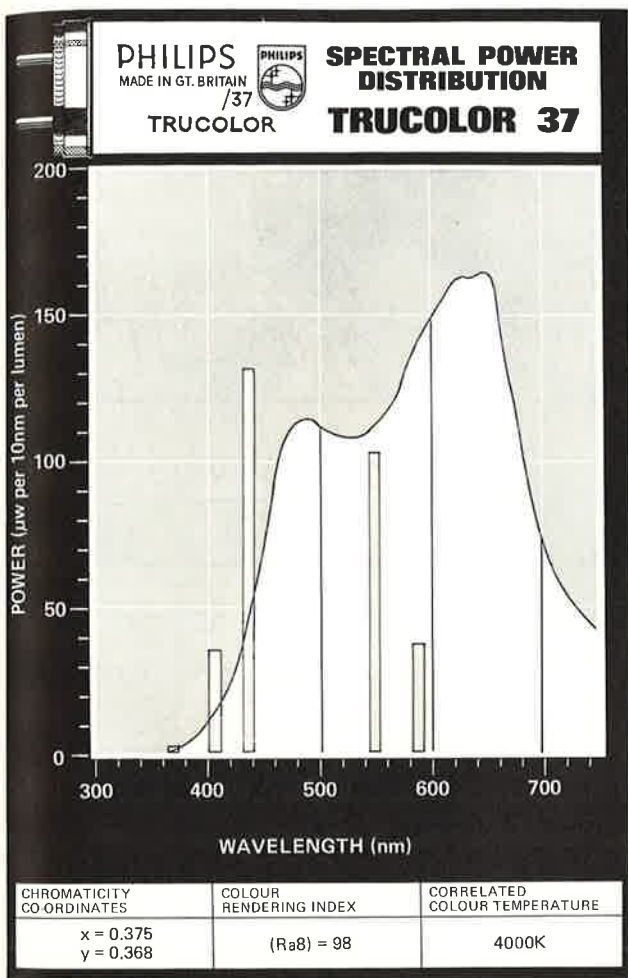
MCFE 20W 600mm (2ft)

APPLICATIONS

Applications include:

- Lighting of exhibits in art galleries and museums
- Special areas of shops such as fitting booths for millinery and dresswear
- Clinical areas in hospitals.

11



Handbook Ref.

6.2.10

To reorder this data sheet quote

9.79 PL1782/1

Replaces

PL1782

FEATURES

■Extremely high colour rendering index (Ra8=98) at a correlated colour temperature of 4000K enables the lamp to be used in art galleries, clinical areas in hospitals and special areas in department stores to render colours with high fidelity.

■Double phosphor coating reduces long-wave UV content, which can cause colour fading, to one-third of that of ordinary fluorescent lamps.

COLOUR DATA

Correlated colour temperature:
approx 4000K

Colour rendering index (Ra8):=98

Chromaticity co-ordinates: $x=0.375$
 $y=0.368$

LUMEN DATA

LDL represents Lighting Design Lumens, the lumen value (at 2000 hours) used for lighting design purposes. All lamps are MCFE silicone-coated types for use with switchstart and starterless circuits.

Ordering reference	Nominal dimensions and rating	LDL	Packing quantity
MCFE 65/80W/37	1500 x 38mm (5ft. x 1½in.) 65/80W	2500*	25
MCFE 40W/37	1200 x 38mm (4ft. x 1½in.) 40W	1500	25
MCFE 20W/37	600 x 38mm (2ft. x 1½in.) 20W	600	25

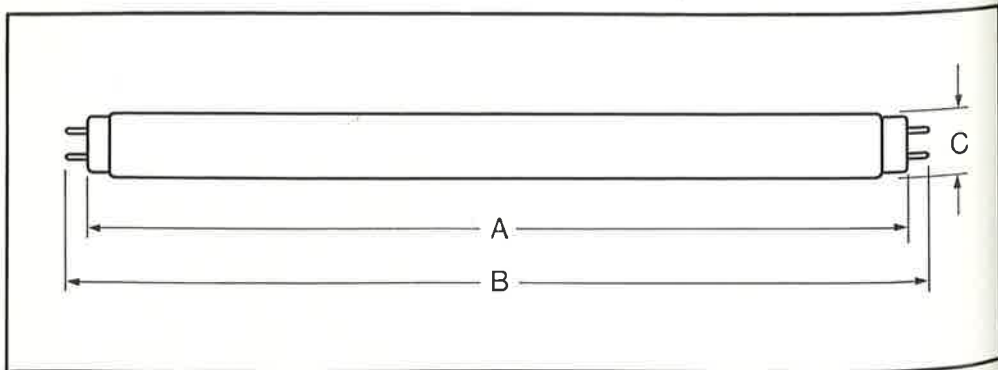
*LDL measured at 65W.

ORDERING DATA

Please order lamps in accordance with the following example, in multiples of the packing quantity:-

100 Philips MCFE 40W/37 fluorescent lamps.

Made in Great Britain.



LAMP DIMENSIONS & ELECTRICAL DATA

Nominal Rating	B.S. lamp power (W)	B.S. lamp volts (V)	B.S. lamp current (I)	Maximum dimensions		Diameter (C) mm	Approx. Weight g
				Face-to-Face length (A) mm	Overall length (B) mm		
65/80W 1500mm (5ft)**	64	110	0.67	1500.0	1514.2	40.5	360
40W 1200mm (4ft)	39.5	103	0.43	1199.4	1213.6	40.5	292
20W 600mm (2ft)	19.3	57	0.37	589.8	604.0	40.5	156

NOTES: All lamps have bi-pin cap G13.

**at 65W

CI/SIB (63.9)

UDC 696.6:628.94

NORTHLIGHT (COLOUR MATCHING) 55

Fluorescent Lamp

Northlight (Colour Matching) 55 has a colour temperature of 6500K and high-fidelity colour rendering—CRI of 95.

Colour matches made under this light source are similar to those made under common phases of north daylight, so that Northlight (Colour Matching) 55 can be used in the majority of applications for which daylight was previously the only suitable light source. It is important that a reasonably high level of illumination (see BS 950 Part 1) is maintained over the whole area where matching is taking place.

The lamp can also be used for special effects in display work. For example, it can be used where a cool background is required; the foreground is lit by warmer fluorescent lamps or tungsten lamps.

RANGE

Available in the following ratings:

MCFE 125W/55	2400mm (8ft)
MCFE 75/85W/55	1800mm (6ft)
MCFE 65/80W/55	1500mm (5ft)
MCFE 40W/55	1200mm (4ft)
MCFE 40W/55	600mm (2ft)
MCFE 30W/55	900mm (3ft)
MCFE 20W/55	600mm (2ft)
MCFE 15W/55	450mm (18in.)

APPLICATIONS

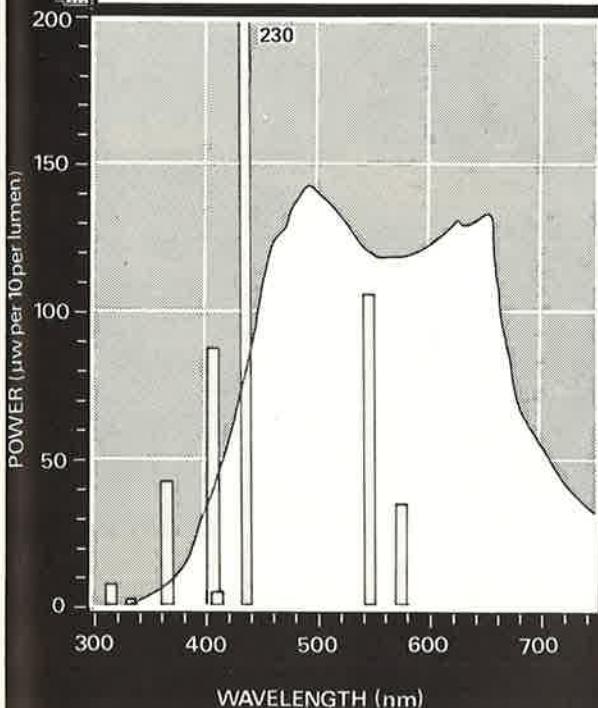
Applications include the critical colour appraisal of samples in the paint, dye and textile industries, and wherever small differences in colour must be detected, such as in the printing and tobacco trades.

Note: Northlight 55 was previously known as Colour Matching 55.

PHILIPS
/55
NORTHLIGHT



SPECTRAL POWER DISTRIBUTION NORTHLIGHT 55



CHROMATICITY
CO-ORDINATES

$x = 0.316$
 $y = 0.334$

COLOUR
RENDERING INDEX

(Ra8): 95

CORRELATED
COLOUR TEMPERATURE

6500K

Handbook Ref.

6.2.11

To reorder this data sheet quote

9.79 PL 1773/1

Replaces

PL 1773

FEATURES

- Replaces natural daylight for most colour-matching applications.
- Complies with visible spectrum requirements of BS 950 Part 1, but does not include the optional UV component.
- Cool appearance makes possible colour effects in display work in conjunction with warmer lamps.

LUMEN DATA

LDL represents Lighting Design Lumens, the lumen value (at 2000 hours) used for lighting design purposes.

Ordering reference	Nominal dimensions	LDL	Packing quantity
MCFE 125W/55	2400 x 38mm (8ft x 1½in.)	5600	20
MCFE 75/85W/55	1800 x 38mm (6ft x 1½in.)	3800*	25
MCFE 65/80W/55	1500 x 38mm (5ft x 1½in.)	3000**	25
MCFE 40W/55	1200 x 38mm (4ft x 1½in.)	1900	25
MCFE 40W/55	600 x 38mm (2ft x 1½in.)	1200	25
MCFE 30W/55	900 x 26mm (3ft x 1in.)	1300	25
MCFE 20W/55	600 x 38mm (2ft x 1½in.)	750	25
MCFE 15W/55	450 x 26mm (18 x 1in.)	500	25

NOTES: In installations involving critical appraisal, it is recommended that lamps should be bulk-changed at 4000 hours.

*LDL measured at 85W.

**LDL measured at 65W.

MCFE lamps are silicone-coated, and are for switchstart or starterless circuits.

ORDERING DATA

Please order lamps in accordance with the following example, in multiples of the packing quantity:-

100 Philips MCFE 125W/55 fluorescent lamps.

COLOUR DATA

Correlated colour temperature: approx 6500K

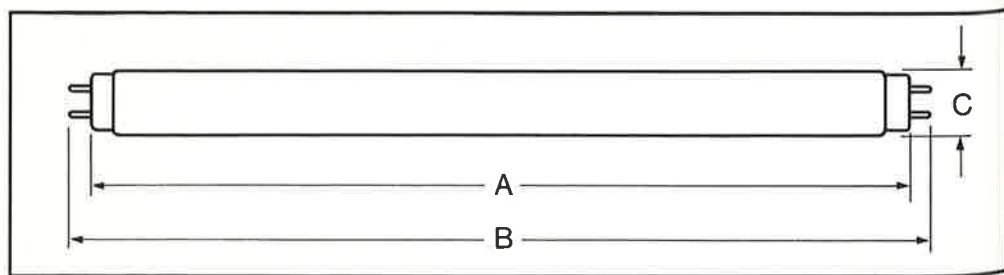
Colour rendering index (Ra8): 95

Chromaticity co-ordinates: $x=0.334$
 $y=0.334$

NOTE

Lamps of different makes should not normally be mixed in an installation.

Made in Great Britain (except 15W and 30W which are made in Holland).



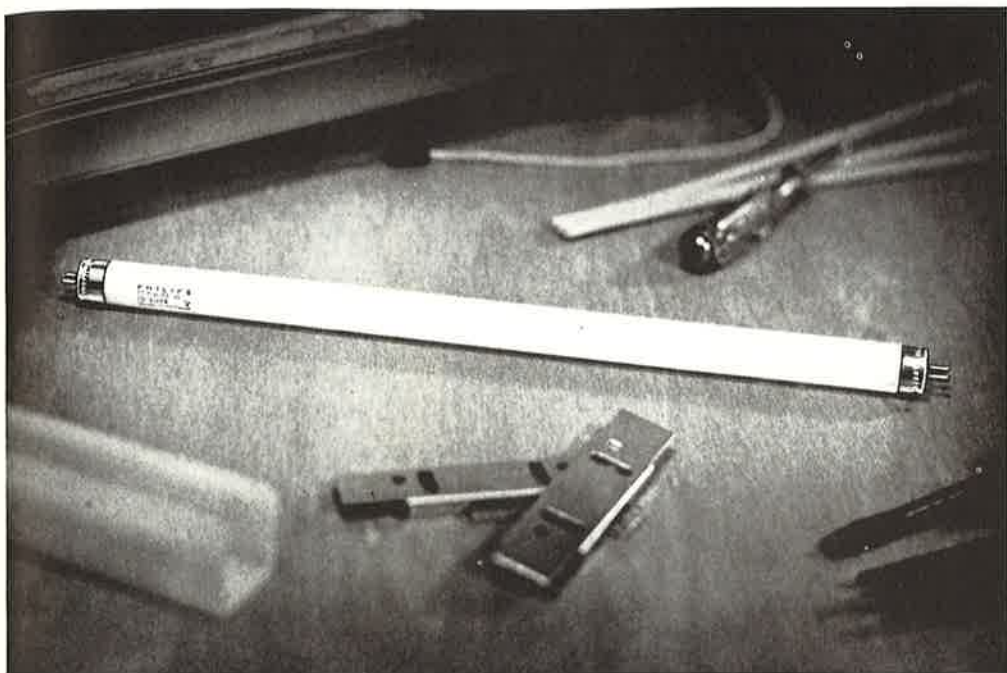
LAMP DIMENSIONS & ELECTRICAL DATA

Nominal rating	B.S. lamp power (W)	B.S. lamp volts (V)	B.S. lamp current (I)	Maximum dimensions			Approx. weight g.
				Face-to-Face length (A) mm	Overall length (B) mm	Diameter (C) mm	
125W 2400mm (8ft)	123	149	0.94	2374.9	2389.1	40.5	610
75/85W 1800mm (6ft)*	84	120	0.80	1763.8	1778.0	40.5	451
65/80W 1500mm (5ft)**	64	110	0.67	1500.0	1514.2	40.5	360
40W 1200mm (4ft)	39.5	103	0.43	1199.4	1213.6	40.5	292
40W 600mm (2ft)	39.5	103	0.43	589.8	604.0	40.5	156
30W 900mm (3ft x 1in)	30.0	96	0.365	894.6	908.8	28.0	145
20W 600mm (2ft)	19.3	57	0.37	589.8	604.0	40.5	156
15W 450mm (18in x 1in)	14.9	46	0.36	460.0	474.2	28.0	76

NOTES: The above lamps have bi-pin cap G13. *at 85W. **at 65W.

C/SIB	(63.9)
UDC	696.6:628.94

MINIATURE FLUORESCENT LAMPS



A range of 16mm diameter (T5) lamps in a choice of lengths and phosphor colours that combine the fluorescent lamp advantages of high light output and long service period with slim shape.

RANGE

Available in the following ratings:-

White 35

- TL 13W 525mm (21in.)
- TL 8W 300mm (12in.)
- TL 6W 225mm (9in.)

Warm White 29 & Cool White (Daylight) 33

- TL 13W 525mm (21in.)
- TL 8W 300mm (12in.)
- TL 6W 225mm (9in.)
- TL 4W 150mm (6in.)

Softone 32

- TL 13W 525mm (21in.)
- TL 8W 300mm (12in.)

APPLICATIONS

Miniature fluorescent lamps are used in fluorescent striplights and in bulkhead luminaires for lighting stairways and common parts of buildings, and in lightboxes for photography and display. They also have applications in exhibition and display lighting, in picture lighting and in street furniture and signs.

Handbook Ref.

6.2.12

To reorder this data sheet quote 9.79 PL 1763/1

Replaces

PL 1763

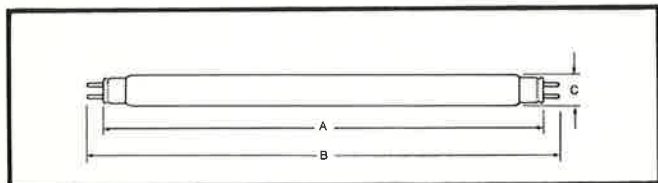
FEATURES

- Cool running and high efficacy relative to tungsten filament lamps. Lumen output 40W GLS=390 lumens compared with TL8W/35=400 lumens
- Choice of phosphors – warm or cool – to suit application.

LAMP DATA

LDL represents Lighting Design Lumens, the lumen value at 2000 hours used for lighting design purposes.

Lamp type	LDL White 35	LDL Warm White 29	LDL Cool White (Daylight) 33	LDL Softone 32
TL13W	800	800	800	600
TL8W	400	400	400	300
TL6W	250	250	250	—
TL4W	—	150	150	—



DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Lamp type	Lamp volts	Lamp current	Lamp weight	Dimensions			Cap (mini bi-pin)	
				A max. (mm)	B max. (mm)	C max. (mm)		
TL13W	525mm (21in.)	98	0.17	49	517	531	16	G5/15
TL8W	300mm (12in.)	58	0.17	31	298	302	16	G5/15
TL6W	225mm (9in.)	45	0.16	24	212	226	16	G5/15
TL4W	150mm (6in.)	30	0.15	17	136	150	16	G5/15

All data are averages, and refer to operation under standard conditions.

Note: For switchstart operation. Certain emergency luminaires and transistorised ballasts may not operate these lamps correctly.

ORDERING DATA

Catalogue No.	Nominal length	Colours	Packing quantity
TL13W/**	525mm(21in)	35, 29, 33, 32	25*
TL8W/**	300mm(12in)	35, 29, 33, 32	25*
TL6W/**	225mm(9in)	35, 29, 33	25*
TL4W/**	150mm(6in)	29, 33	25*

**Insert colour number for the lamp colour required.

*Also available in 300 way bulk pack (price and delivery on application)

Please order lamps in the form given in the following example, in multiples of the packing quantity:

100 Philips TL13W/35 fluorescent lamps.

LAMP COLOURS

White 35: A high efficacy phosphor, now the preferred colour for the majority of industrial applications.

Warm White 29: A lamp of warm colour, now tending to be replaced by White 35.

Cool White (Daylight) 33: Cool colour appearance which mixes with natural daylight. Now mainly used for road lighting; otherwise, tending to be replaced by White 35.

Softone 32: A lamp with warm appearance and good colour rendering, for hotels, restaurants and other social environments, and for lighting foods.

Made in Holland

CI/SfB	(63.9)
UDC	696.6 : 628.94

CIRCULAR FLUORESCENT LAMPS

A range of circular fluorescent lamps for use in signs and equipment, and for incorporation in compact decorative luminaires.

Philips circular fluorescent lamps combine the advantages of conventional linear fluorescent lamps – long service and high efficacy – with a compact format that can be used to advantage in equipment and decorative luminaires. The lamp colour is Warm White 29, which combines high light output with a warm colour appearance.

RANGE

60W and 40W ratings – nominal o.d. 410mm (16in.).

32W rating – nominal o.d. 305mm (12in.).

22W rating – nominal o.d. 210mm (8½in.).

APPLICATIONS

For use in suitable luminaires, for commercial and social areas such as:

- Bars
- Hotels and reception areas
- Private offices
- Domestic

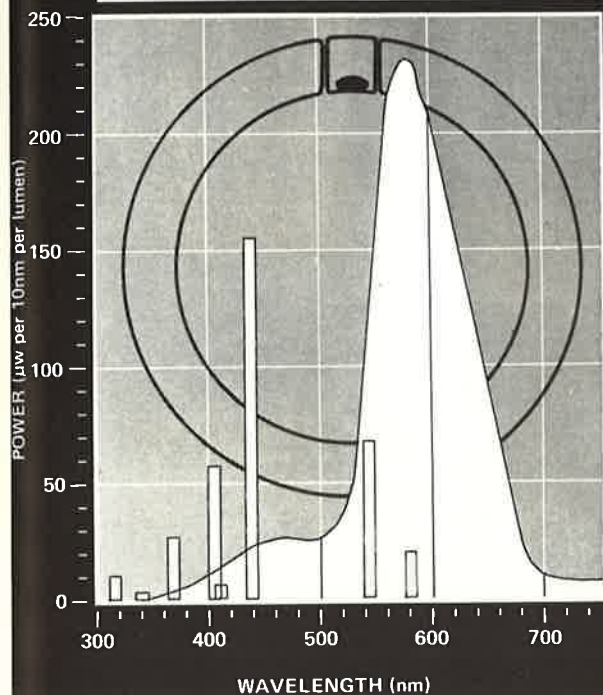
Also for use in signs, and in equipment such as vending machines.

11

PHILIPS



**SPECTRAL POWER
DISTRIBUTION
WARM WHITE 29
CIRCULAR FLUORESCENT**



CHROMATICITY CO-ORDINATES	COLOUR RENDERING INDEX	CORRELATED COLOUR TEMPERATURE
x = 0.446 y = 0.406	(Ra 8) = 51	2855K

Handbook Ref.

6.2.13

To reorder this data sheet quote

2.78 PL 1794

Replaces

9410

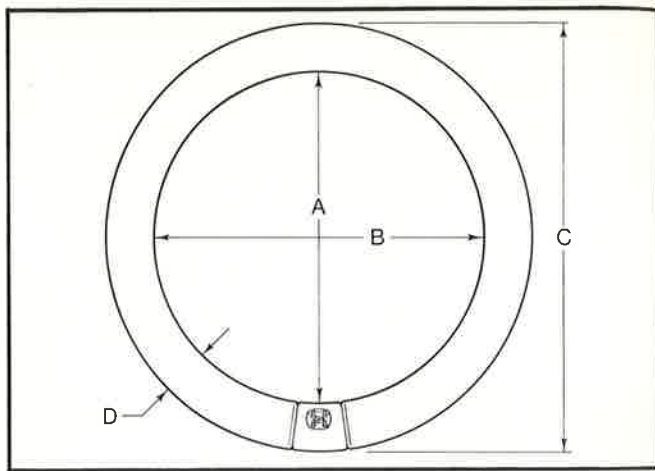
FEATURES

■ Makes possible decorative fluorescent luminaires for use in locations where linear fluorescent lighting would not be suitable.

■ TLE and TLEK lamps operate from conventional switchstart control gear; the TLEM 40W lamp operates from switchstart or 3V electrode preheat starterless control gear.

ORDERING DATA

Please order lamps in accordance with the following example, in multiples of the packing quantity:—
24 Philips circular fluorescent lamps
TLEK 60W/29.



Made in Holland.

LAMP DATA

Ordering reference	Nom. o.d. (mm/in.)	A (min/max) (mm)	B (min/max) (mm)	C (min/max) (mm)	D (min/max) (mm)	LDL	B.S. Lamp Volts	B.S. Lamp Current	Weight (g)	Packing quantity
TLEK 60W/29	410/16	341-3/347-7	338-9/346-9	400/412-8	29-4/34-1	3400	92	0-75	333	6
TLE 40W/29	410/16	341-3/347-7	338-9/346-9	400/412-8	29-4/34-1	2480	110	0-42	333	6
*TLEM 40W/29	410/16	341-3/347-7	338-9/346-9	400/412-8	29-4/34-1	2480	110	0-42	333	6
TLE 32W/29	305/12	239-7/246-1	237-3/245-3	298-5/311-2	29-4/34-1	1670	82	0-45	250	6
TLE 22W/29	210/8½	150-7/155-6	151-1/160-4	203-2/215-9	26-2/30-9	640	62	0-4	183	6

Notes:—LDL represents Lighting Design Lumens, the lumen value after 2000 hours used for lighting design purposes.

All lamps are fitted with G10q four-pin caps.

*An external strip, connected to one cap pin via a resistor, permits this lamp to be used on starterless circuits with 3V preheat: not to be earthed.

CI/SIB	(63.9)
UDC	696.6:628.94

STARTERS

For Fluorescent Lamps

A range of starters for fluorescent lamps, for use as original equipment in new luminaires or as replacement spares. The starters are of the glow switch type; a capacitor is included.

RANGE

S10 (K3001) – for 65/80W, 40W 1200mm (4ft), 30W, 13W or single short lamp.

S2 (K3002) – for 40W 600mm (2ft), 20W, 15W, 8W, 6W, 4W single or twin.

S18 (K3125) – for 125W.

S12 (K3012) – for 140W 1500mm, 120W 1500mm.

FEATURES

- Philips starters outlast several fluorescent lamp changes.
- The S10 and S2, are housed in polycarbonate cases, giving the following benefits:
 - Impact-resistant – the housing cannot easily be damaged.
 - Electrically safe – no accessible metal parts.
 - The case is shrunk on to the base.
 - Polycarbonate has a high working temperature and is self-extinguishing.



ES06 Electronic starter, see Data Sheet PL 1785.

Handbook Ref.

6.2.15

To reorder this data sheet quote 8.79 PL 1792/1

Replaces

PL 1792

MATERIALS & FINISH

Canister:

(S10, S2, S12): Polycarbonate, off-white.

(S18): Plastic, off-white.

SPECIFICATION

■ Type compliance with BS 3772.

■ In addition, Philips hold a Kitemark license for the manufacture of S10 and S2 starters to BS 3772.

To specify state:

Fluorescent lamp starter, with polycarbonate canister, similar to Philips S10 and S2.

RANGE OF OPERATION

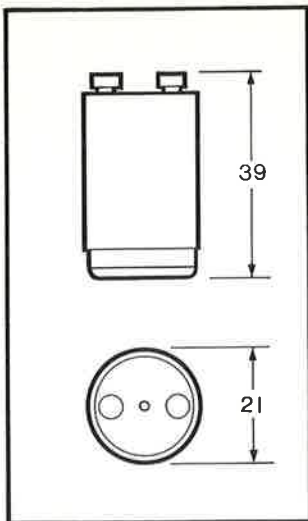
For use in conventional fluorescent lamp luminaires, and similar equipment.

ORDERING DATA

Please order in the form given in the following example, in multiples of the packing quantity:

1000 Philips starters S10.

Weight: 30g.



LIST OF EQUIVALENTS

Philips Type	Replaces	
S2(K3002)	155/100	155/200
S10(K3001)	155/400	155/500
S18(K3125)	155/501	155/800

LAMP APPLICATIONS

Ordering reference	For use with	Packing quantity
S10(K3001)	65/80W, 40W 1200mm (4ft), 30W, 13W or single short lamp. Also circular 60W, 40W, 32W	10
S2(K3002)	40W 600mm (2ft), 20W, 15W, 8W, 6W, 4W single or twin lamps. Also circular 22W	10
S18(K3125)	125W 2400mm (8ft) lamps	50
S12(K3012)	140W 1500mm (5ft), 120W 1500mm (5ft)	25

Made in Holland/Great Britain.

CI/SIB	(63.9)
UDC	696.6:628.94

ES06

Electronic Starter

All-electronic starter for 125W 2400mm (8ft) fluorescent lamps in battens

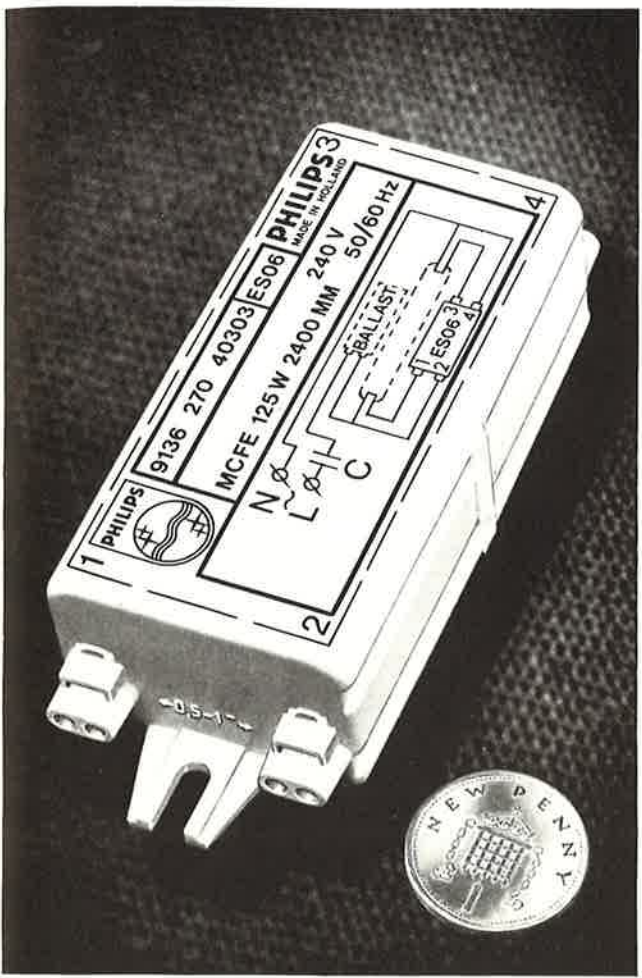
The ES06, a Philips innovation, is an electronic starter for the 125W 2400mm (8ft) fluorescent lamp – the most difficult lamp to start in the conventional way. It is used with the standard 125W ballast and capacitor in the leading power factor circuit used for these lamps. The ES06 has introduced to fluorescent lamp circuits a third form of starting – Electronic Start.

APPLICATIONS

Incorporated as original equipment in 2400mm (8ft) battens to provide the benefit of fast, reliable starting, even at temperatures down to minus 10°C.

RANGE

- Streamlite Popular**
 1 x 125W (8ft) 2400mm
 2 x 125W (8ft) 2400mm
- Feature Battens**
 1 x 125W (8ft) 2400mm
 2 x 125W (8ft) 2400mm
- Featureline Battens**
 1 x 125W (8ft) 2400mm
 2 x 125W (8ft) 2400mm



11

Handbook Ref.	6.2.16
To reorder this data sheet quote	9.79 PL 1785/2
Replaces	PL 1785/1

FEATURES

Electronic start (E start) offers many advantages over conventional lamp circuits.

E start compared with switchstart circuits:-

- All-electronic construction eliminates moving parts; gives greater component reliability.
- A fixture inside the batten; does not require periodic changing so saves in maintenance time.
- With a failed lamp, the device cuts out, eliminating 'blinking'.
- Fast, reliable starting; less end-blackening of lamp.
- Reliable starting at lower temperatures.

E start compared with starterless circuits:-

- Circuit power is reduced by about 12 Watts, conserving energy.
- Leading power factor improves P.F. in lagging load of remainder of system.
- No increase in circuit cost.
- Less weight on the ceiling.

MATERIALS, FINISH & WEIGHT

Case: Moulded polypropylene, self-coloured white.

Terminals: Four twin-insert, with release mechanism, for solid conductors 0.5-1.0mm².

Weight: 50g.

CIRCUIT DATA

- Lamp: MCFE 125W 2400mm (8ft)
- Ballast: BBS 125
- Capacitor: 7.2mfd $\pm 5\%$ 440V
- Circuit power: 140W
- Circuit current: 0.94A
- Power Factor: 0.65 leading
- Cut-off with failed lamp: after about 15 seconds.
- Harmonics 4 wire supply: 3 \times 16%
- Note: Also suitable for 100W 2400mm and 75/85W 1800mm lamps on appropriate ballasts.

SPECIFICATION

There is as yet no British Standard specification for electronic starters. The ES06 is made to a rigorous Philips standard for performance and reliability.

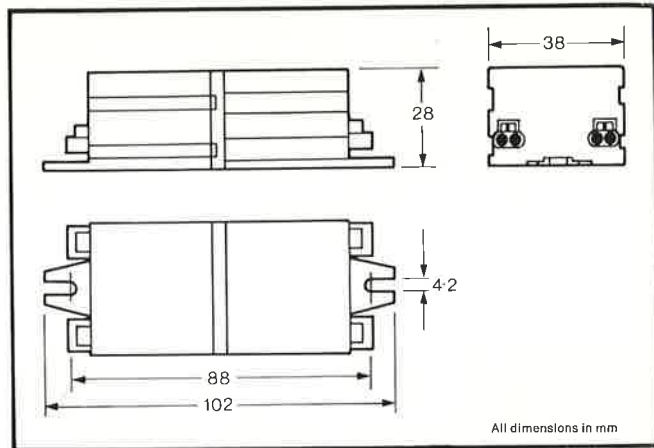
To specify state:

Battens incorporating all-electronic starter for 125W 2400mm fluorescent lamps; substantially as Philips ES06 electronic starter in Streamlite, Feature or Featureline battens.

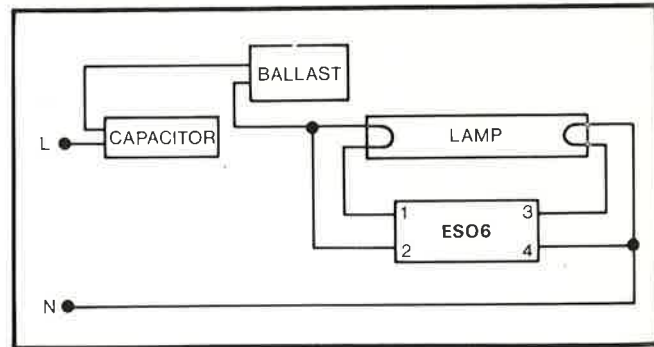
RANGE OF OPERATION

Circuit is for 240V 50Hz.
The ES06 will start an average lamp at temperatures down to minus 10°C.

DIMENSIONS



CIRCUIT DIAGRAM



LUMINAIRES INCORPORATING ES06

The ES06 electronic starter is fitted as original equipment in Philips Streamlite, Feature and Featureline battens as listed below:-

Catalogue No.	Description
SQ8E	Streamlite 1 \times 125W Popular (batten)
SQ28E	Streamlite 2 \times 125W Popular (batten)
FSQ8E	Feature 1 \times 125W batten
FSQ28E	Feature 2 \times 125W batten
TSQ8E	1 \times 125W batten for Featureline prewired trunking
TSQ28E	2 \times 125W batten for Featureline prewired trunking

Full information on these battens is contained in the following Data Sheets:-

- Streamlite - PL 1713
- Feature - PL 1719
- Featureline - PL 1729

ES06: Made in Holland incorporated in
Luminaires: Made in UK

CI/SIB (63.9)

UDC
696.6:628.94

FLUORESCENT BALLASTS

A range of ballasts for use with the Philips range of fluorescent lamps.

RANGE

Ballasts for switchstart circuits
– a range of LPF chokes for lamps from 4/6/8W to 125W.

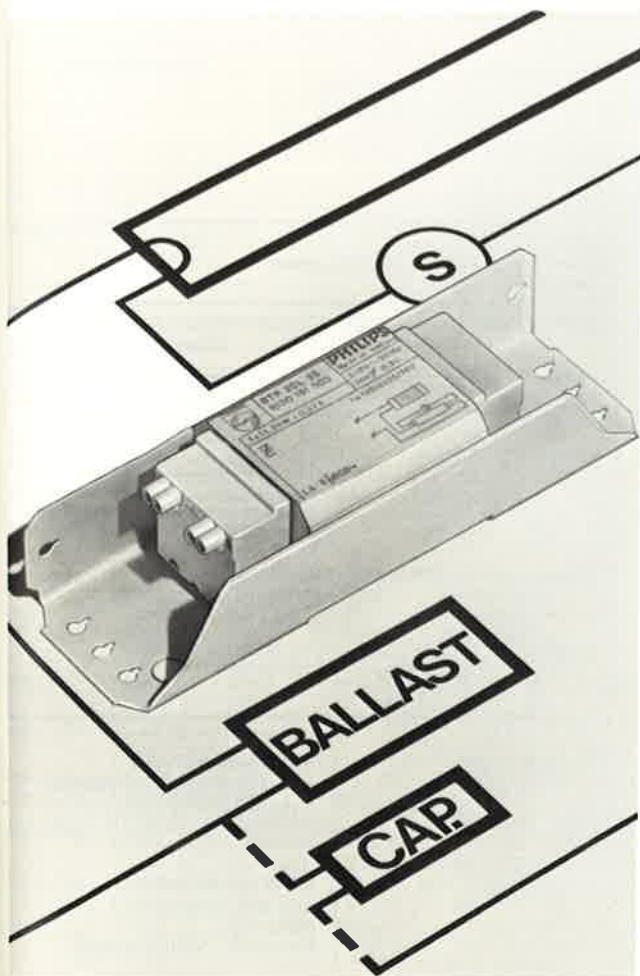
Ballasts for starterless circuits
– a range of ballasts for use with series capacitors in semi-resonant start circuits.

Ballasts for 220V switchstart circuits
– a small range of LPF chokes for use in equipment operating on 220V 50Hz supplies.

APPLICATIONS

- Stockholding as spares for ballasts in luminaires.
- Incorporation in fluorescent luminaires, and in equipment using fluorescent lamps.

Note:– For starters see Data Sheet PL 1792
For capacitors see Data Sheet PL 1859



11

Handbook Ref.

6.217

To reorder this data sheet quote 11.79 PL 1864/1

Replaces

PL 1864

FEATURES

BAS, BBS & BBX Types

- Totally enclosed in drawn steel can.
- Polyester filling.
- Low ballast losses.

BTP Types

- Small cross-section.
- Varnish impregnated.
- Push-wire terminals.

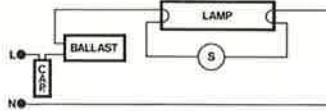
RANGE OF OPERATION

For nominal supplies of 240V 50Hz (220V 50Hz where listed).
Normal indoor conditions.

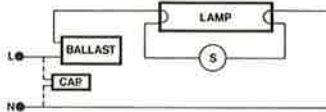
CIRCUIT DIAGRAMS

CIRCUITS FOR FLUORESCENT LAMPS Switch Start

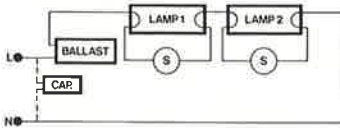
1. Single Lamp 125W 2400mm (8ft)



2. Single Lamp

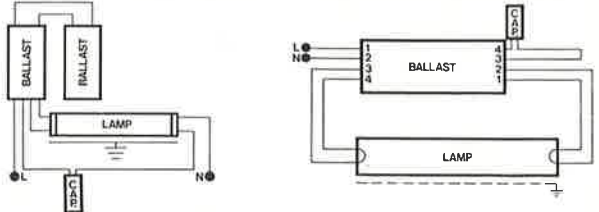


3. Twin Lamp Series

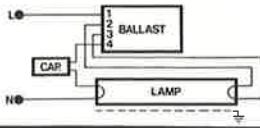


CIRCUITS FOR FLUORESCENT LAMPS Starterless

4. Single Lamp 125W 2400mm (8ft) 5. Single Lamp 85W 2400mm (8ft)



6. Single Lamp 40W, 65W and 85W 1800mm (6ft)



MATERIALS & FINISH

BAS, BBS & BBX Series

Housing – Drawn steel can, painted grey, on zinc-plated steel base.
Impregnation – Polyester.
Terminations: Twin push-wire block BBS 125 and BBX 125C; remainder pin terminals.

BTP Series

Frame – Sheet steel, finished white, spot-welded to laminations.
Impregnation – Varnish.
Terminations: Twin push-wire block.

SPECIFICATION

Type compliance with BS2618

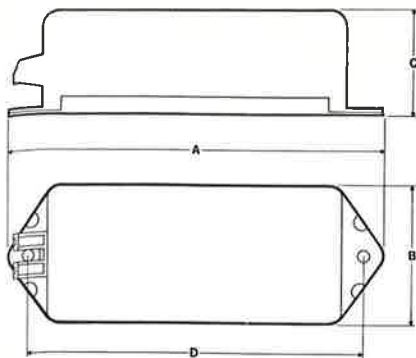
ORDERING DETAILS

Please order ballasts in the form given in the following example, in multiples of the packing quantity – 50 Philips ballasts BTP 40 L25

COUNTRY OF ORIGIN:

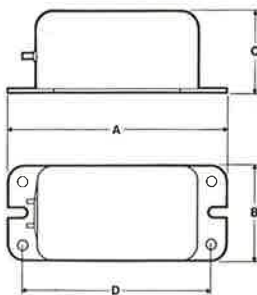
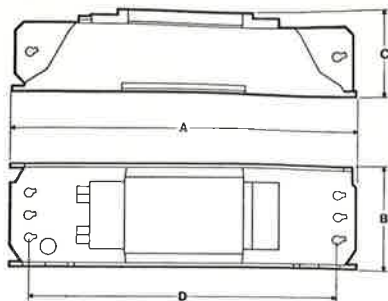
BAS, BBS & BBX Series
Made in UK
BTP Series – Made in Holland.

DIMENSIONS



Types BBS & BBX

Type BTP



Type BAS

DIMENSIONS & WEIGHTS

Catalogue No.	For lamp types	Overall Length A (mm)	Overall Width B (mm)	Overall Depth C (mm)	Fixing centres D (mm)	Weight (g)	Circuit Diagram	Packing Quantity
Ballasts for switchstart circuits - 240V								
BBS 125	1 x 125W 2400mm (8ft) 1 x 100W 2400mm (8ft)	169	63	45	152	1800	1	5
BTP 65 L25	1 x 65W/80W 1500mm (5ft) 1 x 60W circ. 410mm (16in.)	195	45.5	38	180	1150	2	5
BTP 40 L25	1 x 40W 1200mm (4ft) 2 x 20W 600mm (2ft)	155	45.5	36.5	140	690	2 or 3	5
BTP 30 L25	1 x 40W circ. 410mm (16in.) 1 x 30W 900mm (3ft) 2 x 15W 450mm (18in.)	155	45.5	36.5	140	690	2 or 3	5
BTP 20 L25	1 x 32W circ. 305mm (12in.) 1 x 20W 600mm (2ft) 1 x 15W 450mm (18in.)	155	45.5	36.5	140	680	2	5
BAS 13	1 x 22W circ. 210mm (8.25in.) 1 x 13W 525mm (21in.) 2 x 8W 300mm (12in.) 2 x 6W 225mm (9in.)	99	41	36	85 x 29	460	2 or 3	5
BAS 8	1 x 4W, 6W, 8W 150mm (6in.) 2 x 4W 150mm (6in.)	99	41	36	85 x 29	460	2 or 3	5
Ballasts for switchstart circuits - 220V								
BTP 65 L05	1 x 65W 1500mm (5ft) 1 x 60W circ. 410mm (16in.)	195	45.5	38	180	1150	2	5
BTP 40 L05	1 x 40W 1200mm (4ft) 2 x 20W 600mm (2ft)	155	45.5	36.5	140	690	2 or 3	5
BTP 30 L05	1 x 40W circ. 410mm (16in.) 1 x 30W 900mm (3ft) 2 x 15W 450mm (18in.)	155	45.5	36.5	140	690	2 or 3	5
BTP 20 L05	1 x 32W circ. 305mm (12in.) 1 x 20W 600mm (2ft) 1 x 15W 450mm (18in.) 1 x 22W circ. 210mm (8.25in.)	155	45.5	36.5	140	680	2	5
Ballasts for starterless circuits - 240V								
BBX 125C	1 x 125W 2400mm (8ft)	168	63	46	152	1800	4	5
BBX 125T	1 x 125W 2400mm (8ft)	168	63	46	152	1800	4	5
BBX 85	1 x 85W 2400mm (8ft)	252	63	48	229 x 42	2750	5	5
BBXK 85	1 x 85W 2400mm (8ft)	252	63	48	229 x 42	2750	5	5
BBX 85	1 x 75/85W 1800mm (6ft)	168	63	46	152	1700	6	5
BBX 65	1 x 65W 1500mm (5ft)	168	63	46	152	1700	6	5
BBX 40	1 x 40W 1200mm (4ft)	147	63	46	127-137 slotted	1500	6	5

CI/SIB (63.9)

UDC
696.6:628.94

FLUORESCENT LAMP CAPACITORS

A range of power factor capacitors and series capacitors for use in conjunction with the Philips range of fluorescent lamp ballasts.

RANGE

H1684/1
H1678
H1672
H1655/1
H1650/1
H1635/1

Note: Philips Catalogue Nos. for capacitors for fluorescent lamp control gear start with the prefix H16. The next two digits give the capacitance in mfd (i.e. H1684/1 = 8.4 mfd).

APPLICATIONS

For use as original equipment, or as replacement spares, in fluorescent luminaires of the appropriate rating. Details of starters and ballasts for use in conjunction with these capacitors are given in Data Sheets PL 1792 and PL 1864 respectively. Circuit diagrams are printed on some ballasts, and are also contained in PL 1864.



Handbook Ref.

6.2.18

To reorder this data sheet quote 10.79 PL 1859/1

Replaces

PL 1859

FEATURES

- 250V capacitors have insulated canisters which require no earthing and are easily fixed (440V capacitors have aluminium canisters which require earthing).
- Windings of metallised polypropylene; no PCB's present.
- Rated for ambient temperatures up to 85°C.

MATERIALS & FINISH

Can: Tubular PPO for 250V rating; Aluminium for 440V rating.

Construction: Metallised polypropylene winding; fitted with discharge resistor.

Note: No liquid filling.

Terminations: 250V capacitors have grab terminals for 0.5–1.0mm² solid cable; insulation to be stripped back 11mm ± 1mm. 440V capacitors have 300µm flying leads.

SPECIFICATION

Type compliance with BS 4017; licensed to bear Kitemark.

To specify state:

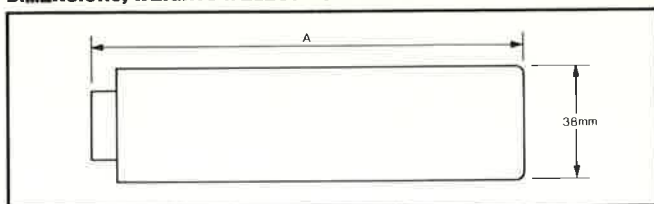
Capacitor in 38mm dia. canister with dry metallised polypropylene winding; substantially as Philips H16** range.

RANGE OF OPERATION

Voltage as specified in Table, 50 or 60 Hz.

Temperature: Minus 40°C to plus 85°C

DIMENSIONS, WEIGHTS & ELECTRICAL DATA



Catalogue No.	Length A (mm)	Capacitance (mfd)	Tolerance (%)	Working Volts (rms)	Weight (g)	Packing quantity
PF Capacitors						
H1635/1	77	3.5	10	250	70	10
Series Capacitors						
H1678	202	7.8	5	440	350	10
H1672	189	7.2	5	440	250	10
H1684/1	77	8.4	5	250	100	10
H1655/1	77	5.5	5	250	90	10
H1650/1	150	5.0	5	440	350	10

All capacitors have a diameter of 38mm.

CIRCUIT APPLICATIONS

Lamp type	Circuit type	Suitable capacitor
1 × 15W 450mm	S/S	H1655/1
1 × 20W 600mm	S/S	H1655/1
2 × 20W 600mm	S/S	H1635/1
1 × 22W 215mm circ.	S/S	H1655/1
1 × 30W 900mm	S/S	H1635/1
1 × 32W 315mm circ.	S/S	H1635/1
1 × 40W 1200mm	S/S	H1635/1
1 × 40W 1200mm	X/S	H1655/1
1 × 40W 415mm circ.	S/S	H1635/1
1 × 40W 415mm circ.	X/S	H1655/1
1 × 60W 415mm circ.	S/S	H1655
1 × 65W 1500mm	S/S	H1655
1 × 65W 1500mm	X/S	H1684/1
1 × 85W 2400mm	X/S	H1650/1
1 × 85W 1800mm	X/S	H1684/1
1 × 100W 2400mm	S/S	H1672
1 × 125W 2400mm	S/S	H1672
1 × 125W 2400mm	X/S	H1678
1 × 140W 1500mm	S/S	2 × H1655/1

Power Factor capacitors (10% tolerance; 250V) are shunt-connected across the mains supply to raise the lagging power factor of an inductive load, and to reduce the current in the supply cables. Series capacitors (5% tolerance) are part of the fluorescent lamp circuit. A 5% capacitor may be used in place of a 10% capacitor of the same nominal value, but not vice versa. In the table H1655/1 is quoted for PF use in a number of circuits.

Note: Capacitors quoted for starterless (X/S) circuits are those for use with the appropriate Philips ballast.

ORDERING DATA

Please order in the form given in the following example, in multiples of the packing quantity:—

50 Philips capacitors H1672

Made in UK.

CI/SIB	(63.9)
UDC	696.6 : 628.94

FLUORESCENT LAMP ACCESSORIES

A range of bi-pin and mini bi-pin lampholders, starter holders, bi-pin to BC adaptors and spring clips for use with the Philips range of lamps and control gear.

RANGE

Lampholders

- K7221 – Fixed bi-pin lampholder.
- K7221E – Fixed bi-pin lampholder with earth contact.
- K7202 – Fixed bi-pin lampholder.
- K7265E – Bi-pin lampholder with earth contact.
- K7225 – Fixed single-contact lampholder for TLS lamps.
- K7229/1 – Lampholder for 16mm miniature bi-pin lamps.

Starter holder

- K7373 – Starter holder with push-wire terminals.

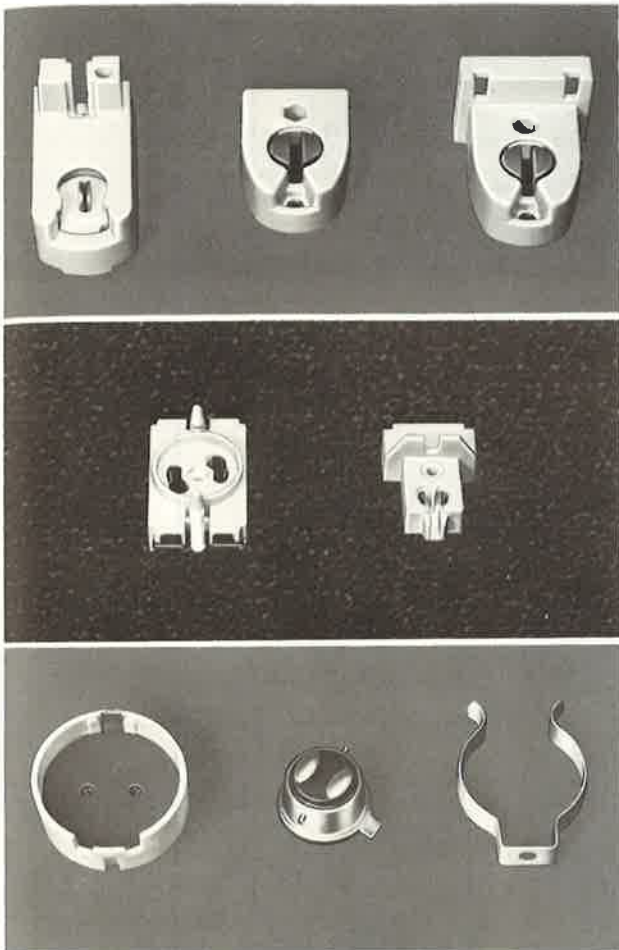
Sundries

- K7250 – Adaptor, bi-pin to BC.
- K7235 – Spring clip for 38mm lamps and PFC capacitors.
- K7257 – Springclip for 25mm lamps.

APPLICATIONS

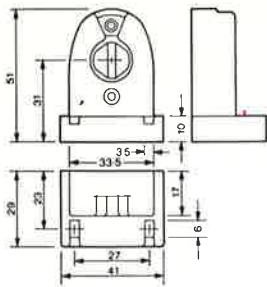
For use as original equipment, or as replacement spares, in fluorescent luminaires. Details of control gear for use in luminaires is given in the following Data Sheets:-

- Ballasts – PL 1864.
- Starters – PL 1792.
- PFC capacitors – PL 1859.

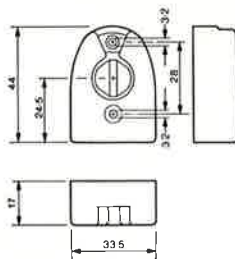


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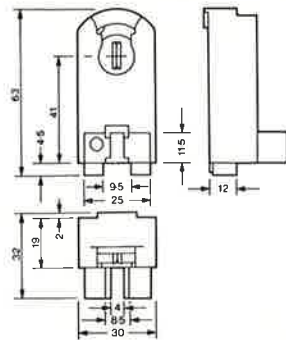
Handbook Ref.	6.2.19
To reorder this data sheet quote	10.79 PL 1863/1
Replaces	PL 1863



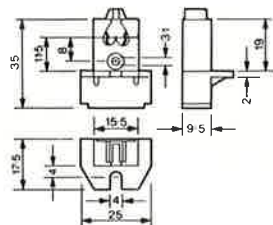
K7221 Fixed Bi-Pin Lampholder.
K7221E Fixed Bi-Pin Lampholder
 with earth contact. Screw fixing.
 Material: Philite White. Electrical
 Connections: K7221 Push-wire
 terminals. K7221E Push-wire terminals.



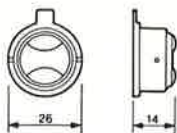
K7202 Fixed Bi-Pin Lampholder.
 Screw Fixing to Back Plate. Material:
 Philite White. Electrical connections:
 Push-wire terminals.



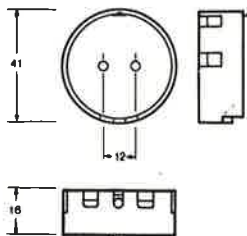
K7225 Fixed Single Contact Lampholder
 for TLS lamps. Screw Fixing.
 Material: Philite White. Electrical
 Connections: Screw terminal.



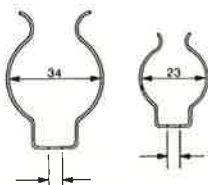
K7229/1 Fixed Bi-Pin Lampholder
 for 16mm miniature lamps. Screw fixing.
 Material: White Polypropylene.
 Electrical connections: Push-wire
 terminals.



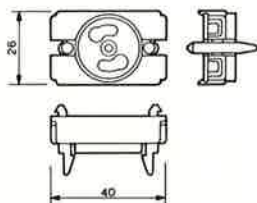
K7250 Adaptor Bi-Pin to BC.
Push-on fit. Material: Brass.



K7265E Bi-Pin Push-on fully shrouded lamp holder with earth contact.
Material: Urea. Electrical connections: Push-wire terminals. Earth contact: Screw terminals.

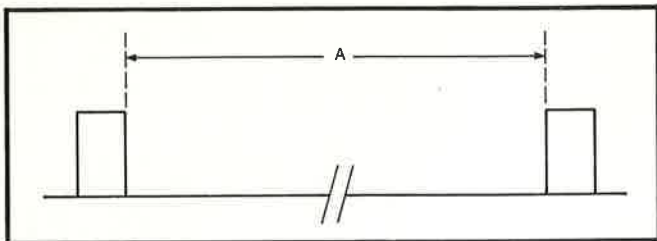


K7235 Spring clip for 38mm lamps and PFC capacitors. Material: Spring steel, cadmium plated.
K7257 Spring clip for 25mm lamps. Material: Spring steel, cadmium plated.



K7373 Starter Holder clip-in fixing.
Material: Polycarbonate. Electrical connections: Push-wire terminals.

LAMP HOLDER SPACING DISTANCES



Rating		Face-to-Face length (A) mm
125W	2400mm (8ft)	2376
85W	2400mm (8ft)	2376
75/85W	1800mm (6ft)	1765
65/80W	1500mm (5ft)	1501
40W	1200mm (4ft)	1200
40W	600mm (2ft)	591
30W	900mm (3ft x 1in)	896
20W	600mm (2ft)	591
15W	450mm (18in x 1in)	461
TL13W	525mm (21in)	517
TL8W	300mm (12in)	288
TL6W	225mm (9in)	212
TL4W	150mm (6in)	136
TLS40W		1184
TLS20W		574

ORDERING DATA

Catalogue No.	Description	Packing quantity
K7221	Fixed bi-pin lampholder	100
K7221E	Fixed bi-pin lampholder with earth contact	100
K7202	Fixed bi-pin lampholder	100
K7265E	Bi-pin lampholder with earth contact	100
K7225	Single-contact lampholder for TLS lamps	100
K7229/1	Lampholder for 16mm lamps	100
K7373	Starter holder, push-wire terminals	100
K7250	Adaptor, bi-pin to BC	100
K7235	38mm spring clip	100
K7257	25mm spring clip	100

Please order in the form given in the following example, in multiples of the packing quantity:-

200 Philips lampholders K7221E

Made in UK, except K7221, K7221E, K7202, K7225 and K7229/1 which are made in Holland.

C1/S1B (63.9)

UDC 696.6:628.94

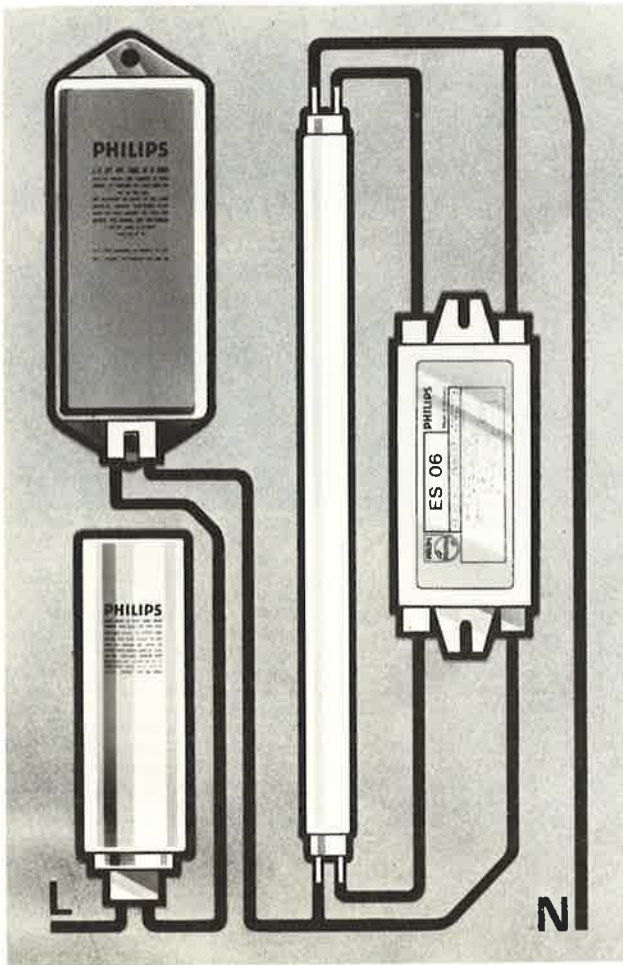
FLUORESCENT LAMP CIRCUITS & OPERATING DATA

For standard luminaires

Basic circuits as adopted in Philips standard luminaires, and a table of circuit components with circuit characteristics. Three forms of "start" are described:

- Switchstart
- Starterless
- Electronic Start.

Operating notes for luminaires and control gear are included.



11

Handbook Ref

6.2.20

To reorder this data sheet quote 10.79 PL 1839/1

Replaces

PL 1839

FLUORESCENT LAMP CIRCUITS

Switchstart

Starting is accomplished by a glow-switch starter, which is a small discharge tube with bi-metallic electrodes connected in parallel with the fluorescent lamp, in such a manner that the lamp electrode heating current passes through the switch. When the circuit is energised with a cold lamp, a discharge is established within the glow switch, warming the bi-metallic electrodes which move into contact and establish a circuit through the lamp electrodes.

Since the discharge in the starter ceases when its electrodes come into contact, they cool down and spring apart after about a second, subjecting the lamp to mains voltage plus the inductive transient voltage due to the ballast. The arc in the lamp is established, reducing the voltage across the starter to a value below that at which a discharge can take place and rendering it cold and inoperative.

Should the lamp fail to start, the discharge will be re-established in the starter and the starting cycle will be repeated. It is this ability of the glow switch starter to 'try again' that causes the repeated blinking of a switchstart circuit with a failed lamp.

Once the lamp has started, the ballast acts as a current-limiting device.

The circuit is efficient and reliable, provided that starters are changed at occasional relampings.

Starterless

The SRS (semi-resonant start) circuit, introduced by Philips, has two windings on a common core. The windings are wound in opposition, and a capacitor is connected in series with one of them. Pre-heat current is passed round the lamp electrodes, and a voltage is developed across the lamp sufficient for starting even at low temperatures. Once the lamp has started, the windings act as a current-limiting ballast.

The circuit can have a Power Factor of almost unity, and, other than the lamp itself, uses no components that require regular replacement.

Electronic Start

This Philips innovation replaces either the glow switch starter or starterless circuits with a solid-state component that has no moving parts and lasts as long as the luminaire. Positive starting is assured, even at low temperatures. Circuit power is the same as for the switchstart circuit.

Electronic Start therefore combines the advantages of both switchstart (lower power) and starterless (maintenance free), circuits, without the limitations of either of them. An added feature is automatic cut-out of the starter after about 15 seconds of non-starting of a failed lamp. Electronic Start is available in 125W 2400mm (8ft) luminaires in the Philips Streamlite, Feature and Featureline ranges. The 125W lamp was previously considered to be the most difficult to start reliably.

OPERATING NOTES

Storage

Unless otherwise stated, Philips fluorescent luminaires are for use in dry interiors. Luminaires must be stored only in dry environments; if packaging is exposed to damp, it must be changed.

Mains supply

Standard fluorescent luminaires incorporate ballasts designed for a supply voltage of 240V 50Hz, subject to statutory tolerances. The supply voltage should be checked by measurement (at the load terminals), at maximum and minimum periods.

Ambient temperature

Luminaires and control gear give their rated service in ambient temperatures not exceeding 25°C, with occasional increases to not above 35°C. At higher temperatures (for example, in shop windows or on heated ceilings), service will be reduced and operation impaired. To improve heat dissipation, luminaires should be fixed to conducting rather than insulating surfaces, or should be suspended slightly below a ceiling rather than mounted directly on it. All data quoted refer to operation in a 25°C ambient at 240V, and are averages. At low temperatures, light output and service are normally reduced; with most circuits, ignition may not be reliable below 5°C.

Fuses and circuit breakers

Circuit breakers or HRC fuses rather than re-wireable fuses should be employed. The choice of current rating is a compromise between close protection against fault currents and spurious failure due to switching transients. An approximate guide to rating is 2-3 times steady current, with a minimum of 2A for an HRC fuse and 5A for a circuit breaker.

Operating noise

All fluorescent luminaires emit an operating noise which may be noticeable in situations where the ambient noise level is low, or if the luminaires are attached to resonant structures. Trials should be made before installing the less expensive luminaires in acoustically sensitive situations; a heavy-duty grade of luminaire is usually more suitable for these environments. Normally, the shorter the luminaire, the lower the operating noise.

Radio interference

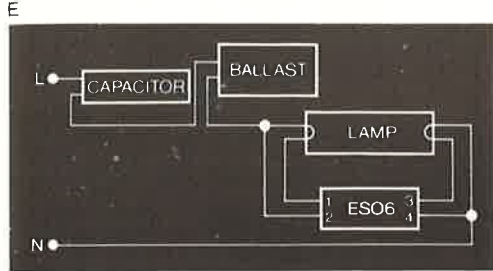
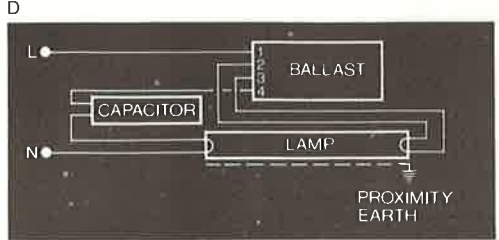
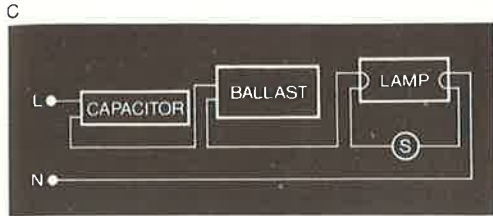
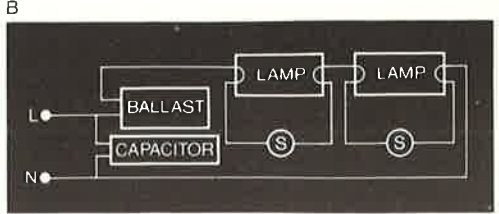
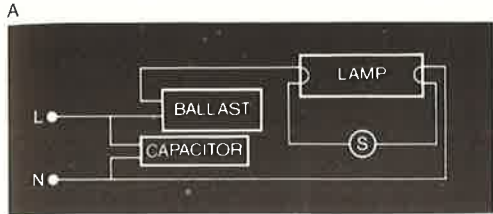
Fluorescent luminaires should not be installed in close proximity to radio sets or similar equipment. Some radio interference is inevitable, but diminishes with distance. AM sets without an external aerial are inherently susceptible to adjacent discharge lamp circuits; adding an external aerial usually gives better results than adding suppressors to the luminaire or to the set. FM sets are less susceptible to interference from electrical equipment.

Cables and switches

The current rating of cables for fluorescent luminaires should be determined in accordance with IEE Regulation G3. In a three-phase four-wire system, a full-size neutral should be employed since harmonic currents are additive in the neutral. All cables entering a luminaire, especially if passing alongside a ballast, must be suitable for the temperature involved. Ballasts may have surface temperatures up to 95°C. Supply cables should be arranged so that they do not pass alongside a ballast, but if this is not possible then cables with high-temperature PVC insulation should be used, or heat-resistant sleeving should be fitted over each individual supply cable. Switches should be generously rated, and should be suitable for inductive loads.

CIRCUIT DIAGRAMS

Modifications to luminaires may affect the validity of these diagrams. In case of doubt, use the diagram printed on the ballast.



11

ELECTRICAL DATA

Lamp rating & length	Circuit letter	Ballast Cat. No.	Capacitor	Starter Cat. No.	Circuit Watts (W)	Circuit current (A)	Harmonic content (%)	Power factor (min)
Switchstart – single lamp								
125W 2400mm	C	BBS 125	7.2mfd 5% 440V	S18	137	0.94	17	0.65 LDG
65W 1500mm	A	BCS 65	5.5mfd 10% 250V	S10	77	0.34	17	0.92
40W 1200mm	A	BCS 40	3.5mfd 10% 250V	S10	50	0.23	17	0.87
30W 900mm	A	BAS 30	3.5mfd 10% 250V	S10	38	0.18	17	0.90
20W 600mm	A	BCS 20	5.5mfd 10% 250V	S2 or S10	28	0.13	17	0.81
15W 450mm	A	BTP 15L 25	5.5mfd 10% 250V	S2 or S10	23	0.12	17	0.85
13W 525mm	A	BAS 13	2.0mfd 10% 250V	S10	18	0.10	17	0.90
8W 300mm	A	BAS 8	2.0mfd 10% 250V	S2 or S10	13	0.10	17	0.90
6W 225mm	A	BAS 8	2.0mfd 10% 250V	S2 or S10	11	0.10	17	0.90
4W 150mm	A	BAS 8	2.0mfd 10% 250V	S2 or S10	10	0.10	17	0.90
60W circular	A	BCS 65	5.5mfd 10% 250V	S10	75	0.4	17	0.90
40W circular	A	BCS 40	3.5mfd 10% 250V	S10	50	0.25	17	0.90
32W circular	A	BAS 30	3.5mfd 10% 250V	S10	40	0.25	17	0.90
22W circular	A	BCS 20	5.5mfd 10% 250V	S2 or S10	30	0.20	17	0.90
Switchstart – two lamps in series								
2 × 20W 600mm	B	BCS 40	3.5mfd 10% 250V	2 × S2	50	0.24	17	0.87
2 × 15W 450mm	B	BAS 30	3.5mfd 10% 250V	2 × S2	40	0.20	17	0.88
2 × 8W 300mm	B	BAS 13	2.0mfd 10% 250V	2 × S2	21	0.07	17	0.94
2 × 6W 225mm	B	BAS 13	2.0mfd 10% 250V	2 × S2	17	0.07	17	0.90
2 × 4W 150mm	B	BAS 8	2.0mfd 10% 250V	2 × S2	13	0.07	17	0.90
Starterless – single lamp								
85W 2400mm	—	BBX 85	5.0mfd 5% 440V	—	105	0.6	8	0.95
85W 1800mm	D	BBXK 85	8.4mfd 5% 250V	—	96	0.6	14	0.88
65W 1500mm	D	BBX 65	8.4mfd 5% 250V	—	77	0.6	16	0.95
40W 1200mm	D	BBX 40	5.5mfd 5% 250V	—	52	0.4	16	0.90
Electronic Start								
125W 2400mm	E	BBE 125	7.2mfd 5% 440V	ESO6	137	0.94	17	0.65 LDG

CI/SFB
(63.1)

UDC
696.6:628.972

COLOUR 83 MCFE 83

High-output fluorescent lamps with high Colour Rendering Index and warm appearance

Philips Colour 80 Series fluorescent lamps have three narrow bands of light output centred at wavelengths of about 450 nm (blue), 540 nm (green) and 610 nm (red). These wavelengths have been carefully chosen for a high colour rendering index, and the concentration of energy in the narrow bands gives a light output in excess of that normally associated with high efficiency lamps.

The mix of phosphors in Colour 83 lamps is chosen to give a colour temperature of 3000 K.

RANGE

Available in the following ratings:

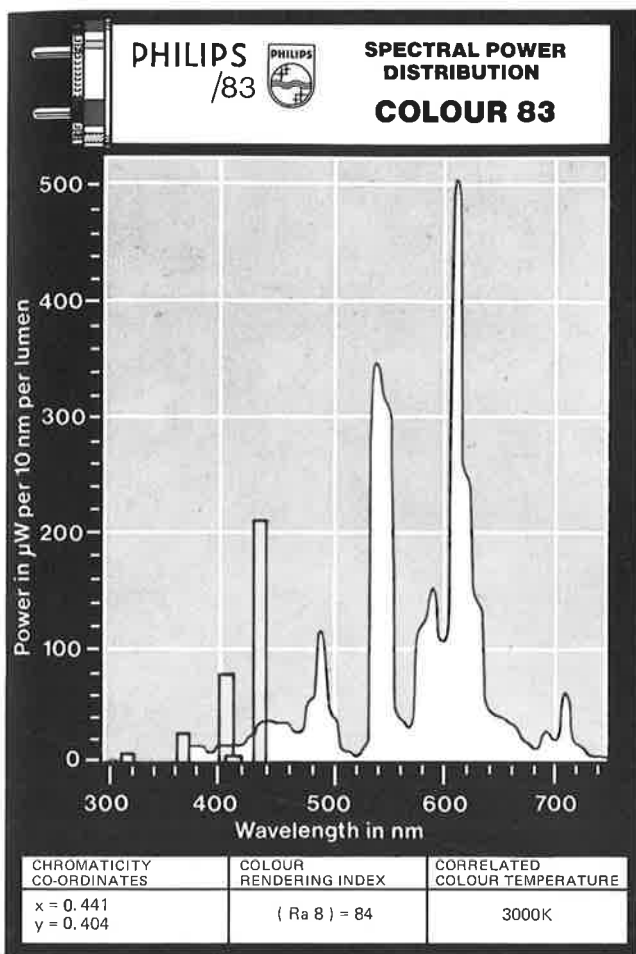
MCFE 20W/83	600mm (2ft)
MCFE 40W/83	1200mm (4ft)
MCFE 65/80W/83	1500mm (5ft)
MCFE 75/85W/83	1800mm (6ft)
MCFE 85W/83	2400mm (8ft)
MCFE 125W/83	2400mm (8ft)

APPLICATIONS

Wherever high-efficiency lamps with good colour rendering and warm colour appearance are appropriate, such as:-

- Department stores and retail shops, especially in fresh food areas
- Restaurants and hotels, both bedrooms and public rooms.

Note: For situations where a lamp with good colour rendering and high efficiency is required, but a cooler colour appearance is appropriate, Philips Colour 84 should be specified. Details of Colour 84, which has a colour temperature of 4000 K, are given in Data Sheet PL 1741.



11

Handbook Ref.

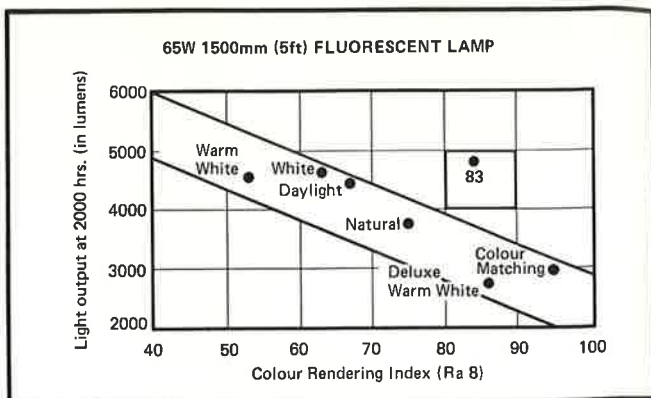
6.2.21

To reorder this data sheet quote 9,79 PL 1885/1

Replaces PL 1885

FEATURES

- High light output for comparable CRI enables number of luminaires to be reduced by over 30% in many applications, giving large savings in maintenance and running costs.
- High CRI improves visual clarity, enabling light level for comfortable working to be reduced and effecting further economies.
- Low-efficacy lamps with high colour rendering indices can often be replaced by Colour 83 lamps on a one-for-two basis, giving a 50% reduction in energy consumption without reducing the overall lighting level.
- Warm colour appearance (correlated colour temperature 3000 K) enhances social atmosphere.



Colour 83 lamps combine high output with high CRI

MATERIALS & FINISH

Tubing: 38mm diameter glass with externally-applied silicone coating.

Phosphors: New generation Colour 80 Series triphosphor coating.

SPECIFICATION

- Type compliance with BS 1853 where applicable.

To specify state:

High-efficacy (not less than 75 lm/W, 65W rating) fluorescent lamp with correlated colour temperature of 3000 K and Colour Rendering Index not less than 84; substantially as Philips Colour 83 lamp.

RANGE OF OPERATION

Replacement for ordinary 38mm fluorescent lamps with conventional phosphors.

LAMP DATA

Correlated colour temperature: 3000 K
 Colour Rendering Index (Ra8): 84
 Chromaticity co-ordinates: $x = 0.441$
 $y = 0.404$

All lamps are MCFE type, with bi-pin caps and silicone coating, for use in normal UK switchstart and starterless circuits.

ORDERING DATA

Catalogue No.	Nominal length	Lighting Design Lumens*	Packing quantity
MCFE 20W/83	600mm (2ft)	1200	25
MCFE 40W/83	1200mm (4ft)	3000	25
MCFE 65/80W/83	1500mm (5ft)	4900	25
MCFE 75/85W/83	1800mm (6ft)	6300	25
MCFE 85W/83	2400mm (8ft)	7200	20
MCFE 125W/83	2400mm (8ft)	9400	20

*Lighting Design Lumens (LDL), measured at 2,000 hours, the value used for lighting design purposes.

Please order lamps in the form given in the following example, in multiples of the packing quantity:

100 Philips fluorescent lamps MCFE 40W/83

Made in UK

LAMPS DISCHARGE

		Page
Low Pressure Sodium (SOX)	PL1757/2	375
Powerwhite	PL1768/2	377
HPI Lamps	PL1767/1	381
Mercury Blended Lamps	PL1772/1	383
High Pressure Sodium SON & SON/T	PL1776/2	385
High Pressure Sodium Lamps	PL1748/1	387
Ballasts, Ignitors & Capacitors	PL1779/3	389
Ballasts for Low Pressure Sodium Lamps	PL1777/2	393
Ballasts for High Pressure (SON) Lamps	PL1778/3	397
High Pressure Sodium (SON-R)	PL1866/1	401

CI/SIB (63.9)

UDC 696.6:628.94

LOW PRESSURE SODIUM (SOX)

Discharge Lamps

Low pressure sodium lamps provide the most efficient form of lighting known, and the latest generation of Philips SOX lamps achieve efficacies up to as high as 183 Lumens/Watt. They give a characteristic yellow light, and are therefore suitable for use in applications where efficacy and long life are of prime importance, and where colour rendering is not significant.

RANGE

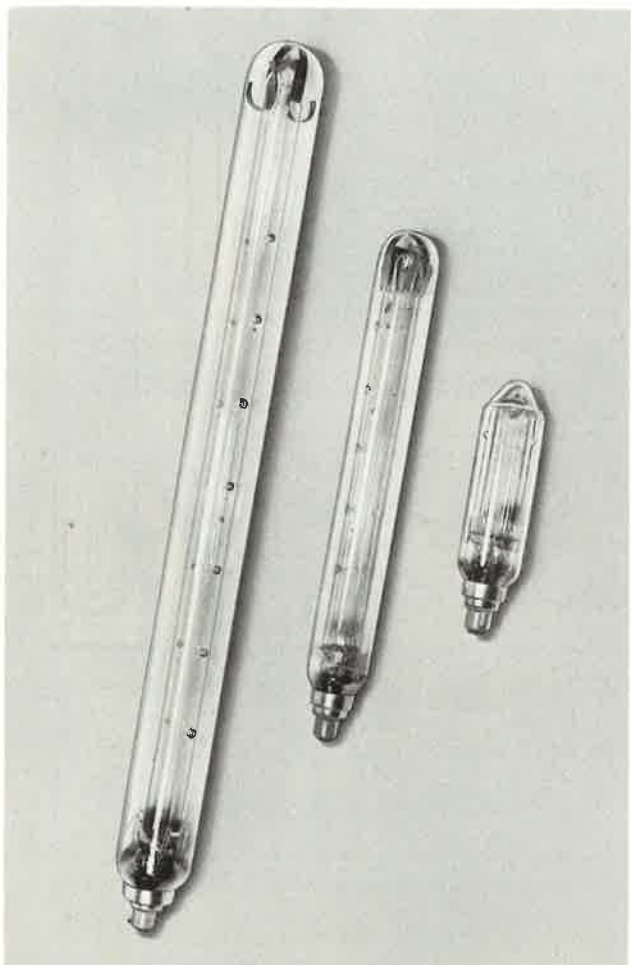
Available in a range of six lamps with ratings of 18W, 35W, 55W, 90W, 135W and 180W.

NOTE: Discharge lamps MUST be operated in conjunction with a suitable current-limiting ballast. For details of the control gear manufactured for use with SOX lamps and relevant circuit diagrams, see Sheet PL1777.

APPLICATIONS

Suitable for any application where efficacy and long life are essential, in situations such as:-

- Road lighting
- Trunk road and motorway lighting
- Car parks
- Floodlighting
- Some factory warehouse applications
- Security lighting



12

Handbook Ref.

63.1

To reorder this data sheet quote

11.77 PL1757/2

Replaces

PL1757/1

FEATURES

- Extremely high efficacy – up to 183 Lumens/Watt – conserves energy in many applications.
- Indium oxide layer on internal surface of outer glass envelope reflects infra-red radiation; keeps the discharge tube at the optimum temperature for maximum efficiency.
- Dimples formed in discharge tube form cool spots to retain sodium; prevent mirroring and consequent loss of efficiency.

■ Single BC cap for strength and simplicity.

■ Triple-coil cathodes and non-staining discharge tube ensure long life and low depreciation during use.

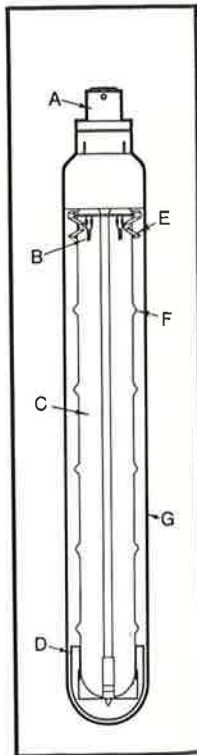
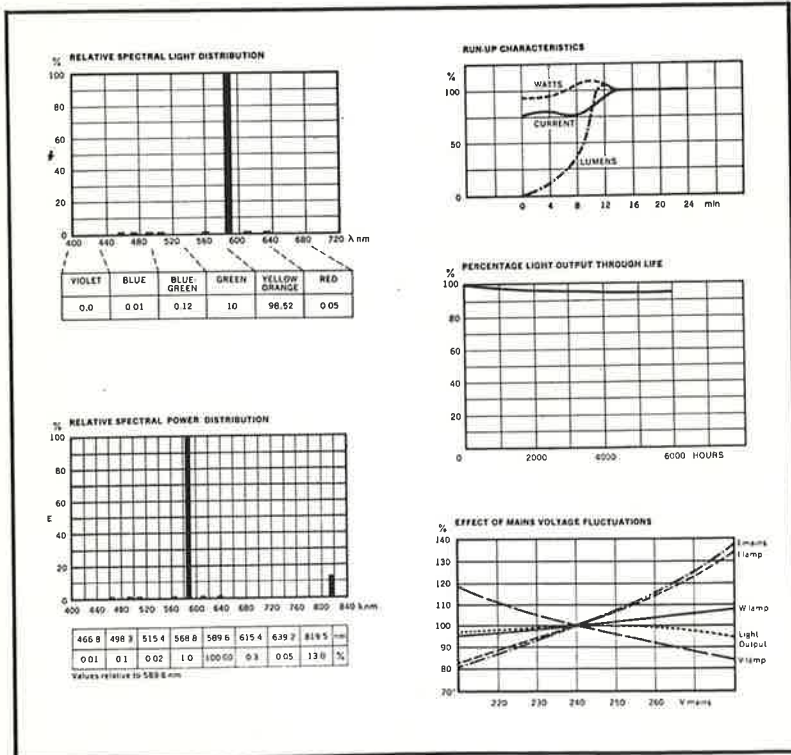
■ Non-critical burning position. All SOX lamps can be operated up to 20° above or below the horizontal, and the three smaller sizes can be operated in any 'cap up' position.

Made in U.K.

† Made in Holland

Key:

- A Alkyde BC cap
- B Triple coil cathode
- C U bend non-staining glass discharge tube
- D Discharge tube support assembly
- E Discharge tube supports
- F Sodium retaining dimples
- G Outer glass envelope with internal heat reflecting layer



PHOTOMETRIC, ELECTRICAL & ORDERING DATA

Catalogue Number	Rating (Watts)	Lighting Design Lumens	Lamp Volts	Lamp current Amperes	Overall length (mm/in.)	Diameter (mm/in.)	Cap	Ballast	PFC capacitor	Packing quantity (Lamps)
†SOX 18	18	1800*	57	0.35	216/08.5	54/2.13	BC	L4018	L4006/07	16
SOX 35	35	4300	70	0.6	310/12.2	52/2.0	BC	L6355 ††	L4016/07	9
SOX 55	55	7150	104	0.6	425/16.73	52/2.0	BC	L6355 ††	L4016/07	9
SOX 90	90	12250	112	0.95	528/20.79	66/2.6	BC	L6090BX ††	L4025/07	9
SOX 135	135	21200	164	0.95	775/30.51	66/2.6	BC	L4135**	L5020/07	9
†SOX 180	180	31500	245	0.90	1120/44.1	66/2.6	BC	L4135**	L5020/07	9

Notes:—Please order lamps by catalogue numbers, in multiples of the packing quantity.

Lighting Design Lumens refers to the light output after 2000 hours' burning, the value used for design purposes.

*Light output after 100 hours' burning.

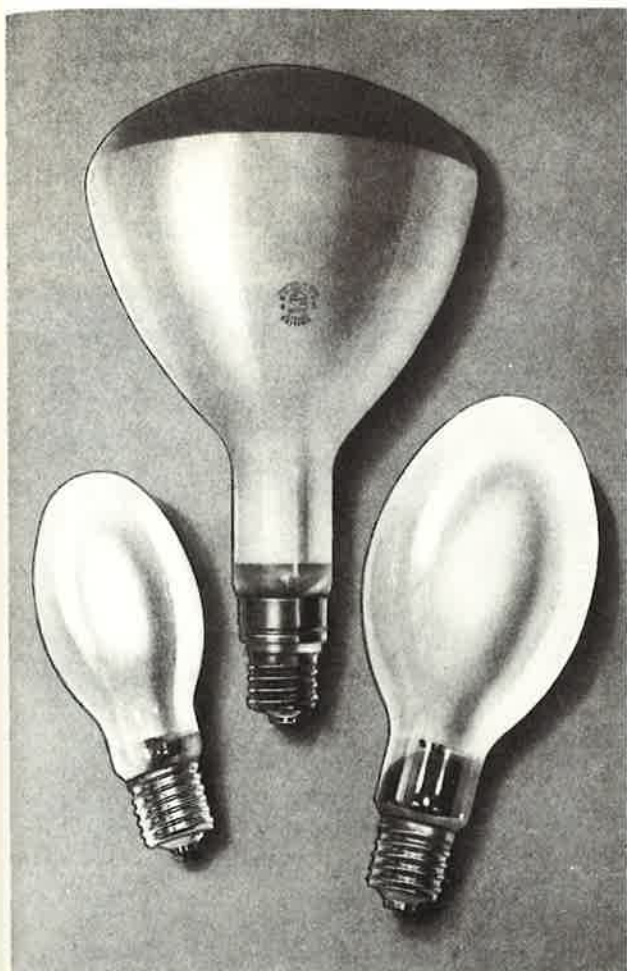
**L4135 ballast MUST be operated in conjunction with L5020/07 capacitor.

††Used in conjunction with an ignitor.

CI/SIB (63.9)

UDC 696.6 : 628.94

POWERWHITE MBF/U POWERWHITE DELUXE MBF/U POWERRAY MBFR/U



Mercury fluorescent lamps

PowerWhite and PowerRay lamps are coated on the inside surface with an Europium-activated yttrium vanadate phosphor, which is activated by the UV component in the mercury discharge to add the red component to the visible light from the mercury arc. The results are lamps of high efficacy and acceptable colour rendering which can be burned in any position – although PowerRay lamps are normally burned vertically cap up. They are suitable for many applications.

PowerWhite lamps are housed in ovoid envelopes; PowerRay lamps are of spotlight form, and have an additional reflecting layer of titanium dioxide between the phosphor and the glass, directing the light downwards and rendering the lamp impervious to degradation due to dust settling on the upper surfaces.

Certain ratings of PowerWhite lamps are available with DeLuxe phosphor coatings, which give greatly improved colour rendering properties at no expense of efficacy.

Note: Mercury fluorescent lamps
UK marking MBF = Philips
International marking HPL—N
Mercury fluorescent reflector lamps
UK marking MBFR = Philips
International marking HPL—R

RANGE

PowerWhite MBF/U mercury fluorescent lamps:

Available in ratings of 50W, 80W, 125W, 250W, 400W, 700W, 1000W and 2000W.

PowerWhite DeLuxe MBF/U mercury fluorescent lamps:

Available in ratings of 50W, 80W, 125W, 250W and 400W.

PowerRay MBFR/U mercury fluorescent reflector lamps:

Available in ratings of 125W, 250W, 400W, 700W and 1000W.

Handbook Ref.

6.3.2

To reorder this data sheet quote

12.77 PL1768/2

Replaces

PL1768/1

APPLICATIONS

Suitable for any application where efficacy, long life and reasonable colour rendering are important, in situations such as:

- Lighting factories and warehouses
- Floodlighting
- Road lighting

In addition, the DeLux version is suitable for use in hotels, departmental stores and offices.

FEATURES

- Short run-up time – 80% of full light output is achieved after only 3½ minutes.
- Reliable starting, even at temperatures down to – 30°C (– 16°C for 380/440V 1000W lamp).
- Isothermal hard glass outer envelope on sizes from 125W MBF and 250 MBF DeLux and MBFR upwards permit use in exposed positions (if weatherproof connections are used).

■ Reasonable colour rendering, coupled with high efficacy (around 50 lumens/Watt) permits economical use in many industrial and floodlighting applications.

■ Good colour rendering of DeLux PowerWhite lamps permits use in offices and other commercial environments, and is also suitable for departmental store lighting.

■ Larger versions have GES caps which screw on to preformed outer envelopes, eliminating the danger of the cap becoming loose.

■ PowerRay version gives preferential light distribution downwards, and is immune from degradation in use due to dust settling on the upper surfaces. Some upwards light is permitted, to avoid a tunnel effect.

PHOTOMETRIC & ELECTRICAL DATA

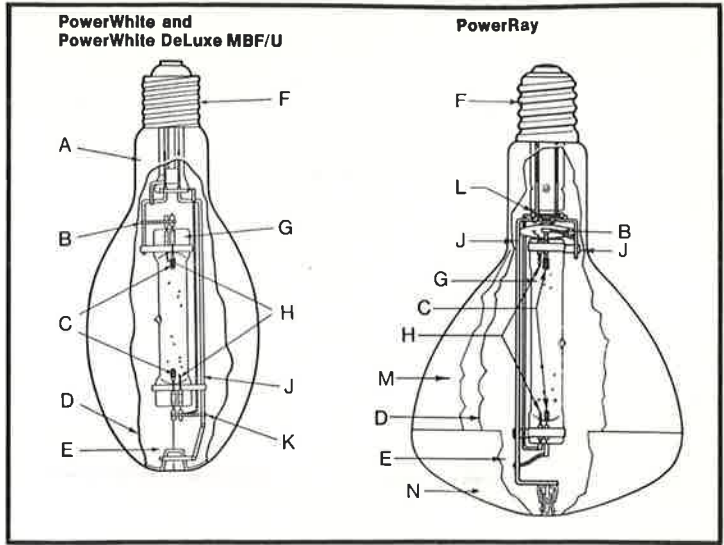
Catalogue Number & Rating	Total Circuit Watts	Lighting Design Lumens	Lamp Volts	Lamp current (Amperes)	Overall length (mm nominal)	Diameter (mm nominal)	Cap	Ballast	PFC Capacitor
PowerWhite MBF/U lamps:									
50W MBF/U	62	1,900	95	0.6	129	56	ES	L4053	L4008/07
80W MBF/U	88	3,650	115	0.8	156	71	ES/ 3-pin BC	L5080BX	L4008/07
125W MBF/U	137	5,800	125	1.2	177	76	ES, GES or 3-pin BC	L5125BX	L4008/07
250W MBF/U	268	12,500	135	2.0	227	91	GES	L5250BX	L4016/07
400W MBF/U	424	21,300	140	3.2	290	122	GES	L5400BX	L4020/07
700W MBF/U	730	36,500	140	5.6	329	142	GES	L4700BX	2 × L4016/07
1kW MBF/U	1040	52,200	145	7.3	410	167	GES	L4990	2 × L4025/07
1kW MBF/U*	—	52,200	265	4.0	410	167	GES	Not available	
2kW MBF/U*	2080	110,000	270	8.0	440	186	GES	L4991	3 × L4025/07 (between phases)
PowerWhite DeLux MBF/U lamps									
50W MBF/U	62	1,900	95	0.6	129	56	ES	L4053	L4008/07
80W MBF/U	88	3,650	115	0.8	156	71	ES	L5080BX	L4008/07
125W MBF/U	137	6,200	125	1.2	177	76	ES	L5125BX	L4008/07
250W MBF/U	268	13,300	135	2.0	227	91	GES	L5250BX	L4016/07
400W MBF/U	424	22,800	140	3.2	290	122	GES	L5400BX	L4020/07
PowerRay MBFR/U lamps:									
125W MBFR/U	137	4,900	125	1.2	190	126	ES, GES or 3-pin BC	L5125BX	L4008/07
250W MBFR/U	268	10,800	135	2.0	264	166	GES	L5250BX	L4016/07
400W MBFR/U	424	18,000	140	3.2	304	181	GES	L5400BX	L4020/07
700W MBFR/U	730	35,600	140	5.6	328	202	GES	L4700BX	2 × L4016/07
1kW MBFR/U	1040	49,800	145	7.3	380	222	GES	L4990	2 × L4025/07

Notes: Lighting Design Lumens refers to the light output after 2000 hours burning, the value used for design purposes.

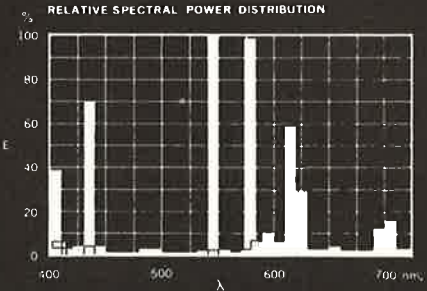
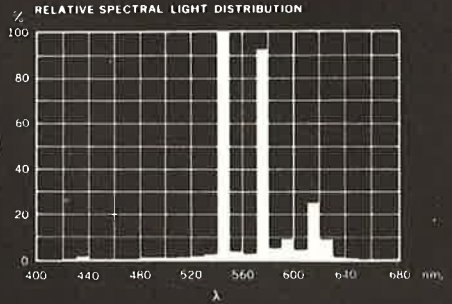
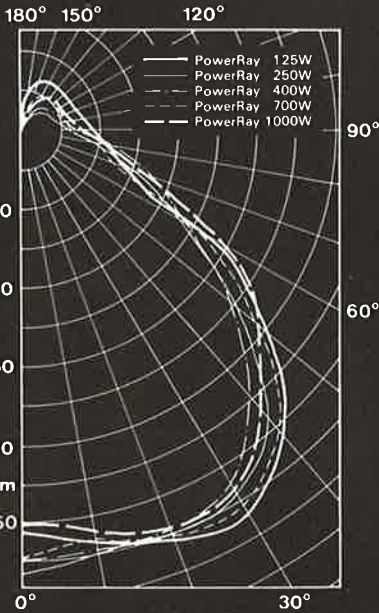
*For operation on 380/440V supplies only.

Further details concerning the control gear for use with mercury fluorescent lamps, together with circuit diagrams, are contained in Data Sheet PL 1779.

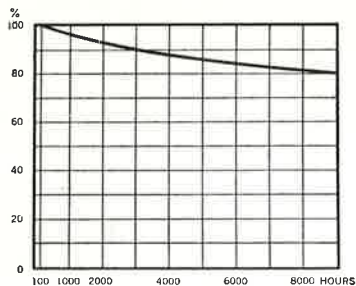
- A Isothermal hard glass outer envelope 125w-400w
- B Lead-in wire
- C Main electrodes
- D Internal phosphor coating
- E Inert gas filling
- F Nickel-plated cap
- G Quartz discharge tube
- H Twin auxiliary electrodes
- J Support
- K Lead-in wire
- L Twin auxiliary electrode resistors
- M Outer reflecting layer
- N Hard glass outer envelope satin frosted



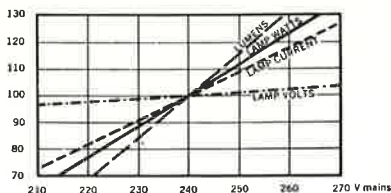
LIGHT DISTRIBUTION



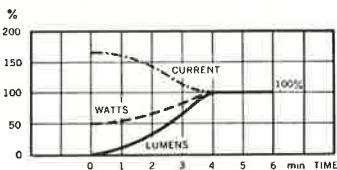
LIGHT DEPRECIATION CURVE



EFFECT OF MAINS VOLTAGE FLUCTUATIONS



RUN-UP CHARACTERISTICS



ORDERING DATA

Catalogue Number	Packing Quantity
------------------	------------------

PowerWhite MBF/U lamps

50W MBF/U	50
80W MBF/U	32
125W MBF/U	24
250W MBF/U	9
400W MBF/U	6
700W MBF/U	6
1kW MBF/U	4
1kW MBF/U 380/440V*	6
2kW MBF/U	4

PowerWhite DeLuxe MBF/U lamps (quote DeLuxe on order)

50W MBF/U	40
80W MBF/U	40
125W MBF/U	24
250W MBF/U	9
400W MBF/U	6

PowerRay MBFR/U lamps

125W MBFR/U	9
250W MBFR/U	5
400W MBFR/U	5
700W MBFR/U	4
1kW MBFR/U	4

*Specify both wattage and voltage when ordering.

Please order lamps in the form given in the following example, quoting wattage and Catalogue Number, and in multiples of the packing quantity:
24 Philips PowerWhite lamps 1kW MBF/U.

Lamps: Made in Holland

CI/SIB
(63.9)

UDC
696.6 : 628.94

HPI LAMPS

Mercury Halide discharge lamps

Mercury halide lamps contain selected metal halides in the quartz discharge tube. These have the effect of subduing the mercury spectrum and giving a considerable increase in the required colour bands. They also increase efficacy over conventional mercury lamps since the energy levels of the added metals are lower than those of mercury. The result is a crisp white light with good colour rendering, and an efficacy that can be as high as 90 lumens/Watt.

Note: Mercury halide lamps
UK marking MBI = Philips
International marking HPI

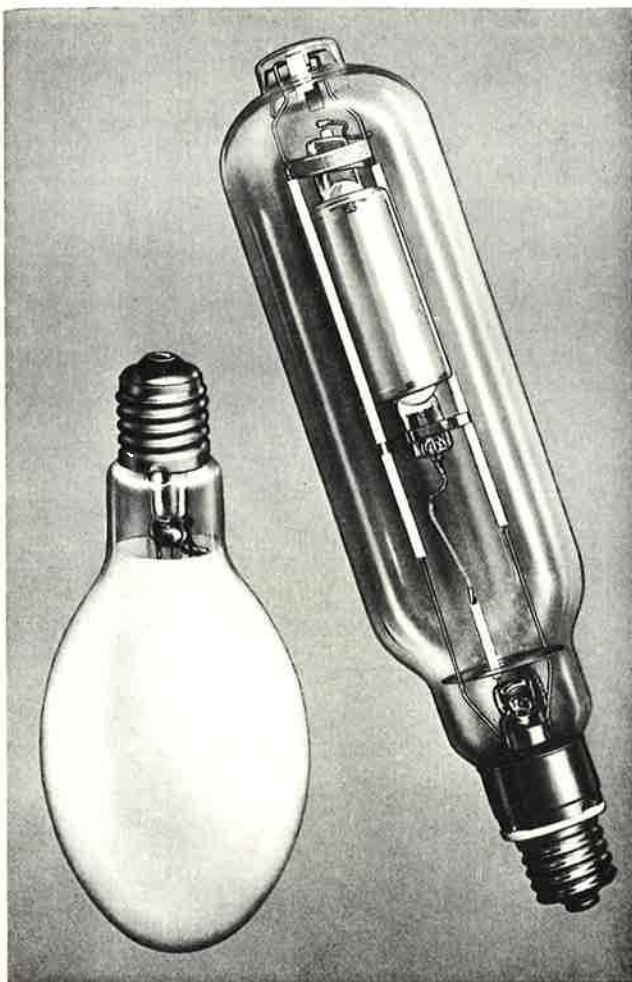
RANGE

HPI/T mercury halide lamps:
Available in 400W and 2kW versions, for burning in the horizontal plane $\pm 20^\circ$ also:
HPI/T in 2kW version, for universal burning position.
HPI/BUS 400W Isothermal lamp for vertical cap-up $\pm 15^\circ$ burning.

APPLICATIONS

Suitable for any application where high efficacy and long life combined with good colour rendering are important, in situations such as:

- High bay installations in industrial buildings
- Bridge lighting
- Lighting in city centres
- Sports stadia
- High-mast lighting
- Lighting football stadia for colour television transmission
- Area floodlighting
- Lighting training grounds



Handbook Ref.

6.3.3

To reorder this data sheet quote

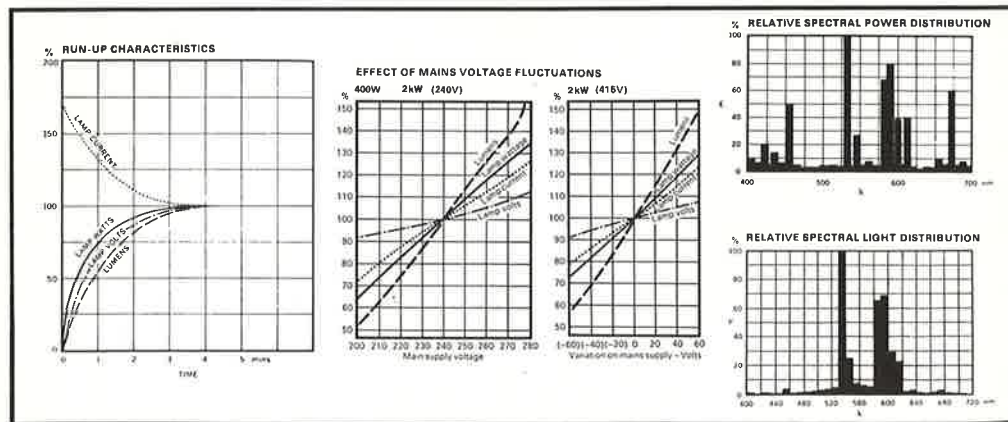
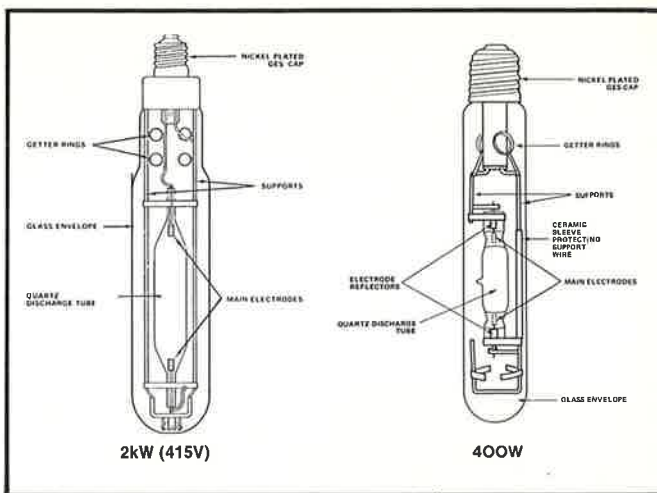
9.79 PL 1767/1

Replaces

PL 1767

FEATURES

- Short run-up time—80% of full light output is achieved after 3 to 5 minutes.
- Thyristor ignitor device starts the lamp reliably at temperatures down to -18°C , on mains supplies in excess of 200V.
- Internal heat-reflecting layer at each end of discharge tube maintains electrodes at a high temperature for efficient operation.
- Good colour rendering suitable for colour TV transmission.
- GES cap is screwed on to a preformed thread on the glass bulb, eliminating the danger of loose caps due to cement failure.



Catalogue Number	Lighting Design Lumens	Lamp Volts	Lamp Current (Amperes)	Total Circuit Watts	Overall Length (mm)	Diameter (mm)	Supply Voltage V ac	Cap	Ignitor	Ballast	PFC Capacitor μF	Packing Quantity (lamps)
400W HPI/BUS†	28,300	125	3.4	424	292	122	240/250	GES	—	L5400	2 × L4016/07	6
400W HPI/T	29,200	125	3.4	424	283	46	240/250	GES	SI 51	L5400	2 × L4016/07	12
2kW HPI/T (415V)	170,200	240*	9.0	2080	465	100	380/440	GES	SI 54	L4991	4 × L4020/07	4
2kW HPI/T (240V)	174,800	135	16.5	2080	430	102	240/250	GES	SI 52	2 × L4990/1	4 × L4025/07	4

NOTES:—Lighting Design Lumens refers to the light output after 2000 hours' operation, the value used for design purposes.

*Divided between phases.

†Isothermal outer bulb with diffusing coating.

Please order lamps in the form given in the following example, quoting wattage and Catalogue number, and in multiples of the packing quantity:—
24 Philips mercury halide lamps 400W HPI/T

Further details concerning the control gear for use with mercury halide lamps is contained in Data Sheet PL 1779

Lamps: Made in Holland
L5400 and capacitors: Made in UK

Note: Mercury halide lamps
UK marking MBI = Philips
International marking HPI.

CI/SIB (63.9)

UDC 696.6:628.94

MERCURY BLENDED POWER BLEND MLL & MLR

Mercury blended discharge lamps

PowerBlend mercury blended lamps are ballasted by means of a tungsten filament within the outer envelope. They therefore need no control gear, give light output immediately after switch-on, and provide a light source combining the warm colour of tungsten GLS lamps with the high efficacy of mercury lamps. An objective life up to 6000 hours makes the lamps particularly suitable as a direct replacement for GLS lamps in remote or inaccessible luminaires, where maintenance is difficult or costly.

MLL lamps have europium-activated yttrium vanadate phosphor coatings on the inner surface of the envelope to give good colour rendering, with up to 17% red content. A hard glass outer envelope is fitted to the 500W rating. The 160W MLR reflector lamp has an internal reflector to ensure that soiling cannot reduce its efficacy and the shape of the lamp avoids accumulation of dirt on the light window.

RANGE

100W and 160W PowerBlend MLL (vertical burning, cap up or down, $\pm 30^\circ$).

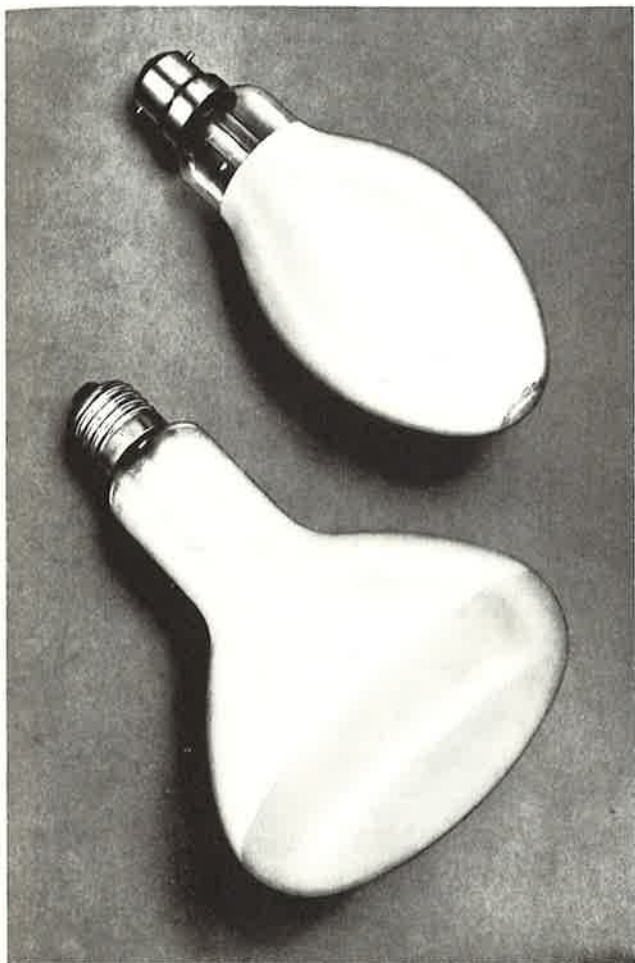
250W and 500W PowerBlend MLL (vertical burning, cap up or down, $\pm 45^\circ$).

160W PowerBlend MLR (vertical burning, cap up or down, $\pm 30^\circ$).

APPLICATIONS

Suitable for use in commercial, industrial and public lighting applications, particularly where initial installation costs must be kept low.

In addition, the MLR reflector lamp is suitable for use in display and plant lighting.



12

Handbook Ref.

6.3.4

To reorder this data sheet quote

6.79 PL1772/1

Replaces

PL1772

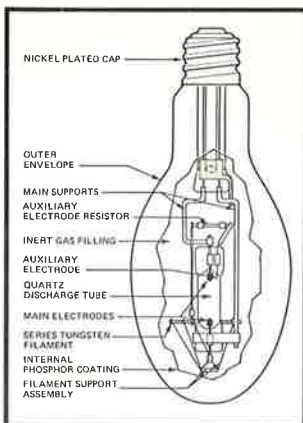
FEATURES

- No control gear required – the lamps simply plug into existing lighting points so that installation costs are low.
- Good colour rendering, making the lamps suitable for use as direct replacements for GLS lamps in most situations.
- Long service life – up to 6000 hours – greatly reduces maintenance costs, particularly where access is difficult.
- Instant light output after switch-on, and re-ignition after only 3–4 minutes.
- Greater efficacy than GLS lamp either increases light output or enables lamp rating to be reduced, so conserving energy.
- Internal reflecting surface of MLR lamp ensures efficacy and reduces cleaning maintenance even in dirty environments.

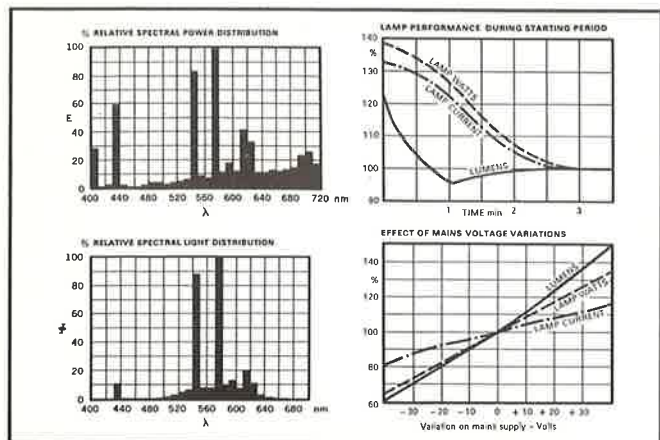
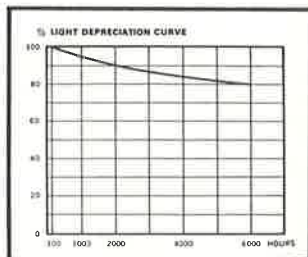
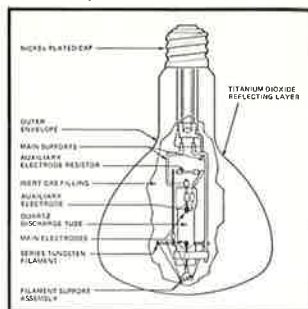
Note: Mercury blended lamps

Philips International marking MLL
= UK marking MBTF.
Philips International marking MLR
= UK marking MBTF/R.

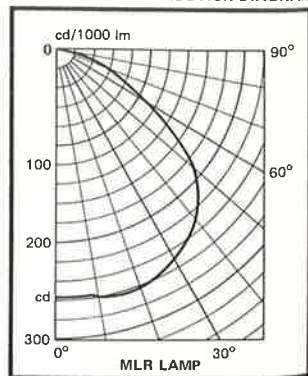
MLL Lamp



MLR Lamp



POLAR LIGHT DISTRIBUTION DIAGRAM



LAMP & ORDERING DATA

Catalogue Number	Lighting Design Lumens	Lamp Voltage AC (as mains)	Lamp Current (Amperes)	Overall Length (mm/in.)	Diameter (mm/in.)	Cap	Objective Life (hrs.) up to	Packing Quantity
100W MLL	960	240	0.44	155/06.10	72/2.76	BC or ES	6000	32
160W MLL	2630	240 or 220	0.69 or 0.75	177/06.97	77/3.05	BC or ES	6000	24
250W MLL	5000	240	1.10	227/08.94	92/3.54	GES	6000	9
500W MLL	12250	240	2.20	292/11.42	122/4.72	GES	6000	6
160W MLR	2400	240	0.69	190/07.49	127/5.00	ES	6000	5

NOTES: Lighting Design Lumens refers to the light output after 2000 hours' operation, the value used for lighting design purposes.

All lamps have a power factor greater than 0.95.

No control gear is required for use with these lamps.

220V rating is suitable for mains supplies of 220–230V; 240V rating is suitable for mains supplies of 240–250V. Specify voltage when ordering.

Please order lamps in the form given in the following example, in multiples of the packing quantity:-
64 Philips Mercury blended lamps 100W MLL.

Made in Holland

C/SIB
(63.9)

UDC
696.6:628.94

HIGH PRESSURE SODIUM (SON & SON/T)

Discharge Lamps

High-pressure sodium lamps combine extremely high efficacies (up to 112 Lumens/Watt) with good colour rendering, and are therefore suitable for many applications where a warm white light and long lamp life are important factors. The discharge tube is made of sintered aluminium oxide, containing a mixture of mercury and sodium at high pressure. The effect of high pressure is to broaden the sodium spectrum, so that the lamp gives an output throughout the entire visible spectrum.

RANGE

SON (Ovoid outer envelope, with white internal diffusive coating): Available in ratings of 50W, 70W (also available with clear envelope), 150W, 250W, 400W and 1000W.

SON/T (Tubular outer envelope of clear glass):

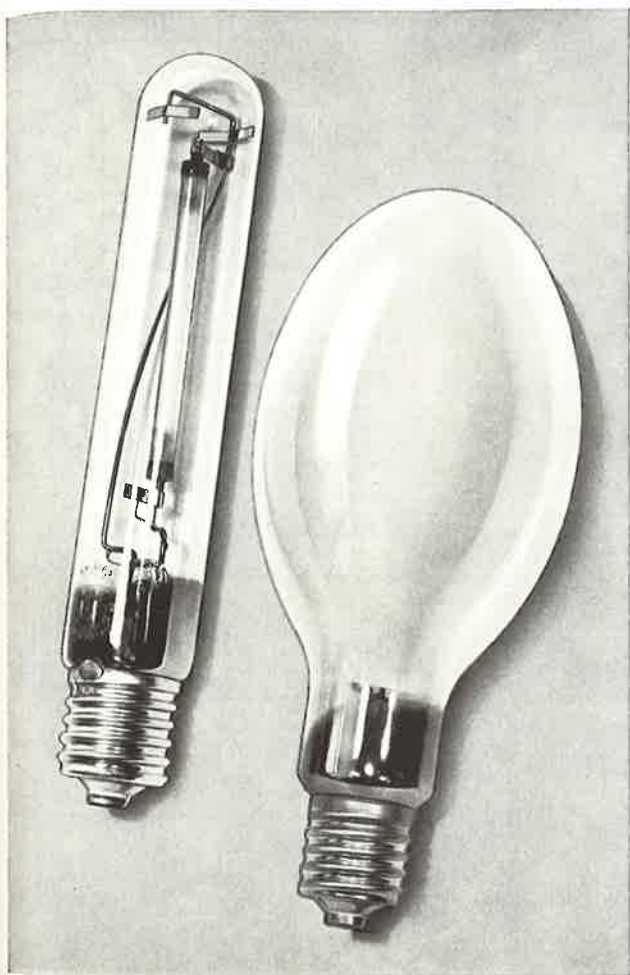
Available in ratings of 150W, 250W, 400W and 1000W.

APPLICATIONS

Suitable for any application where high efficacy, reliability and long life coupled with good colour rendering is required, in situations such as:

- Security lighting
- Docks and goods yards
- Transport termini
- Churches
- Swimming pools
- Exhibition halls
- Outdoor markets and civic centres.

In addition, the clear tubular outer envelope of the SON/T lamp lends itself to these applications where precise optical control is essential, as in luminaires for floodlighting and the lighting of stadia.



Handbook Ref.

63.6

To reorder this data sheet quote

9.79 PL 1776/2

Replaces

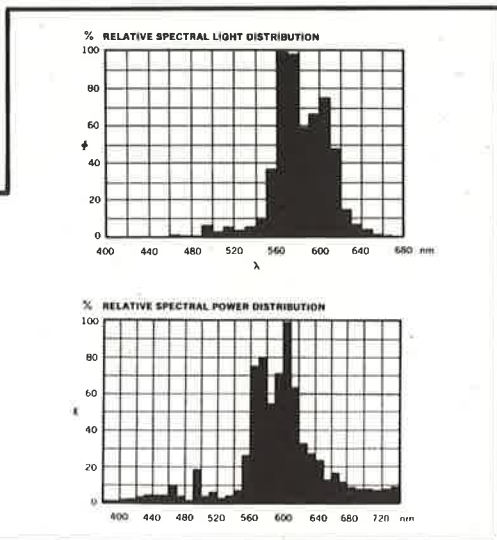
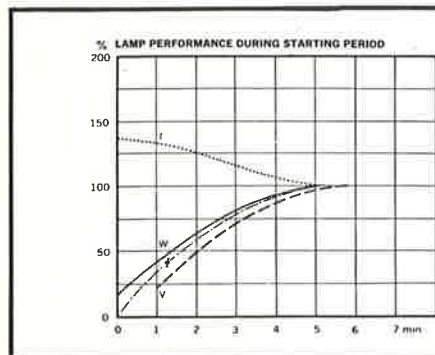
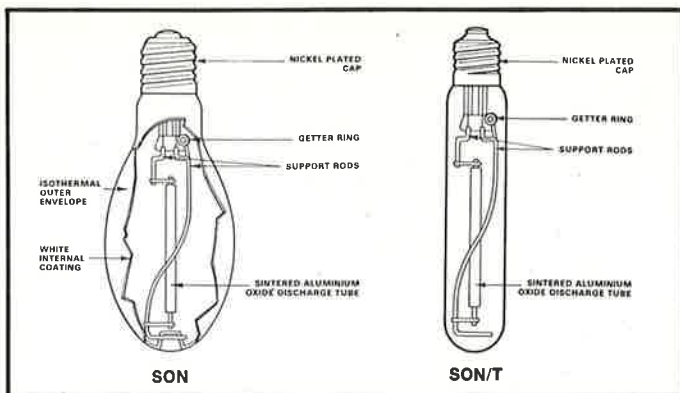
PL 1776/1

FEATURES

- Short run-up time – 80% of full light output is achieved after only 3½ minutes.
- Solid-state ignitor on lamps of 150W rating and above ensures reliable and quick starting – even when hot – at temperatures down to –40°C.
- Reliability, stable operation and long life permits lamps to be used in situations where 'lamp outage' could create a hazard.
- Excellent lumen maintenance.
- Isothermal hard glass outer envelope guards against breakage due to thermal shock.
- Warm white colour appearance, with colour rendering capable of reproducing blue surfaces clearly, and enhancing red or yellow surfaces. Complexions and skin tones are flattered by the light.
- Universal burning position for all lamps in the range.

Lamps and ignitors: Made in Holland

Ballasts and capacitors: Made in U.K.



PHOTOMETRIC & ELECTRICAL DATA

Catalogue Number	Lumens		Lamp Volts	Lamp Current (Amperes)	Total circuit Watts	Overall length (mm/In.)	Diameter (mm/in.)	Cap	Ignitor	Ballast	PF Capacitor	Packing quantity (Lamps)
	100 hrs.	2000 hrs.										
50 SON	3300	—	85	0.75	61	156/ 6.14	72/2.83	ES	Internal	L4054	L4008/07	40
70 SON	5800	—	90	1.0	85	156/ 6.14	72/2.83	ES	Internal	L4074	L4010/07	40
70 SON/C (clear bulb)	6000	—	90	1.0	85	156/ 6.14	72/2.83	ES	Internal	L4074	L4010/07	40
150 SON	14000	13500	100	1.8	174	227/ 8.90	92/3.54	GES	SN50	L4154BX	L4016/07	9
150 SON/T	14500	14000	100	1.8	174	211/ 8.31	47/1.81	GES	SN50	L4154BX	L4016/07	12
250 SON	25000	24000	100	3.0	280	227/ 8.94	92/3.58	GES	SN50	L4254	2 x L4016/07	9
250 SON/T	26000	25000	100	3.0	280	257/10.12	47/1.81	GES	SN50	L4254	2 x L4016/07	12
400 SON	47000	45000	105	4.4	440	292/11.42	122/4.78	GES	SN50	L4404	2 x L4020/07	6
400 SON/T	48000	46500	105	4.4	440	283/11.22	47/1.89	GES	SN50	L4404	2 x L4020/07	12
1000 SON	120000	110000	110	10.3	1100	400/15.75	170/6.56	GES	SN53	L4410	4 x L4025/07	4
1000 SON/T	130000	123000	110	10.3	1100	390/15.75	67/2.60	GES	SN53	L4410	4 x L4025/07	4

Notes: Please order lamps by catalogue numbers, in multiples of the packing quantity.

All lamps are suitable for operation in ambient temperatures down to –40°C.

C/SIB (63.9)

UDC 696.6:628.94

HIGH PRESSURE SODIUM LAMP

Plug-in SON-H

The SON-H range of high-pressure sodium lamps simply plug into existing 250W and 400W mercury circuits. The lamps use the existing mercury control gear, and the self-starting system featured in the design does not require the addition of an ignitor to the circuit.

RANGE

Available in 210W and 350W ratings, for use with 250W and 400W mercury control gear.

APPLICATIONS

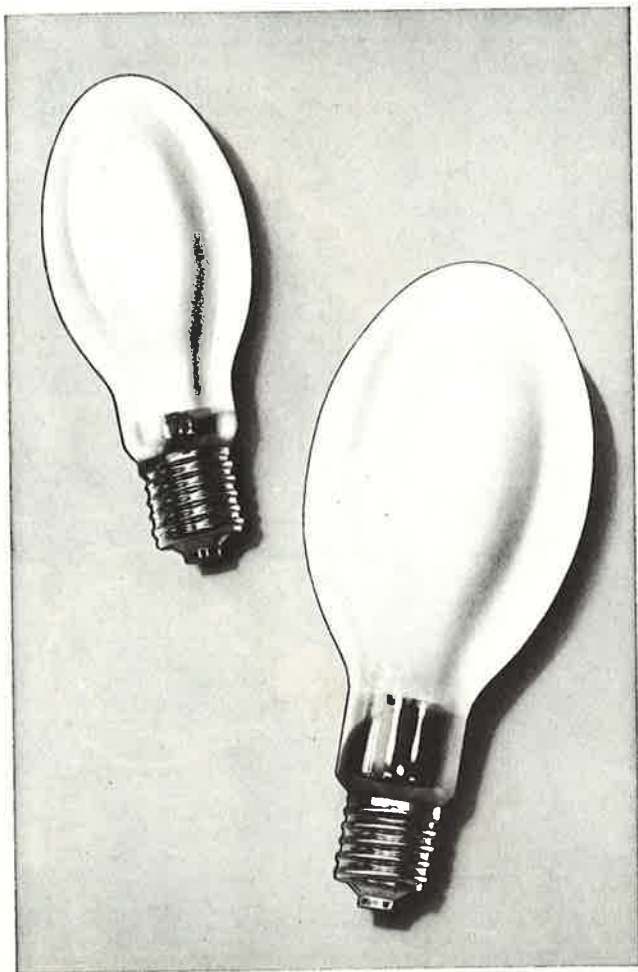
Suitable for replacing a 250W or 400W mercury lamp in any situation, including the following:-

Outdoors

- Trunk roads & streets
- Shopping precincts
- Residential areas
- Floodlighting
- Airport lighting
- Illumination of industrial areas.

Indoors

- Factories
- Transport termina
- Swimming pools
- Sports halls
- Public buildings
- Storage areas



Handbook Ref.

6.3.7

To reorder this data sheet quote 11.77 PL 1748/1

Replaces

PL 1748

FEATURES

High efficacy: The efficacy of 97 lm/W is 65% higher than a standard mercury lamp. An existing lighting point can therefore be upgraded to give 54% more light with a substantial reduction in power consumption.

Coated lamp: The isothermal outer envelope is internally coated for compatibility with most optical systems.

Ignition: Reliable ignition at 190V, even at low temperatures (-30°C.)

Fast re-ignition: Three minutes.

MATERIALS & FINISH

Hard glass envelope, internally coated; GES cap.

RANGE OF OPERATION

190-250V 50Hz.

-30°C to 50°C, depending on other circuit limiting factors.

SPECIFICATION

■ High pressure sodium lamp rated at 210W or 350W.

■ Auxiliary electrode starting device.

■ Similar in overall size to 250W and 400W mercury MBF lamps, and capable of operating on standard mercury MBF control gear of comparable wattage.

To specify state:

High-pressure sodium lamp with hard glass envelope internally coated, GES cap, similar in size to 250W (400W) mercury lamp and capable of operation from standard mercury control gear, substantially as Philips 210W SON-H (350W SON-H).

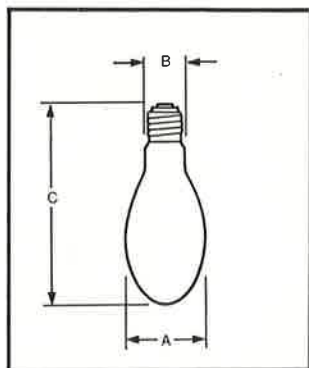
DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Catalogue No.	Overall dimensions(mm)			Lighting design Lumens	Lamp voltage	Lamp current (Amperes)	Cap	Total circuit Watts
	A	B	C					
210W SON-H	91	53	227	17250	104	2.5	GES	228
350W SON-H	122	58	290	32600	117	3.6	GES	374

ORDERING DATA

Please order in multiples of the packing quantity.

Description	Catalogue No.	Cap	Packing quantity	EFW Code No.
210W high pressure sodium lamp	210W SON-H	GES	9	019173
350W high pressure sodium lamp	350W SON-H	GES	6	019238



Made in Holland.

C/S/SB (63.9)

UDC 696.6:628.94

BALLASTS, IGNITORS & CAPACITORS

for mercury fluorescent lamps HPL-N, HPL-R and mercury halide lamps HPI

A range of current-limiting ballasts, self-healing dry film capacitors for power factor correction and electronic ignitors for providing the high-voltage pulses needed to start HPI lamps. Philips hold a license to manufacture ballasts in accordance with BS 4782, and most ballasts listed in this Data Sheet are Kite-marked with this Standard.

Note: Mercury fluorescent lamps
UK marking MBF = Philips
International marking HPL-N
Mercury halide lamps
UK marking MBI = Philips
International marking HPI
Mercury fluorescent reflector lamps
UK marking MBFR = Philips
International marking HPL-R

RANGE

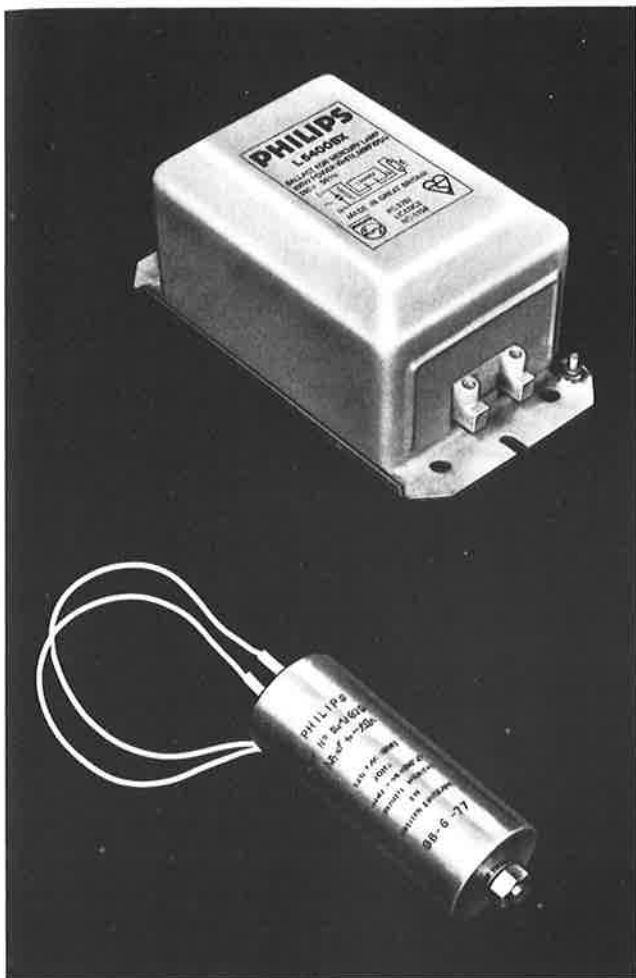
A full range of control gear components is available for use with the following Philips mercury fluorescent and mercury halide lamps:-

HPL-N mercury fluorescent 50W, 80W, 125W, 250W, 400W, 700W, 1kW and 2kW.

HPL-N DeLux mercury fluorescent 80W, 125W, 250W and 400W.

HPL-R mercury fluorescent reflector 125W, 250W, 400W, 700W and 1kW.

Mercury halide HPI/T 400W, 2kW (240V and 415V) and HPI/BUS 400W.



Handbook Ref.

6.3.8

To reorder this data sheet quote

8.79 PL1779/3

Replaces

PL1779/2

DISCHARGE BALLASTS

Features

■Ballasts for mercury fluorescent and mercury halide lamps are generally housed in deep-drawn or fabricated cans and filled with polyester to withstand the arduous conditions of service.

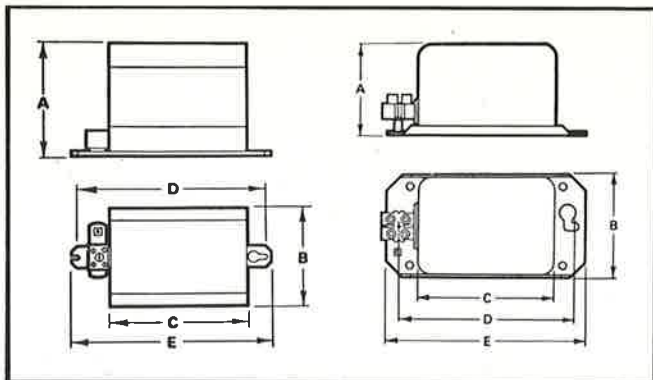
■Non-track terminal blocks, and a separate earth terminal which is easily accessible and mounted so as to ensure good electrical connection between cable and baseplate.

■Screen-printed labels include circuit diagrams which cannot peel off in damp or humid conditions.

■Simply fixed with a keyhole at one end and a slot at the other, necessitating only two pre-mounted screws.

■Polyester filling permits small, quiet ballasts, and secures the gap and coils to ensure correct operation of lamps throughout the long life of the ballasts. Polyester does not soften even under fault conditions.

■Low wattage losses ensure economical operation and conservation of energy.



DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Mercury lamp ballasts for use on 50Hz mains supply to operate HPL-N, HPL-N DeLux, HPL-R lamps, metal halide HPI/T and HPI/BUS lamps. Manufactured in accordance with BS 4782.

Catalogue No.	For lamp type	Circuit Diagram No.	Total circuit Watts	Weight kg	Tw	Δt	Voltage range	Dimensions					Can*	Total third harmonic %	PVC capacitor
								A mm	B mm	C mm	D mm	E mm			
L4053	50W HPL-N	1	62	1.4	120	60	230/250	48	64	111	127	143	D	72	L4008/07
L5080BX	80W HPL-N	1	86	1.8	120	60	230/250	65	74	97	129	145	D	63	L4008/07
L5125BX	125W HPL-N & HPL-R	1	137	2.1	120	60	230/250	65	74	97	129	145	D	52	L4008/07
L5250BX	250W HPL-N & HPL-R	1	268	4.3	120	60	230/250	83	102	140	172	188	D	50	L4016/07
L5400BX	400W HPL-N & HPL-R	1	424	7.2	120	70	230/250	83	102	140	172	188	D	45	L4020/07
L4700BX	700W HPL-N & HPL-R	1	730	9.3	120	60	230/250	108	106	130	177	189	F	44	2 x L4016/07
TL4990	1kW HPL-N & HPL-R	1	1040	12.8	120	70	230/250	133	114	170	220	235	F	44	2 x L4025/07
TL4991	2kW HPL-N	2	2080	26.8	—	—	380/440	180	135	240	180	265	Open	48	3 x L4025/07
L5400BX	400W HPI/T	3	424	7.2	120	70	230/250	83	102	140	172	188	D	57	2 x L4016/07
L5400BX	400W HPI/BUS	1	424	7.2	120	60	230/250	83	102	140	172	188	D	57	2 x L4016/07
t2 x L4990	2kW HPI/T	5	2080	12.8	120	70	230/250	133	114	170	220	235	F	48	4 x L4025/07
TL4991	2kW HPI/T	4	2080	26.8	—	—	380/440	180	135	240	180	265	Open	39	4 x L4020/07

*Can types: D - Deep drawn, F - Fabricated.

Total Third Harmonic values relate to measurements in the neutral of a balanced four wire, three phase supply. These values are divided by three to obtain values in single phase supplies.

CAPACITORS

for power factor correction

Features

■Wound from metallised polypropylene film which has 'self-healing' characteristics after electrical breakdown.

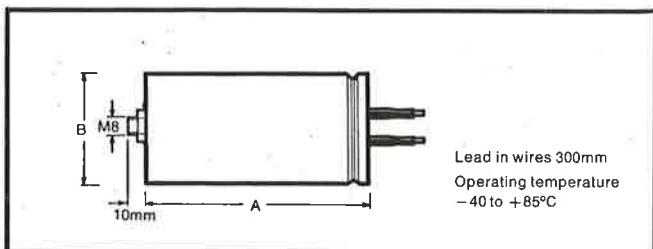
■'Dry' construction eliminates the possibility of leakage.

■Internal resistor eliminates the danger of shock from a capacitor charged by the inductive kick-back of the ballast.

■Pin terminations with push-on leads 300mm (12in.) long.

■Extruded aluminium canister of circular cross-section with an M8 earthing and fixing stud.

■Operating temperature range -40°C to +85°C.



Lead in wires 300mm
Operating temperature
-40 to +85°C

DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Catalogue No.	Max. Working Voltage RMS	Capacitance μF	Diameter mm (B)	Length mm (A)	Approx. Weight kg.
L4008/07	250	8 \pm 10%	38	75	0.10
L4016/07	250	16 \pm 10%	45	70	0.10
L4020/07	250	20 \pm 10%	45	95	0.12
L4025/07	250	25 \pm 10%	45	95	0.14

Operating temperature: -40°C to +85°C. Lead In Wire Length 300mm (12in.).

IGNITORS

for mercury halide lamps

Features

- Reliable solid-state circuit provides high-voltage pulses to achieve virtually instantaneous ignition of lamp.
- Low energy content of pulses present an electrical hazard to safety no greater than that of any mains voltage installation.
- Ignitor is switched out of circuit after ignition; has zero Watts loss during lamp operation.
- Re-ignition of a hot lamp after mains interruption usually occurs in less than one minute, even in high ambient temperatures such as occur in multi-lamp luminaires. This is an important feature where lamp outage can present a hazard to safety.
- Corrosion Proof polyamide casing with two slots the length of each side, two flexible lugs and two screw-holes offering a choice of methods of attachment.
- Operates reliably at temperatures up to 70°C.

Wiring

Certain cables in the ignition circuit should be rated at 600/1000V ac (see circuit diagram), and must be capable of withstanding the ignition pulses in humid conditions. All cables should be capable of withstanding any temperature encountered, and should be protected against mechanical damage.

The following recommendations are for guidance only; the cable manufacturers' published data should be consulted for fuller cable specifications with regard to temperature.

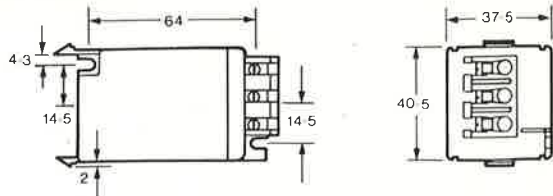
Conductor temperatures up to 70°C:
PVC-insulated cable,

Conductor temperatures up to 90°C:
HT PVC-insulated cable.

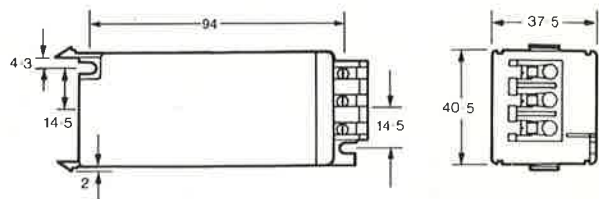
Conductor temperatures up to 200°C:
Silicone rubber insulated cable with glass fibre sheath for mechanical protection.

Mineral-insulated cables are not recommended for use in these parts of the ignition circuit.

SI 51 & SI 52 IGNITORS



SI 54 IGNITOR



All dimensions in mm

WEIGHTS & ELECTRICAL DATA

Catalogue No.	For Lamp	Voltage range	Min. Supply Voltage	Circuit Diagram	Weight kg.
†SI 51	HPI/T 400W	230/250	200	3	0.07
†SI 52	HPI/T 2000W	230/250	200	5	0.07
†SI 54	HPI/T 2000W	380/415	360	4	0.10

NB. HPI/BUS does not require an ignitor.

Cable length limitations

In circuits using ignitors, the maximum cable length between lamp and control gear is limited by the capacitance of the cable. This is obtained by adding together two values obtained in test.

The capacitance of the 'high' conductor (i.e. the conductor connecting the ballast to the lamp centre contact) and all other conductors bonded together.

The capacitance between the 'high' conductor and earth (usually the protective housing of the cable).

The maximum cable capacitances acceptable to these ignitors is as follows:-

SI 51 ignitor: 25,000pF

SI 52 ignitor: 20,000pF

SI 54 ignitor: 100,000 pF

Tables giving maximum permissible cable lengths using typical cables in common applications are contained in Technical Information Sheet No. TIS 15.

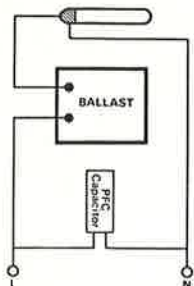
IMPORTANT NOTE: With the exception of certain special types, such as the PowerBlend mercury/blended range of lamps with built-in control gear, all mercury and metal halide discharge lamps **MUST** be operated with a current-limiting device in the lamp circuit. Power factor correction capacitors should be used in accordance with the circuit diagrams and data in this leaflet to ensure that the power factor presented to the supply is in accordance with the requirements of the Electricity Authority and to reduce currents in the circuit supply cables.

Made in UK

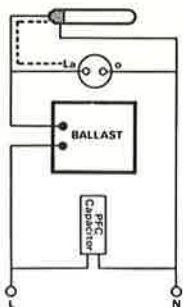
† Made in Holland

Circuit diagrams

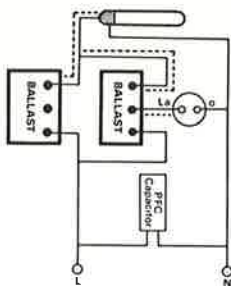
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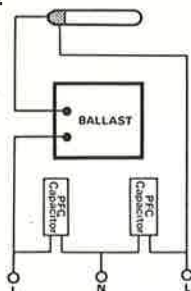
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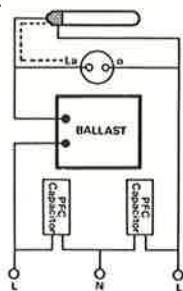
5



2



4



Wiring diagram codes:-

1. HPL-N 50-1kW, HPL-R 125-1kW, HPI/BUS 400W
2. HPL-N 2kW
3. HPI/T 400W
4. HPI/T 2kW (415V)
5. HPI/T 2kW (240V)

ORDERING DATA

Catalogue No.	Description	Packing quantity
L4053	Ballast for 50W HPL-N	6
L5080BX	Ballast for 80W HPL-N	8
L5125BX	Ballast for 125W HPL-N and HPL-R	8
L5250BX	Ballast for 250W HPL-N and HPL-R	4
L5400BX	Ballast for 400W HPL-N, HPL-R, HPI/T and HPI/BUS	4
L4700BX	Ballast for 700W HPL-N and HPL-R	4
L4990	Ballast for 1kW HPL-N, HPL-R and 2kW HPI/T* (240V)	2
L4991	Ballast for 2kW HPL-N and 2kW HPI/T (415V)	1
L4008/07	PF Capacitor	50
L4016/07	PF Capacitor	50
L4020/07	PF Capacitor	30
L4025/07	PF Capacitor	30
SI 51	Ignitor for 400W HPI/T	50
SI 52	Ignitor for 2kW HPI/T (240V)	50
SI 54	Ignitor for 2kW HPI/T (415V)	20

*Two ballasts required for this circuit.

Please order control gear components in the form given in the following example in multiples of the packing quantity. Control gear ordered with luminaires can be supplied in the exact quantity required:-

200 Philips ballasts L4991
 200 Philips ignitors SI 54
 810 Philips Capacitors L4020/07

CI/SIB (63.9)

UDC 696.6:628.94

BALLASTS, IGNITORS & CAPACITORS

for low pressure sodium (SOX) lamps

A range of current-limiting ballasts, self-healing dry film capacitors for power factor correction and electronic ignitors for SOX lamps.

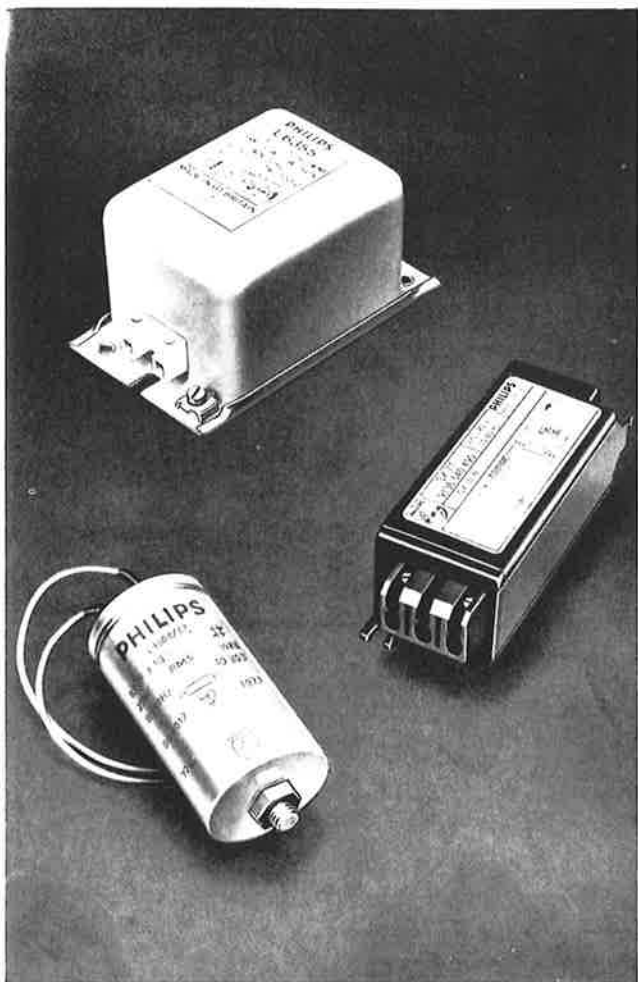
Philips hold a license to manufacture ballasts in accordance with BS 4782, and ballasts manufactured for use with SOX lamps are Kitemarked with this Standard.

IMPORTANT NOTE: All low-pressure sodium (SOX) lamps **MUST** be operated with a current-limiting device in the lamp circuit. Power factor correction capacitors should be used in accordance with the circuit diagram and data in this leaflet to ensure that the power factor presented to the supply is in accordance with the requirements of the Electricity Authority and to reduce currents in the circuit supply cables. Other circuit capacitors are essential for the correct operation of lamps.

RANGE

A full range of control gear components is available for use with the following Philips low-pressure sodium lamps:-

- 18W SOX
- 35W SOX
- 55W SOX
- 90W SOX
- 135W SOX
- 180W SOX



Handbook Ref.

6.3.9

To reorder this data sheet quote 9.79 PL 1777/2

Replaces PL 1777/1

DISCHARGE BALLASTS

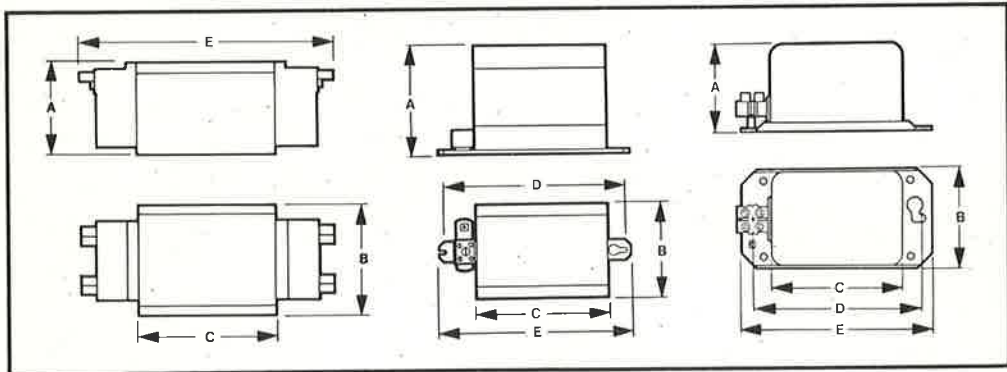
Features

- Ballasts for low-pressure sodium lamps are housed in deep-drawn or fabricated cans, filled with polyester to withstand the arduous conditions of service.
- Non-track terminal blocks, and a separate earth terminal which is

easily accessible and mounted so as to ensure good electrical connection between cable and base-plate.

- Screen-printed labels include circuit diagrams which cannot peel off in damp or humid conditions.
- Simply fixed with a keyhole at one end and a slot at the other, necessitating only two pre-mounted screws.

- Polyester filling permits small, quiet ballasts, and secures the gap and coils to ensure correct operation of lamps throughout the long life of the ballasts. Polyester does not soften even under fault conditions.
- Low wattage losses ensure economical operation and conservation of energy.



DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Low-pressure sodium lamp ballasts for use on 50Hz mains supplies, to operate SOX lamps. Manufactured in accordance with BS 4782.

Cat. No.	For lamp type	Circuit Diag. No.	Total circuit Watts	Wl. kg	Tw	ΔI	Voltage range	Dimensions					Can*	Total third harmonic %	Essential capacitor	Ignitor
								A mm	B mm	C mm	D mm	E mm				
†L6018	18W SOX	1	25	0.68	—	—	230/250	35	43	53	—	97	Open	13.7	L4005/07	—
L6355	35W & 55W SOX	4	48/68	1.8	—	—	230/250	63	68	88	102	118	D	14	†L4008/07	SX71P
L6090	90W SOX	2	110	2.25	—	—	230/250	52	64	147	157	173	D	25	L5010/07	SX70
L6135	135W SOX	2	159	4.1	—	—	220/240	89	85	130	153	168	F	8.2	L5007/07	SX74
L4135	135W & 180W SOX	3	175/220	6.8	120	75	190/250	108	106	130	177	189	F	41/79	L5020/07	—

*Can types: D - Deep drawn. †PFC capacitor
F - Fabricated.

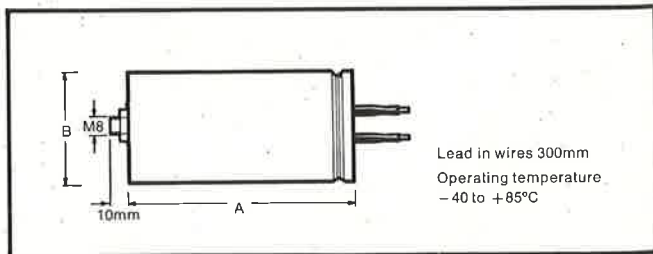
Total Third Harmonic values relate to measurements in the neutral of a balanced four wire, three phase supply. These values are divided by three to obtain values in single phase supplies.

CAPACITORS

for power factor correction

Features

- Wound from metallised polypropylene film which has 'self-healing' characteristics after electrical breakdown.
- 'Dry' construction eliminates the possibility of leakage.
- Internal resistor eliminates the danger of shock from a capacitor charged by the inductive kick-back of the ballast.
- Pin terminations with push-on leads 300mm (12in.) long. (8 and 20 mfd) Terminal blocks on other value capacitors.
- Extruded aluminium canister of circular cross-section with an M8 earthing and fixing stud.
- Operating temperature range —40°C to +85°C.



DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Catalogue No.	Max. Working Voltage RMS	Capacitance μF	Diameter mm (B)	Length mm (A)	Approx. Weight kg.
L4005/07	250	5 \pm 10%	38	59	0.03
L4008/07	250	8 \pm 10%	38	75	0.10
L5010/07	300	9.6 \pm 4%	35	94	0.08
L5007/07	400	6.6 \pm 10%	45	74	0.10
*L5020/07	300	20 \pm 10%	45	95	0.12

*For use only with L4135 Ballast.
Operating Temperature: —40°C to +85°C. Lead in Wire Length 300mm (12in.)

IGNITORS

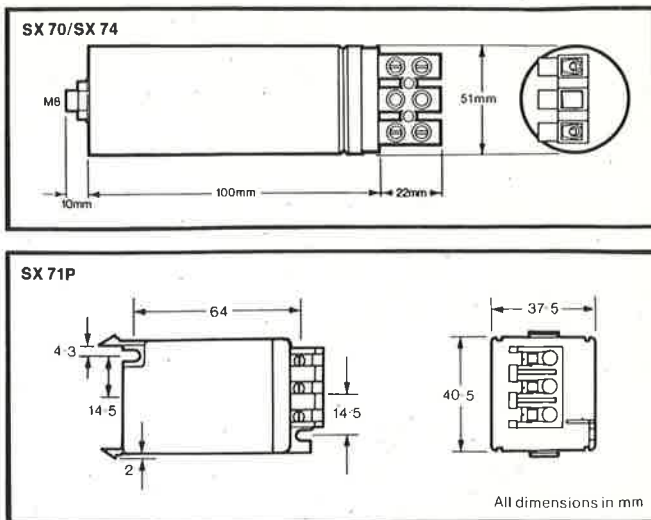
Features

- Reliable solid-state circuit provides high-voltage pulses to achieve virtually instantaneous ignition of lamp.
- Low energy content of pulses present an electrical hazard to safety no greater than that of any mains voltage installation.
- Ignitor is switched out of circuit after ignition; has zero watts loss during lamp operation.
- Re-ignition of a hot lamp after mains interruption usually occurs in less than one minute.
- Ignitor detects a lamp fault condition and automatically switches off, thus eliminating radio interference problems.
- **SX 70 and SX 74.** Circular extruded aluminium canister is screen-printed with circuit diagram. The canister is easily attached by means of a spring-steel clip or the large M8 earth terminal on the base of the canister.
- **SX 71P.** Corrosion proof polyamide casing with two slots the length of each side, two flexible lugs and two screw holes offering a choice of methods of attachment.
- Operates reliably at temperatures up to 70°C. (Polyamide case 80°C.)

Wiring

Certain cables in the ignition circuit should be rated at 600/1000V ac (see circuit diagram), and must be capable of withstanding any temperature encountered and should be protected against mechanical damage.

DIMENSIONS



ELECTRICAL DATA & WEIGHTS

Cat. No.	Mains V.	Min. Supply V.	Weight kg	Box qly.
SX 70	200/250	200	0.10	20
SX 71P	200/250	200	0.10	20
SX 74	200/250	200	0.10	20

The following recommendations are for guidance only; the cable manufacturers' published data should be consulted for fuller cable specifications with regard to temperature.

Conductor temperatures up to 70°C:
PVC-insulated cable.

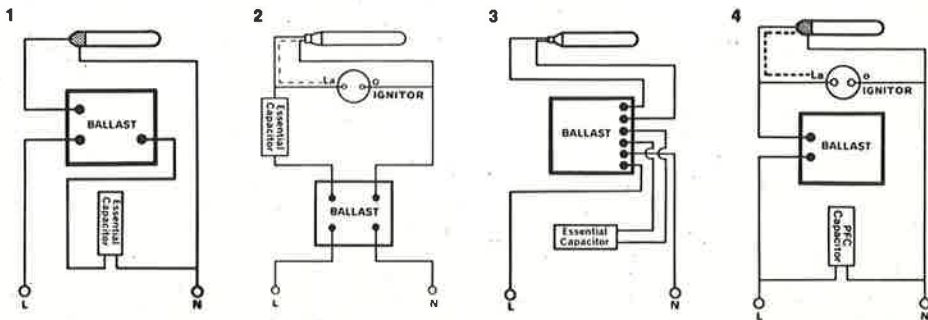
Conductor temperatures up to 90°C:
HT PVC-insulated cable.

Conductor temperatures up to 200°C:
Silicone rubber insulated cable with glass fibre sheath for mechanical protection.

Made in U.K.

†Made in Holland

Circuit diagrams



Wiring diagram codes:

1. 18W SOX

2. 90W and 135W SOX with ignitor

3. 135W and 180W SOX

4. 35W and 55W SOX with ignitor

ORDERING DATA

Catalogue Number	Description
L6018	Ballast for 18W SOX
L6355	Ballast for 35W & 55W SOX
L6090	Ballast for 90W SOX
L4135	Ballast for 135W & 180W SOX
L6135	Ballast for 135W SOX
L4005/07	Capacitor
L4008/07	PF Capacitor
L5007/07	Capacitor
L5010/07	Capacitor
L5020/07	Capacitor
SX 70	Ignitor for 90W SOX
SX 71P	Ignitor for 35W & 55W SOX
SX 74	Ignitor for 135W SOX

Please order control gear components in the form given in the following example. Control gear ordered with luminaires can be supplied in the exact quantity required:-

48 Phillips ballasts L4135

50 Phillips PF capacitors L5020/07

CI/SIB	(63.9)
UDC	696.6:628.94

BALLASTS, IGNITORS & CAPACITORS

**for high-pressure sodium
SON lamps**

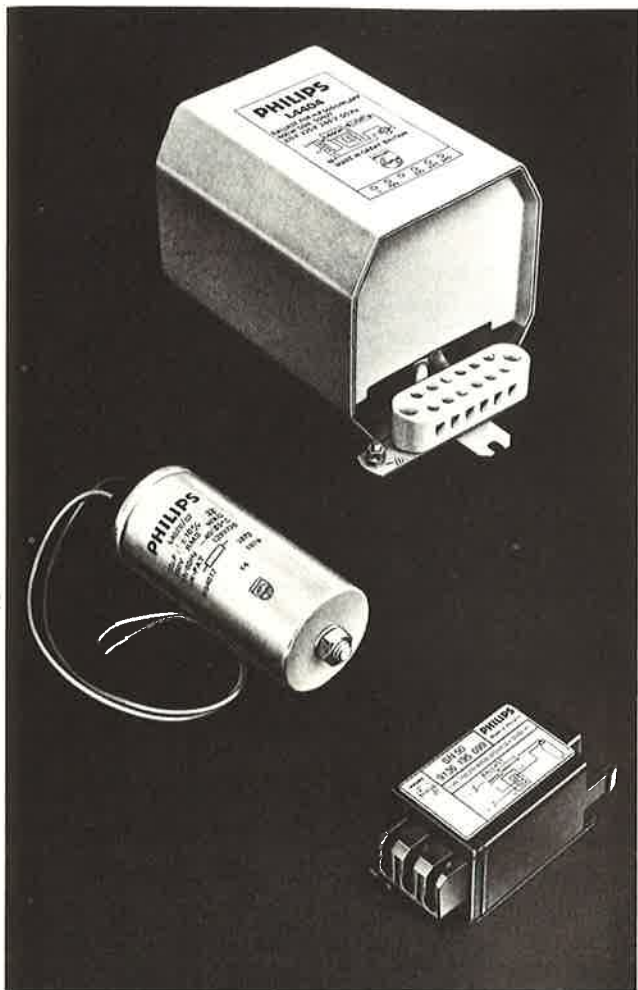
A range of current-limiting ballasts, self-healing dry film capacitors for power factor correction and electronic ignitors for providing the high-voltage pulses needed to start SON lamps.

IMPORTANT NOTE: All high-pressure sodium SON and SON/T lamps **MUST** be operated with a current-limiting device in the lamp circuit. Power factor correction capacitors should be used in accordance with the circuit diagrams and data in this leaflet to ensure that the power factor presented to the supply is in accordance with the requirements of the Electricity Authority, and to reduce currents in the circuit supply cables.

RANGE

A full range of control gear components is available for use with the following Philips high-pressure sodium lamps:-

- 50W SON
- 70W SON
- 150W SON & SON/T
- 250W SON & SON/T
- 400W SON & SON/T
- 1kW SON & SON/T



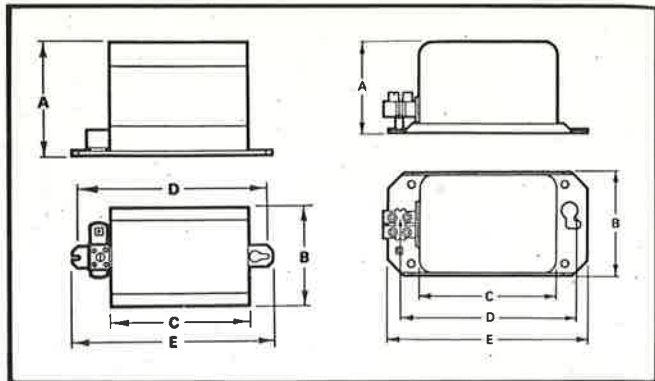
12

Handbook Ref.	6.3.10
To reorder this data sheet quote	6/79 PL1778/3
Replaces	PL1778/2

DISCHARGE BALLASTS

Features

- Ballasts for high-pressure sodium SON & SON/T lamps are housed in deep-drawn or fabricated cans, filled with polyester to withstand the arduous conditions of service.
- Non-track terminal blocks, and a separate earth terminal which is easily accessible and mounted so as to ensure good electrical connection between cable and baseplate.
- Screen-printed labels include circuit diagrams which cannot peel off in damp or humid conditions.
- Simply fixed with a keyhole at one end and a slot at the other, necessitating only two pre-mounted screws.
- Polyester filling permits small, quiet ballasts, and secures the gap and coils to ensure correct operation of lamps throughout the long life of the ballasts. Polyester does not soften even under fault conditions.
- Low wattage losses ensure economical operation and conservation of energy.



DIMENSIONS, WEIGHTS & ELECTRICAL DATA

High-pressure sodium lamp ballasts for use on 50Hz mains supplies, to operate SON and SON/T lamps.

Catalogue No.	For lamp type	Circuit Diagram No.	Total circuit Watts	Weight kg	Tw	Δt	Voltage range	Dimensions					Can*	Total third harmonic %**	PFC capacitor
								A mm	B mm	C mm	D mm	E mm			
L4054	50W SON	1	61	1.6	—	—	240	63	68	68	102	118	D	25	L4008/07
L4074	70W SON	1	85	1.8	—	—	240	63	68	68	102	118	D	30	L4010/07
L4154BX	150W SON	2	174	4.0	—	—	240	92	90	125	172	184	F	27	L4016/07
L4254	250W SON	2	280	6.2	—	—	200/250	108	106	130	177	189	F	73	2 x L4016/07
L4404	400W SON	2	440	6.35	—	—	200/250	108	106	130	177	189	F	59	2 x L4020/07
†L4410	1kW SON	2	1100	2.0	—	—	230/250	169	140	215	240	255	F	69	4 x L4025/07

*Can types: D – Deep drawn,
F – Fabricated.

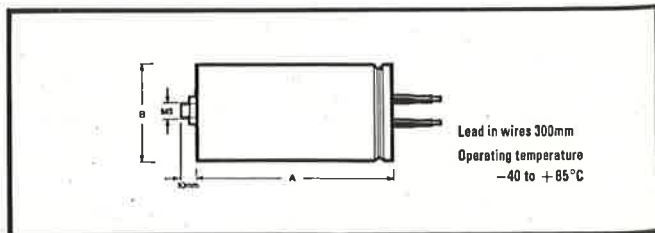
**Total third harmonic values relate to measurements in the neutral of a four wire balanced three phase circuit. Divide values above by three for value in single phase circuit.

CAPACITORS

for power factor correction

Features

- Wound from metallised polypropylene film which has 'self-healing' characteristics after electrical breakdown.
- 'Dry' construction eliminates the possibility of leakage.
- Internal resistor eliminates the danger of shock from a capacitor charged by the inductive kick-back of the ballast.
- Pin terminations with push-on leads 300mm (12in.) long.
- Extruded aluminium canister of circular cross-section with an M8 earthing and fixing stud.
- Operating temperature range —40°C to +85°C.



DIMENSIONS, WEIGHTS & ELECTRICAL DATA

Catalogue No.	Max. Working Voltage RMS	Capacitance μF	Diameter mm (B)	Length mm (A)	Approx. Weight kg.
L4008/07	250	8 \pm 10%	38	75	0.10
L4010/07	250	10 \pm 10%	38	96	0.08
L4016/07	250	16 \pm 10%	45	70	0.10
L4020/07	250	20 \pm 10%	45	95	0.12
L4025/07	250	25 \pm 10%	45	95	0.14

Operating temperature: —40°C to +85°C. Lead in Wire Length 300mm (12in.).

IGNITORS

for SON and SON/T high-pressure sodium lamps

Features

- Reliable solid-state circuit provides high-voltage pulses to achieve virtually instantaneous ignition of lamp.
- Low energy content of pulses present an electrical hazard to safety no greater than that of any mains voltage installation.
- Ignitor is switched out of circuit after ignition; has zero watts loss during lamp operation.
- Re-ignition of a hot lamp after mains interruption usually occurs in less than one minute, even in high ambient temperatures such as occur in multi-lamp luminaires. This is an important feature where lamp outage can present a hazard to safety.
- Corrosion proof polyamide casing with two slots the length of each side, two flexible lugs and two screw-holes offering a choice of methods of attachment.
- Operates reliably at temperatures up to 75°C.

Wiring

Certain cables in the ignition circuit should be rated at 600/1000V ac (see circuit diagram), and must be capable of withstanding the ignition pulses in humid conditions. All cables should be capable of withstanding any temperature encountered, and should be protected against mechanical damage.

The following recommendations are for guidance only; the cable manufacturers' published data should be consulted for fuller cable specifications with regard to temperature, Conductor temperatures up to 70°C: PVC-insulated cable.

Conductor temperatures up to 90°C: HT PVC-insulated cable.

Conductor temperatures up to 200°C: Silicone rubber insulated cable with glass fibre sheath for mechanical protection.

Mineral-insulated cables are not recommended for use in these parts of the ignition circuit.

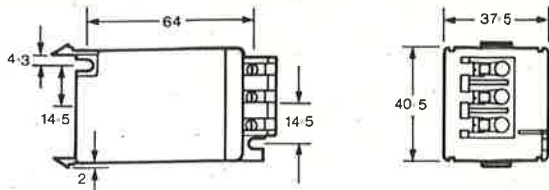
Cable length limitations

In circuits using ignitors, the maximum cable length between lamp and control gear is limited by the capacitance of the cable. This is obtained by adding together two values obtained in test:

The capacitance of the 'high' conductor (i.e. the conductor connecting the ballast to the lamp centre contact) and all other conductors bonded together.

DIMENSIONS

SN50/SN53



All dimensions in mm

WEIGHTS & ELECTRICAL DATA

Catalogue No.	For Lamp	Voltage range	Min. Supply Voltage	Circuit Diagram	Weight kg.
†SN50	SON & SON/T 150W, 250W, 400W	200/250	200	2	0.10
†SN53	SON 1kW SON/T 1kW	230/250	230	2	0.10

The capacitance between the 'high' conductor and earth (usually the protective housing of the cable).

The maximum capacitances acceptable to the ignitors in this Data Sheet are as follows:-

SN50: 6,000pF

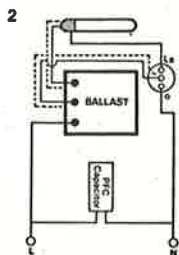
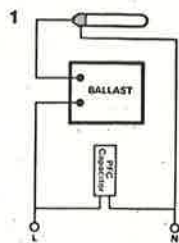
SN53: 3,500pF

Tables giving maximum permissible cable lengths using typical cables in common applications are contained in Technical Information Sheet TIS 15.

An alternative to ignitors SN50 and SN53, for applications where the cable capacitance limitations cannot be met are the MZN series of ignitors. These ignitors are intended to be located adjacent to the lamp.

For further information on these ignitors please contact Lighting Division.

Circuit Diagrams



1. 50W and 70W SON

2. 150W to 1kW SON and SON/T

Made in U.K.

† Made in Holland.

ORDERING DATA

Catalogue No.	Description	Packing Quantity
L4054	Ballast for 50W SON	—
L4074	Ballast for 70W SON	8
L4154BX	Ballast for 150W SON	4
L4254	Ballast for 150W SON	4
L4254	Ballast for 250W SON	4
L4404	Ballast for 400W SON	4
L4410	Ballast for 1kW SON	4
L4008/07	PF Capacitor	50
L4010/07	PF Capacitor	50
L4016/07	PF Capacitor	50
L4020/07	PF Capacitor	30
L4025/07	PF Capacitor	30
SN50	Ignitor for 150W, 250W, 400W SON	48
SN53	Ignitor for 1kW SON	48

Please order control gear components in the form given in the following example, in multiples of the packing quantity. Control gear ordered with luminaires can be supplied in the exact quantity required:—

48 Philips ballasts L4074
50 Philips Capacitors L4010/07

C/S/B	(63.9)
UDC	696.6 : 628.94

HIGH PRESSURE SODIUM (SON-R)

Discharge Lamps

High-pressure sodium lamps combine extremely high efficacies (up to 112 Lumens/Watt) with good colour rendering, and are therefore suitable for many applications where a warm white light and long lamp life are important factors. The discharge tube is made of sintered aluminium oxide, containing a mixture of mercury and sodium at high pressure. The effect of the pressure is to broaden the sodium spectrum, so that the lamp gives an output throughout the entire visible spectrum. SON-R lamps are of spotlight form, and have a reflecting layer of titanium dioxide within the outer glass envelope, directing the light downwards and rendering the lamp impervious to degradation due to dust settling on the upper surfaces.

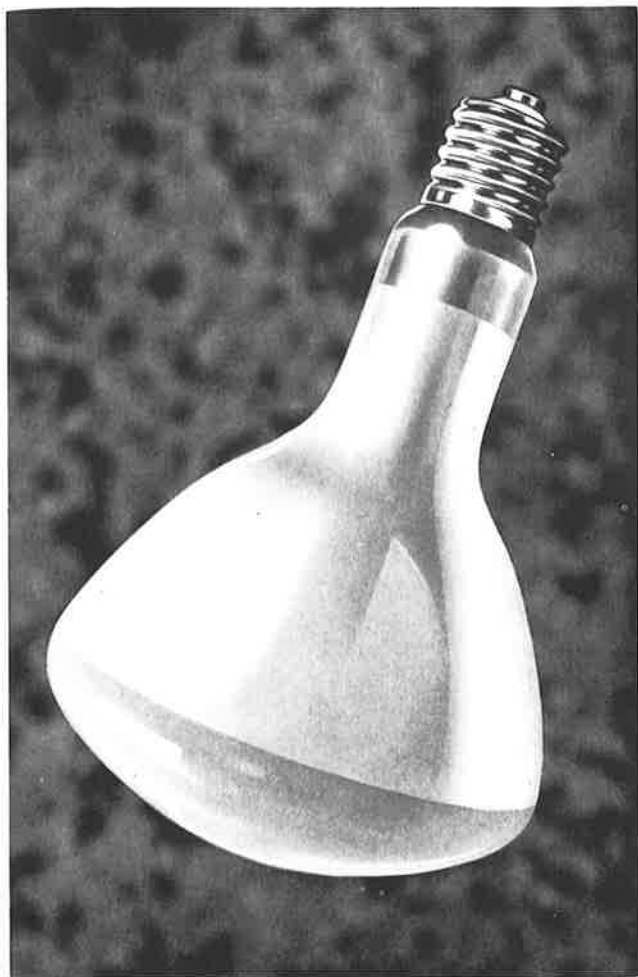
RANGE

250W SON-R
400W SON-R

APPLICATIONS

Suitable for any application where high efficacy, long life and reliability coupled with good colour rendering and directional-light properties are required, in situations such as:-

- Industrial high bay luminaires
- Docks and goods yards
- Transport termini
- Churches and other prestige buildings
- Swimming pools
- Sports complexes
- Exhibition halls
- Outdoor markets and civic centres



Handbook Ref.

6.3.12

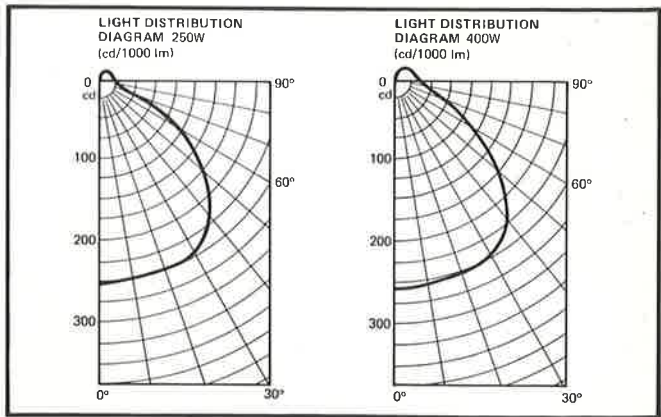
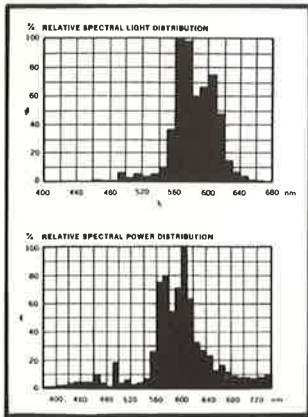
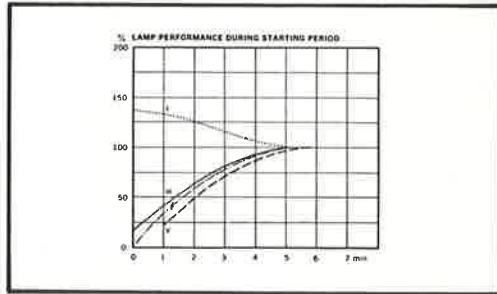
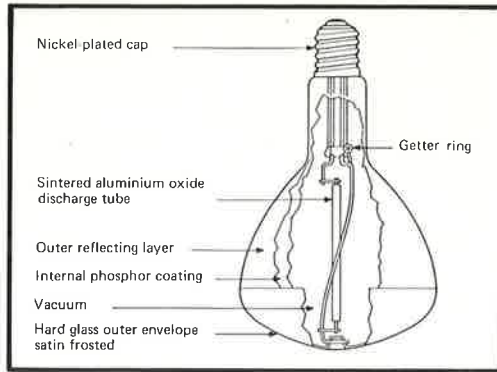
To reorder this data sheet quote 7.79 PL 1866/1

Replaces

PL 1866

FEATURES

- Spotlight form with internal reflecting surface directs light downwards; renders lamp immune to degradation due to dust settling on upper surfaces.
- Short run-up time – 80% of full light output is achieved after only 3½ minutes.
- Solid-state ignitor ensures reliable and quick starting, even when hot and at temperatures down to minus 40°C.
- Reliability, stable operation and long life permits lamps to be used in situations where 'lamp outage' could create a hazard.
- Excellent lumen maintenance.
- Hard glass outer envelope guards against breakage due to thermal shock.
- Warm white colour appearance, with colour rendering capable of reproducing blue surfaces clearly, and enhancing red or yellow surfaces. Complexions and skin tones are flattered by the light.
- Universal burning position for all lamps in the range.



LAMP DATA

Catalogue No.	Lumens — 100 hrs 2000 hrs	Lamp Volts	Lamp Current (A)	Total Circuit Watts	Overall Length A (mm/in)	Diameter (mm/in) B	Cap	Ignitor	Ballast	PFC Capacitor	Packing Qty.	
250 SON-R	23000	—	100	3.0	280	264	166	GES	SN50	L4254	2 x L4016/07	5
400 SON-R	40000	—	105	4.4	440	304	181	GES	SN50	L4404	2 x L4020/07	5

Notes: Please order lamps by catalogue numbers, in multiples of the packing quantity.
All lamps are suitable for operation in ambient temperatures down to -40°C.

Lamps and Ignitors: Made in Holland
Ballasts and capacitors: Made in UK

LAMPS FOR SPECIAL PURPOSES

		Page
Tungsten Halogen Document Copying Lamp	PL1815	405
Blacklight Lamps	PL1813	407
TUV Germicidal Lamps	PL1834	409
HPQ80/125/160/250 & MLU300	PL1851	411
XOP Low Pressure Lamps	PL1837	413
HPR 125W Reprographic Lamps	PL1836	415
HPM12/15/17	PL1850	417
HTQ7/14	PL1846	419
Super Actinic 03	PL1829/1	421
Actinic 05 Lamps	PL1830/1	423
Actinic 09 Lamps	PL1853/1	425
LL Lamps	PL1835	427

CI/SIB

UDC

628.94

TUNGSTEN HALOGEN DOCUMENT COPYING LAMPS

Single- and double-ended tungsten lamps working on the halogen regenerative cycle, specifically for use in document copying machines

Tungsten halogen document copying lamps have design features suited to the needs of machines requiring even illumination over large areas, or high heat output for machines working on the thermographic principle. Lamp life is 50,000 switchings on a cycle of 6 seconds 'on' and 6 seconds 'off' at rated voltage. Document copying lamps are not suitable for continuous operation.

RANGE

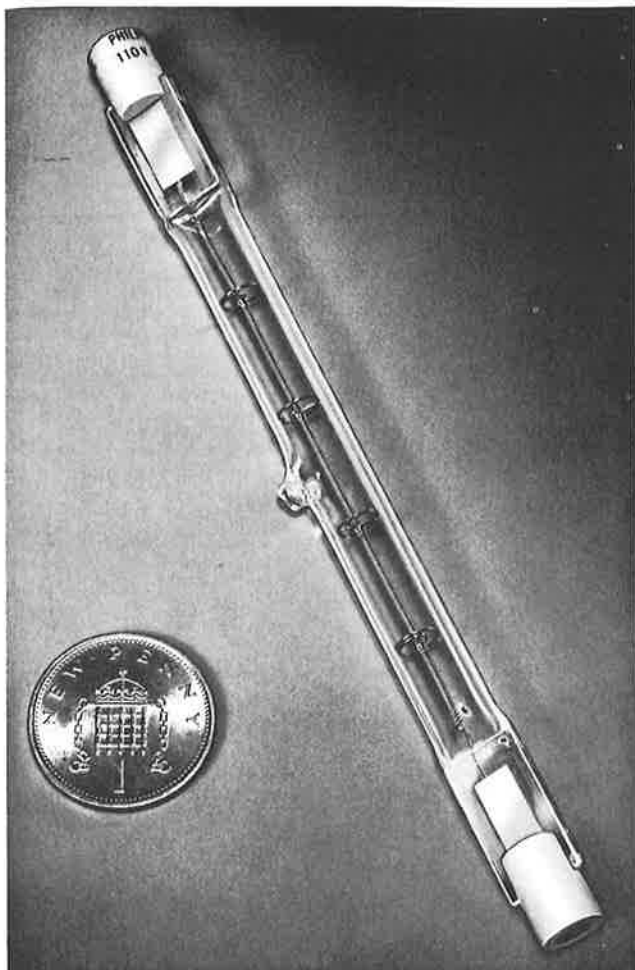
From 500W to 1800W.

APPLICATIONS

Suitable for use in document copying machines of flat bed or thermographic types.

FEATURES

- Tungsten halogen regenerative cycle maintains light output throughout working life.
- Differentially spaced segmented filaments for increased light intensity at edges of copy to give better quality.
- Externally frosted lamps provide the diffuse light needed by certain machines.



13

Handbook Ref.

7.1.1

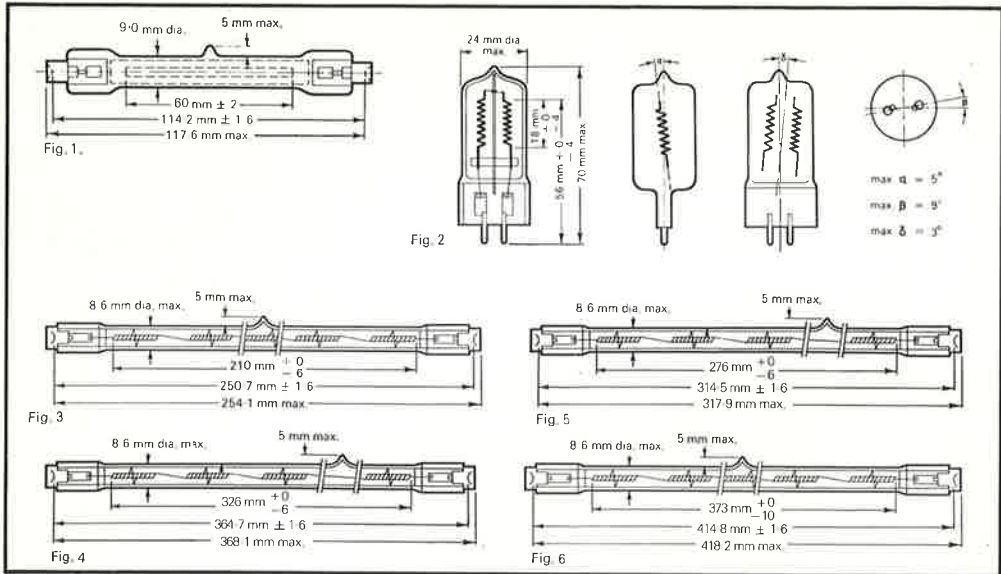
To reorder this data sheet quote

6/78 PL 1815

Replaces

PL 8642/1

DIMENSIONS



ORDERING DATA

Please order in the form given in the following example, quoting LIF Number, Catalogue Number, Voltage and Wattage, and in multiples of the packing quantity:—
6 Philips document copier lamps
DC1/7, Catalogue No. 13313R,
115/120V, 1000W.

Operating position

Tungsten halogen document copying lamps are designed to operate in the positions specified in the Lamp Data table. Any great deviation from these operating positions will cause one end of the filament to be starved of tungsten halogen, causing bulb blackening and premature failure of the lamp.

User notes:

Handling: If the quartz bulb has been handled, it should be cleaned with a solvent such as methylated spirits to remove all traces of grease before lighting.

Seal temperature: Precautions must be taken to ensure that the temperature of the quartz-metal seal does not exceed 350°C, though the bulb temperature must be greater than 250°C and less than 900°C.

LAMP DATA

Non-stock types—to special order only

LIF No.	Catalogue No.	Volts	Watts	Cap	Approximate colour temp. (K)	Operating position	Finish	Nominal Luminous Flux (lms)	Figure	Packing quantity
DC1/1	13868R	120	500	R7s	3200	Horizontal	Clear	13,000	1	200
DC1/6	13481	115/120* 220/230 240/250	1000	G6.35	3250	Horizontal or vertical	Clear	26,000	2	—
DC1/7	13313R	115/120 220/230 240/250	1000	R7s	3150	Horizontal	Clear	22,000	3	120
DC1/8	13494R	220/230 240/250	1000	R7s	3100	Horizontal	Clear	21,000	5	100
DC1/9	13623R	220/230 240/250	1500	R7s	3150	Horizontal	Clear	33,000	4	10
DC1/12	13624R/16	280	1800	R7s	3200	Horizontal	Externally frosted	45,000	6**	—

Other ratings can be made available to special order.

*Two coiled-coil filament sections on 220/230V and 240/250V ratings; only one on 115/120V rating.

**Type DC1/12 is designed to give extra intensity at the ends.

Made in Holland

CI/SIB
(63.9)

UDC
696.6:628.94

BLACKLIGHT LAMPS

A range of four tubular fluorescent lamps with filter envelope and a mercury lamp with Woods glass envelope, for producing long-wave UV radiation for the activation of fluorescent materials.

RANGE

TL6W/08 – tubular fluorescent lamp
225 x 16mm (9in. x $\frac{5}{8}$ in.), 6W rating.
TL8W/08 – tubular fluorescent lamp
300 x 16mm (1ft x $\frac{5}{8}$ in.), 8W rating.
TL20W/08 – tubular fluorescent lamp
600 x 38mm (2ft x $1\frac{1}{2}$ in.), 20W rating.
TL40W/08 – tubular fluorescent lamp
1200 x 38mm (4ft x $1\frac{1}{2}$ in.), 40W rating.
HPW 125W – mercury lamp, Woods
glass ovoid envelope, 125W rating.
Other ratings to special order.

APPLICATIONS

For use wherever a long-wave UV source for phosphor activation is required, in situations such as:-

- Display work in shops, discotheques and on the stage.
- Crack detection (e.g. in metals).
- Revealing laundry or batch marks.
- Detection of adulterated or contaminated foods.
- Detection of forgeries in banks or stamp collections, for forensic science or for cleaning and restoration of paintings.
- Mineralogy and gemmology.
- Luminescent signs.
- Medicine.



Handbook Ref.

7.12

To reorder this data sheet quote

2.78 PL 1813

Replaces

PL 8597/2

FEATURES

- Output is mainly in the long-wave UV region for response from common fluorescent materials.
- Black filter envelopes reduce radiation in the visible spectrum.
- Tubular fluorescent lamps run from same control gear as standard white lamps, and are interchangeable in standard switchstart luminaires.
- Mercury lamp HPW provides a compact, easily-directed UV source; tubular fluorescent lamps are more suitable for general UV irradiation.

RANGE OF OPERATION

240V 50Hz mains supplies (through suitable control gear).

MATERIALS & FINISH

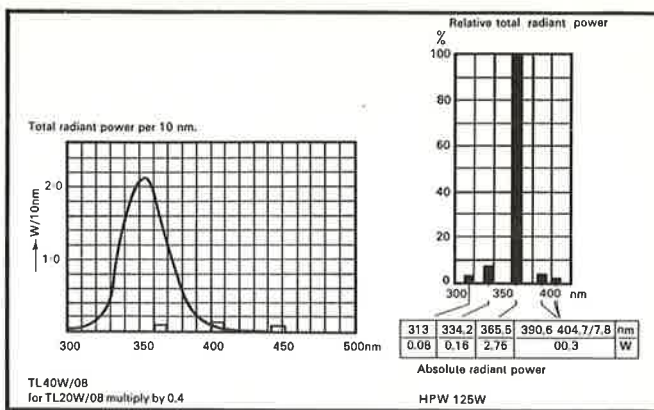
Tubular fluorescent lamps: Mini-bipin or bipin caps, cobalt filter glass envelope.

Mercury lamp: 3-pin BC or ES cap, Woods glass envelope.

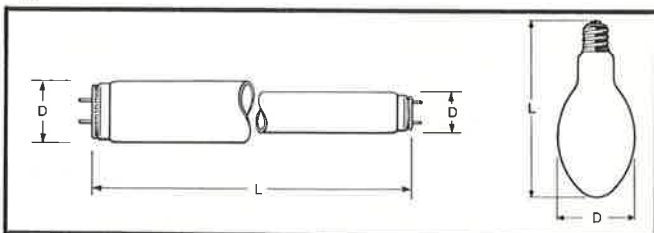
Caution

Actinic and blacklight sources are designed to emit energy primarily in the long-wave UV region. Minor quantities of medium-wave UV of erythral wavelengths (those that cause sun burning) may affect persons of high sensitivity, so that direct irradiation by UV should be avoided. In particular, the sources should be screened from direct view, and persons should not work for long periods in conditions where no light is present other than that activated by these sources.

SPECTRAL POWER DISTRIBUTION



DIMENSIONS



Replacement Period

It is recommended that UV lamps should be group replaced and with a shorter period than for white lamps. A guide to UV depreciation is in the Lamp Data table.

Made in Holland

LAMP DATA

Catalogue No.	Description	Length L (mm)	Diameter D (mm)	Cap	BS Lamp Voltage (V)	BS Lamp Current (A)	UV Depreciation % per thousand hours
TL4W/08*	4W 150mm (6in.) miniature fluorescent	136	16	Mini bi-pin	30	0-15	5
TL6W/08	6W 225mm (9in.) miniature fluorescent	212	16	Mini bi-pin	45	0-16	5
TL8W/08	8W 300mm (12in.) miniature fluorescent	288	16	Mini bi-pin	58	0-17	5
TLD15W/08*	15W 460mm (18in.) fluorescent	438	26	Bi-pin	56	0-31	5
TL20W/08	20W 600mm (2ft) fluorescent	589-8	40-5 (max.)	Bi-pin	57	0-37	5
TL40W/08	40W 1200mm (4ft) fluorescent	1199-4	40-5 (max.)	Bi-pin	103	0-43	5
HPW 125W	125W mercury	177	75	3-pin BC or ES	125	1-2	15

*To special order only.

CONTROL GEAR COMPONENTS

Note: Blacklight sources are mercury discharge lamps, and MUST be operated in conjunction with suitable current-limiting control gear.

Lamp type	Ballast	Starter
1 x TL6W/08	BAS 8	S2
2 x TL6W/08	BAS 13	2 x S2
1 x TL8W/08	BAS 8	S2
2 x TL8W/08	BAS 13	2 x S2
1 x TL20W/08	BCS 20	S2
2 x TL20W/08	BCS 40	2 x S2
TL 40W/08	BCS 40	S10
HPW 125W	L5125BX	—

ORDERING DATA

Catalogue No.	Packing Qty.
TL6W/08	25
TL8W/08	25
TL20W/08	6
TL40W/08	6
HPW 125W*	12

*Please state 3-pin BC or ES Cap.

Please order lamps in the form given in the following example, in multiples of the packing quantity:—
36 Philips blacklight lamps TL40W/08.

CI/SFB	(63.9)
UDC	696.6:628.94

TUV GERMICIDAL LAMPS

A range of lamps with sharply-defined output at 253.7 nm, very close to the wavelength most effective in inhibiting bacteria and moulds.

Caution: These lamps emit UV radiation. Precautions must be taken in the design of an installation to avoid harm to personnel, especially to skin and eyes.

RANGE

TUV 6W: Single-ended lamp, for operation direct from 220/240V 50 Hz supplies.

TUV 15W: Linear discharge lamp, for use with normal fluorescent control gear.

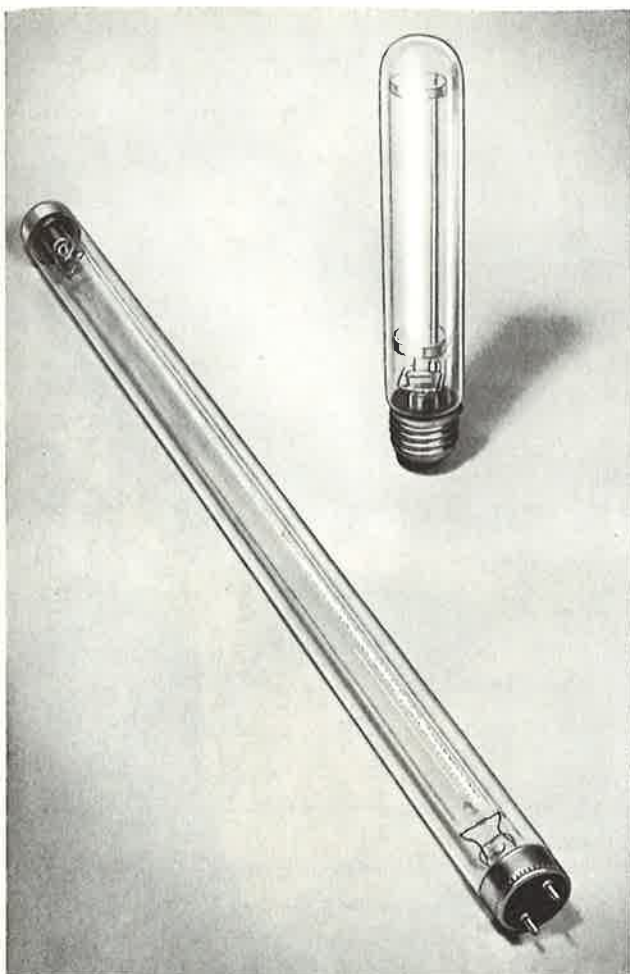
TUV 30W: Linear discharge lamp, for use with normal fluorescent control gear.

TUV 40W: Linear discharge lamp, for use with normal fluorescent control gear.

APPLICATIONS

Suitable for inhibiting bacteria and moulds in many situations, including:

- Sterilisation in hospitals
- Bacteriological research
- Pharmaceutical manufacture
- Dairies
- Breweries
- Cold storage rooms
- Air conditioning systems



13

Handbook Ref.

7.1.3

To reorder this data sheet quote

6/78 PL 1834

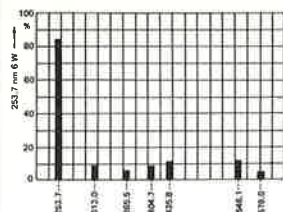
Replaces

NEW

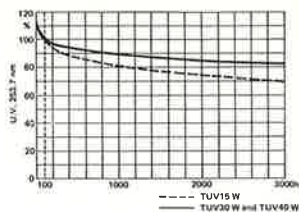
FEATURES

- Majority of output occurs at 253.7 nm line, making the lamps an efficient source of germicidal radiation
- Type TUV 6W runs from normal a.c. power supplies without control gear; provides an inexpensive and convenient source of UV radiation
- Linear lamps can be used in conventional fluorescent switch start circuits
- Negligible ozone formation

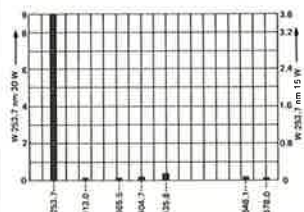
RELATIVE SPECTRAL POWER DISTRIBUTION



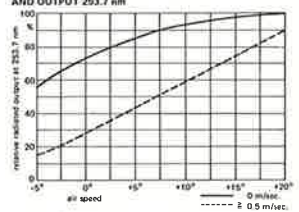
ULTRA-VIOLET RADIATION



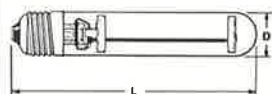
ABSOLUTE SPECTRAL POWER DISTRIBUTION



RELATION BETWEEN AIRSPEED, AIRTEMPERATURE AND OUTPUT 253.7 nm



DIMENSIONS



DIMENSIONS



LAMP DATA

Catalogue No.	Lamp Voltage V	Lamp Current A	Cap	UV 253.7 nm W/cm ² *	UV 253.7 nm W
TUV 6W	220/240	0.027	ES	0.85	0.085
TUV 15W	56	0.31	BI-pin	37	3.5
TUV 30W	96	0.36	BI-pin	83	9.0
TUV 40W	103	0.43	BI-pin	94	12.6

*at 1 m from centre.

DIMENSIONS & WEIGHTS

Catalogue No.	L (mm)	D (mm)	Weight (g)	Packing quantity
TUV 6W	150	26	40	10, 100
TUV 15W	460	26	75	6
TUV 30W	920	26	140	6
TUV 40W	1220	37	292	6

ORDERING DATA

Please order lamps in the form given in the following example, in multiples of the packing quantity:

12 Philips germicidal lamps TUV 30W

Made in Holland

C1/S1B (63.9)

UDC 696.6:628.94

HPQ 80, HPQ 125, HPQ 160, HPQ 250 & MLU 300

Sunlamps

A range of linear discharge burners for use as original equipment or spares in proprietary sunlamps, and a mercury tungsten reflector lamp for domestic use.

Caution: These lamps emit UV radiation. Precautions must be taken in the design of an installation to avoid harm to personnel, especially to the skin and eyes.

RANGE

HPQ 80W, 125W, 160W, 250W: linear discharge burners.

MLU 300W: Mercury tungsten lamp.

APPLICATIONS

Suitable for use as original equipment and as replacement lamps in proprietary sunlamps of suitable design.



13

Handbook Ref.

7.1.4

To reorder this Data Sheet quote

PL1851

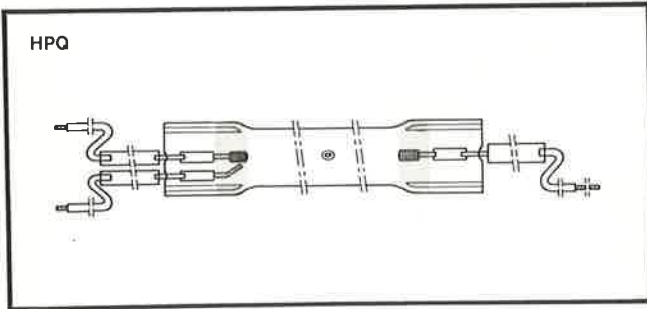
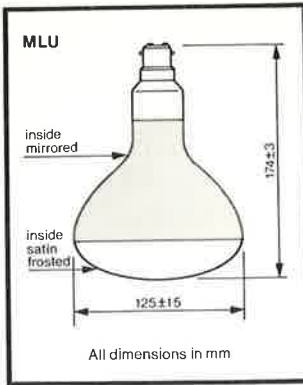
Replace

NEW

FEATURES

- HPQ lamps run from normal mains supplies via simple resistive ballasts.
- Tungsten filament of MLU lamp acts as ballast; lamp operates directly from mains supply.
- Reflector of MLU lamp concentrates into a homogeneous beam; hard glass bulb cuts out radiation below 280 nm.

DIMENSIONS



DIMENSIONS

Catalogue No.	Nom. Length (mm)	Nom. Diameter (mm)	Packing quantity
HPQ 80W	77	15	100
HPQ 125W	77	15	100
HPQ 160W	92	15	100
HPQ 250W	100	19	100
MLU 300W	174	125	9

LAMP DATA

Catalogue No.	Lamp Voltage V	Lamp Current A	Total Circuit Watts	Cap	Minimum Supply Voltage
HPQ 80W	90	1.2	90	Strip	198
HPQ 125W	90	1.7	138	Strip	198
HPQ 160W	90	2.1	174	Strip	198
HPQ 250W	110	3	265	Strip	198
MLU 300W	110-130 220-240	2.5 1.4	300	3-pin BC or ES	—

ORDERING DATA

Please order lamps in the form given in the following example, in multiples of the packing quantity:-
200 Philips sunlamps HPQ 125W.

Made in Holland.

CI/SIB

(63.9)

UDC

696.6:628.94

XOP

Low-pressure pulsed Xenon lamps

A range of discharge lamps of the low-pressure xenon type, with spectral characteristics approximating to those of normal daylight.

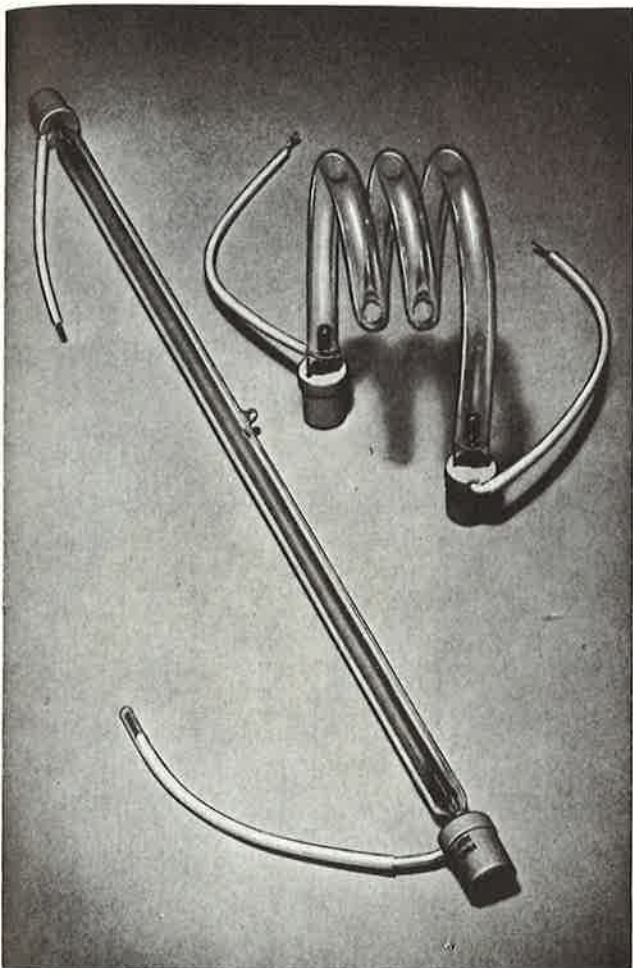
Caution: These lamps emit UV radiation. Precautions must be taken in the design of an installation to prevent harm to personnel, especially to the skin and eyes.

RANGE

- XOP 7: Linear lamp, arc length 158mm, 750W.
- XOP 15: Linear lamp, arc length 312mm, 1500W.
- XOP 25: Linear lamp, arc length 457mm, 2000W.
- XOP 30: Linear lamp, arc length 615mm, 3000W.
- XOP 40: Compact-source lamp, 4000W.
- XOP 80: Compact-source lamp, 8000W.

APPLICATIONS

- Eminently suitable for the lighting of horizontal and vertical copy-boards in the graphic arts industry.
- Since the lamps strike instantly, they are also suitable for use in stop-and-repeat copying machines.



13

Handbook Ref.

7.16

To reorder this data sheet quote

6/78 PL 1837

Replaces

NEW

FEATURES

- Immediate start and re-start – no warm-up time required.
- Full light output is obtained immediately.
- Colour temperature and efficacy remain constant throughout working life.
- Small diameter simplifies the design of efficient reflector systems.
- High efficacy.
- Spectral characteristics approximate to daylight; the lamps are suitable for both colour and black-and-white reproduction.
- 300 hour working life.
- Ozone-free quartz envelopes.

LAMP DATA

Cat. No.	Lamp Watts	Lamp Volts	Lamp Current (A)	Luminous efficiency lm/W	Colour temp. °K	Pulse frequency c/s	Light depreciation %	Packing quantity
XOP 7*	750	52 ± 3	18	20–25 ¹	5600	100–120	approx. 20 ²	6
XOP 15*	1500	105 ± 5	18					6
XOP 25*	2000	115 ± 5	18					6
XOP 30*	3000	210 ± 10	18					6
XOP 40*	4000	210 ± 10	19					4
XOP 80*	8000	420 ± 15	19					4

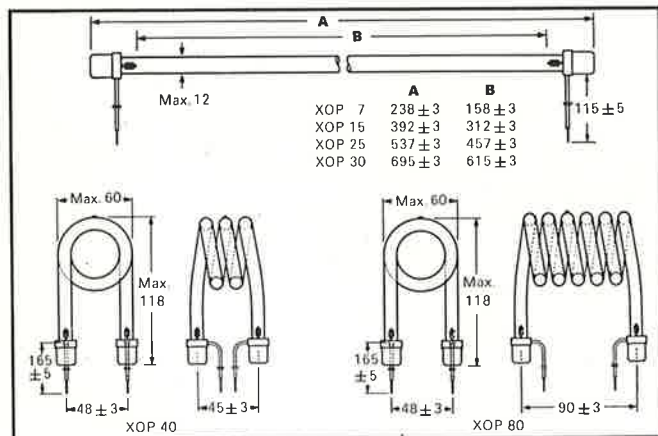
*Max temp. tube 750°C, Pinches 400°C, Av. life hours 300

ORDERING DATA

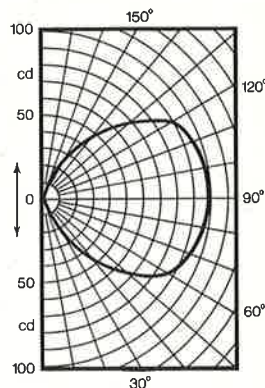
Please order lamps in the form given in the following example, in multiples of the packing quantity:

18 Philips xenon lamps XOP 25

DIMENSIONS

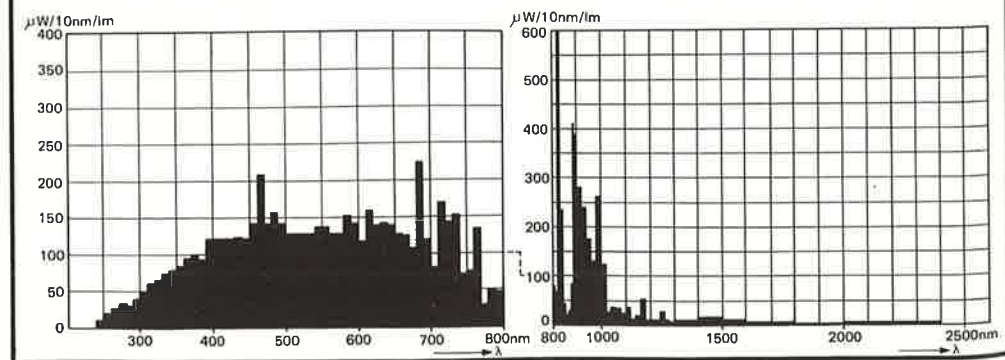


RELATIVE LUMINOUS INTENSITY DISTRIBUTION (without reflector)



XOP 7, 15, 25, and 30

ABSOLUTE SPECTRAL ENERGY DISTRIBUTION



Made in Holland

CI/SIB	(63.9)
UDC	696.6:628.94



HPR 125W

Mercury Discharge Reprographic Lamp

A lamp with an internal reflector, producing a bluish-white light with strong actinic radiation.

Caution: This lamp emits UV radiation. Precautions must be taken in the design of an installation to prevent harm to personnel.

RANGE

HPR 125W: Mercury discharge reprographic lamp.

APPLICATIONS

High actinic content of beam makes the lamp particularly suitable for use in equipment for black-and-white copying and reproduction.

Used with a separate Woods glass filter, the lamp can be used as a 'black light' source, the internal reflector ensuring a homogeneous beam of radiation.

The lamp also has applications as a floodlight lamp.

Suitable applications include:

- Reprographic industry – particularly for copy board lighting.
- Silk screen processing.

13

Handbook Ref.

7.1.7

To reorder this data sheet quote

8/78 PL 1836

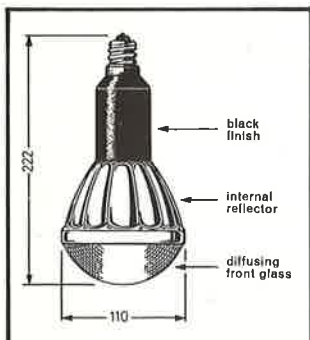
Replaces

NEW

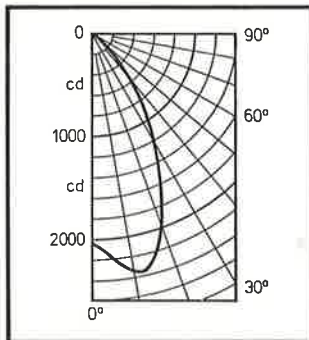
FEATURES

- High output coupled with long life reduces installation and running costs.
- Simply installed into standard ES lampholder; runs from normal mercury discharge control gear.

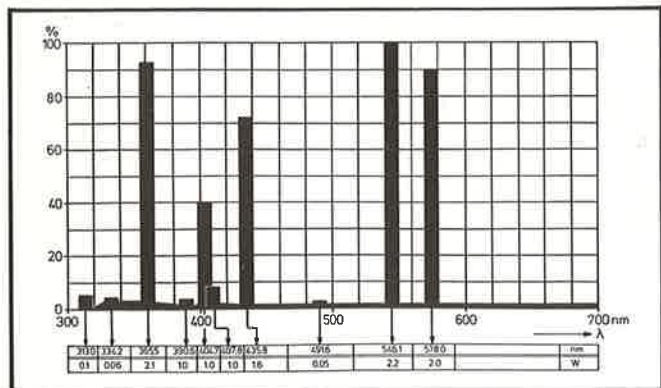
DIMENSIONS



LIGHT DISTRIBUTION DIAGRAMS



RELATIVE SPECTRAL ENERGY DISTRIBUTION



LAMP DATA

Catalogue No.	Minimum Start Volts	Lamp Volts	Lamp Current Amps	Light/energy depreciation (%)*	Cap	Burning position	Ballast	P.F.C. capacitor	Life (hrs)	Packing quantity
HPR 125W	180	125	1.15	20	ES	Any	L5125BX	L4008/07	2000	16

*The percentage by which the radiation decreases with respect to the nominal value, after 2000 hours.

Weight: 200 g.

ORDERING DATA

Please order lamps in the form given in the following example, in multiples of the packing quantity:

32 Philips reprographic lamps
HPR 125W

Made in Holland.

CI/SIB (63.9)

UDC 696.6 : 628.94

HPM 12, HPM 15, HPM 17,

Mercury halide printing lamps

A range of high-pressure mercury discharge lamps with lead and gallium iodide additives to produce an activation wavelength between 320 nm and 440 nm.

Caution: These lamps emit UV radiation. Precautions must be taken in the design of an installation to prevent harm to personnel, especially to the skin and eyes.

RANGE

HPM 12: 400W rating.

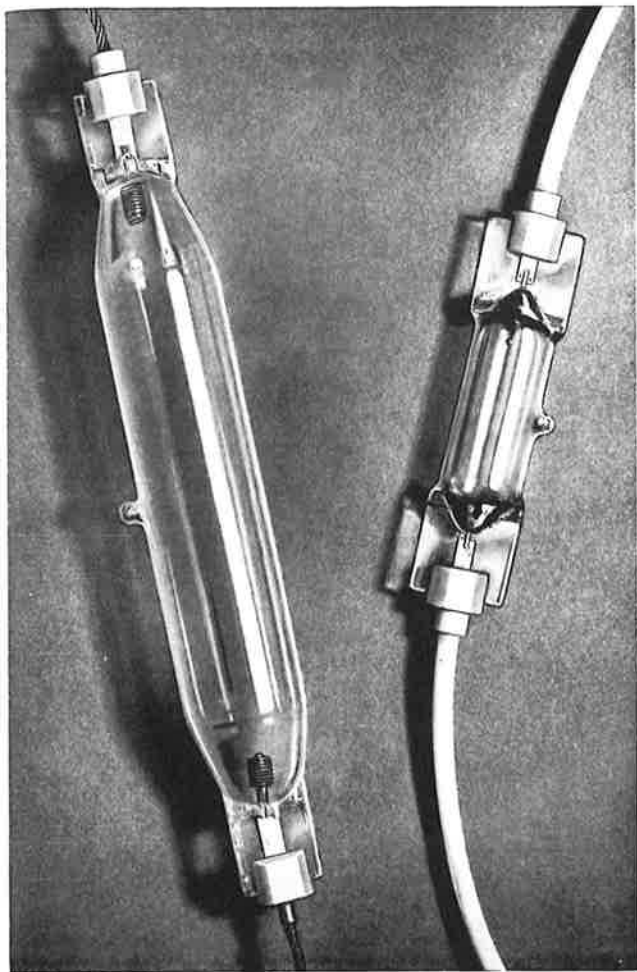
HPM 15: 1000–4000W rating.

HPM 17: 1000–4000W rating.

APPLICATIONS

Suitable for any application requiring an activation wavelength between 320 nm and 440 nm, including:

- Photochemical processes
- Plate-making for lithographic printing
- Exposure of photo-resists for chemical milling and printed circuit etching



13

Handbook Ref.

7.1.8

To reorder this data sheet quote

PL 1850

Replaces

NEW

FEATURES

- Ozone-free quartz glass envelopes
- Short run-up time – only three minutes
- High output coupled with long life reduces installation and running costs

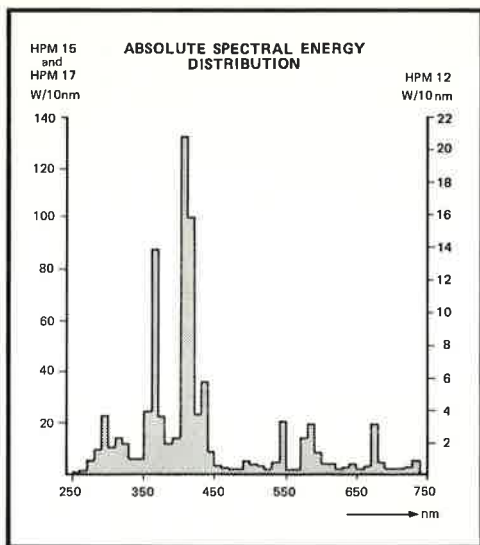
CONTROL GEAR

Supplied by equipment manufacturers – details on request.

ORDERING DATA

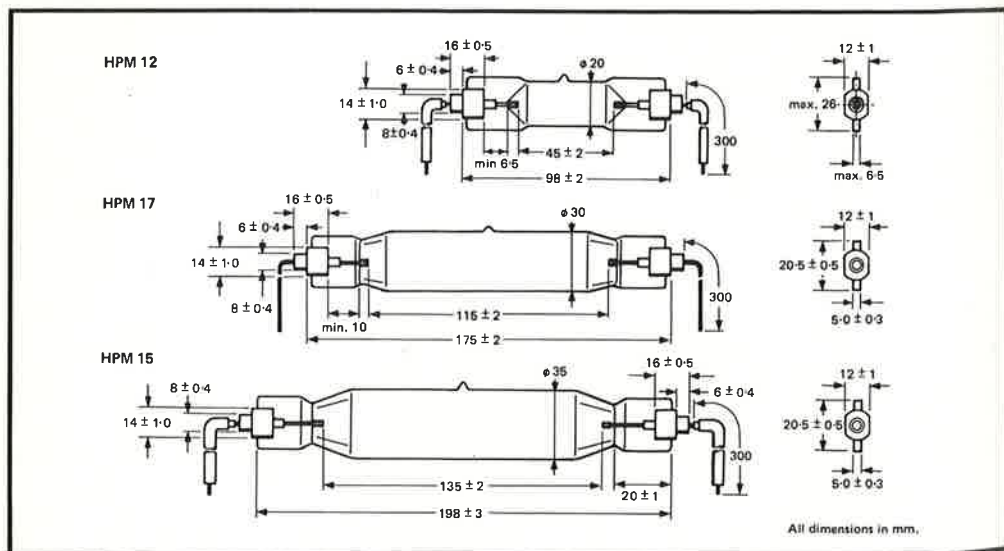
Please order lamps in the form given in the following example, in multiples of the packing quantity:-

4 Philips mercury halide lamps HPM 15



Made in Holland.

DIMENSIONS



LAMP DATA

Catalogue No.	Lamp Wattage W	Lamp Voltage V	Starting Voltage kV	Run-up time (minutes)	Output between 330 & 440 nm at 1m distance uW/cm ²	Light/energy depreciation (%)*	Average life (H)	Weight g	Packing quantity
HPM 12	400	120 ± 15	3	3	710 (400W)	30	500	50	4
HPM 15	1000-4000	240 ± 20**	5	3	4200 (2kW)	15	750	92	4
HPM 17	1000-4000	220 ± 20**	1	3	4500 (2kW)	15	750	82	4

*After 500 hours' burning

**Measured at 2000W

CI/SIB (63.9)

UDC 696.6:628.94

HTQ 7 & HTQ 14

High-pressure mercury discharge lamps

A range of linear lamps of the high-pressure mercury vapour discharge type, with outputs suitable for light-printing applications and for the polymerisation of photo-sensitive additives in polyester lacquers.

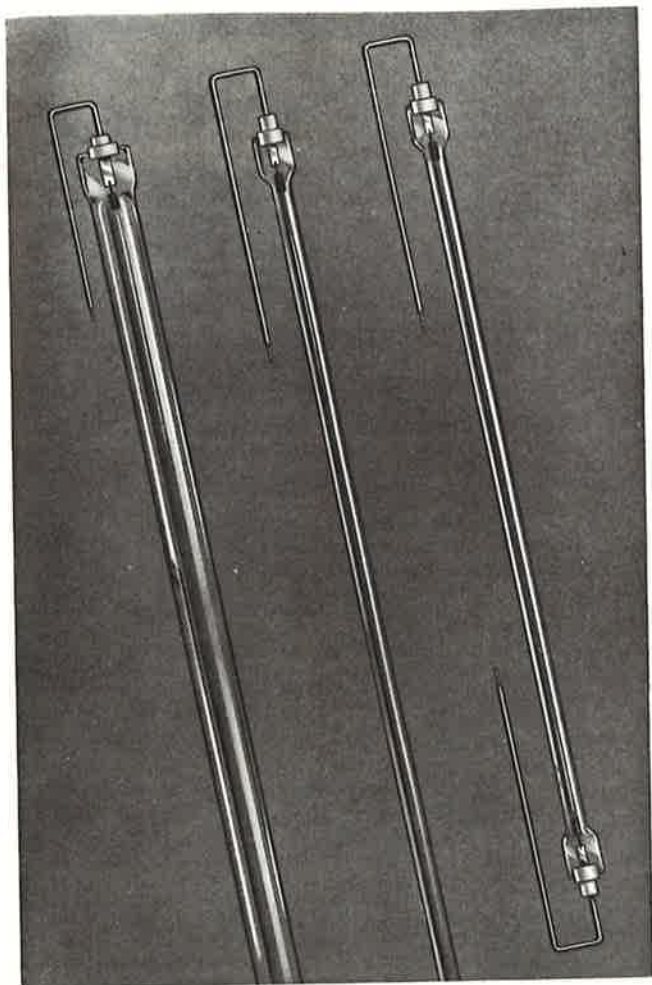
Caution: These lamps emit UV radiation. Precautions must be taken in the design of an installation to prevent harm to personnel, especially to the skin and eyes.

RANGE

HTQ 7: Nominal rating 2000W.
HTQ 14: Nominal rating 4000W.

APPLICATIONS

Although originally developed for light-printing purposes, the lamps now find major application in the hardening of synthetic lacquer coatings in considerably shorter times than can be achieved using conventional drying processes.



Handbook Ref.

7.19

To reorder this Data Sheet quote

6.77 PL1846

Replaces

NEW

FEATURES

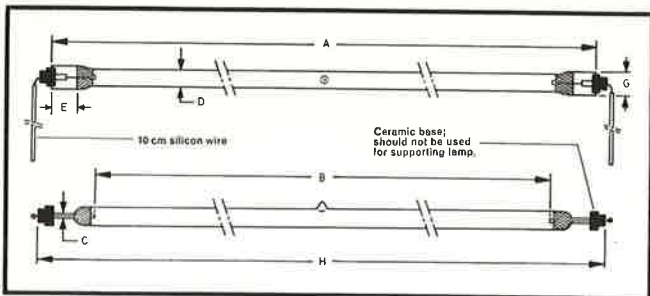
- Lamps do not produce ozone in operation.
- High output coupled with long life reduces installation and running costs.

CONTROL GEAR

Lamp type Ballast

HTQ 7	139, 1095 (2 off)
HTQ 14	139, 1095 (4 off)

DIMENSIONS



Type	A	B	C (max)	D	E	G	H
HTQ 7	755 ± 2	700 ± 2	3-4	12.5 ± 1	18 ± 1	15 ± 1	762.5 ± 3
HTQ 14	1460 ± 2	1400 ± 2	4.0	24 max	17 ± 1	23 ± 1	1485.0 ± 3

All dimensions in mm

WEIGHTS & ELECTRICAL DATA

Catalogue No.	Lamp Wattage (W)	Lamp Voltage (V)	Minimum Starting Voltage (V)	Lamp Starting Current (A)	Lamp Operating Current (A)	Permissible Load (W)	Run-up time (minutes)	Average Life (hours) *	Weight (g)	Burning Position	Packing quantity
HTQ 7	2000	1400 ± 50	1,700	2.4	1.7	1500-2600	5	1000	85	Horizontal	4
HTQ 14	4000	1400 ± 50	1,500	4.6	3.35	3000-5000	5	1000	158	Horizontal	4

*At 4 burning hrs. per switching. Max. Pinch Temperature 300°C

ORDERING DATA

Please order lamps in the form given in the following example, in multiples of the packing quantity:-
12 Philips mercury discharge lamps HTQ 14.

Made in Holland.

CI/SIB (63.9)

UDC 696.6:628.94

SUPER-ACTINIC LAMPS

Actinic 03

Fluorescent lamps for use as long-wave UV sources

A range of linear fluorescent lamps, identical in dimensions and electrical characteristics to the corresponding standard white lamps, for providing highly efficient sources of actinic (long-wave UV) radiation.

RANGE

- TL 20W/03T - 600mm (2ft)
- TLADK 30W/03 - 450mm (18in)
- TL 40W/03RS - 1200mm (4ft)
- TLAK 40W/03 - 600mm (2ft)
- TLM 120W/03RS - 1500mm (5ft)
- TL 140W/03RS - 1500mm (5ft)

APPLICATIONS

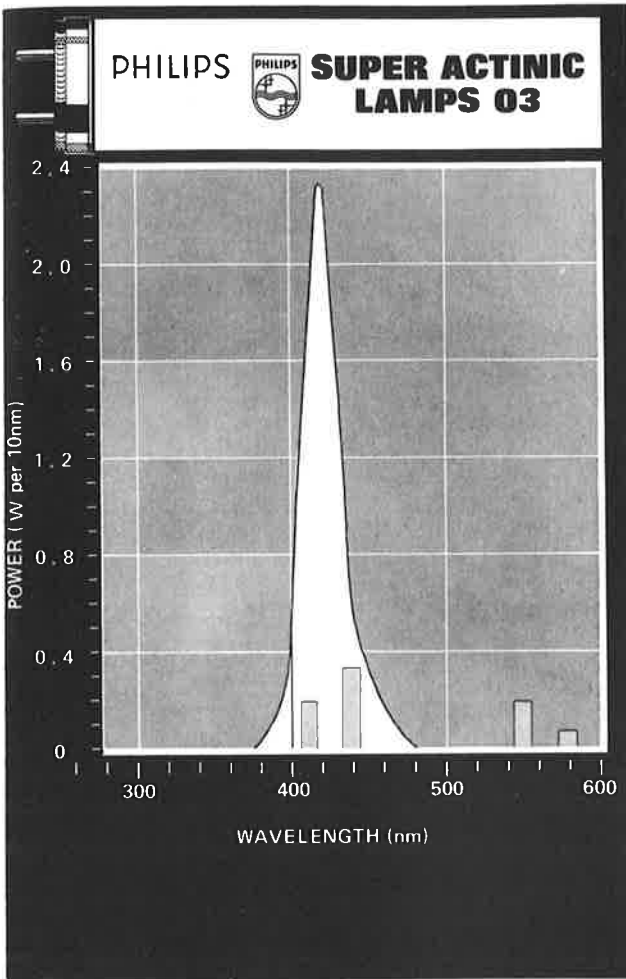
Applications include:-

- Printing and copying processes
- Lacquer prehardening
- Photochemical processes

Note: The output of Actinic 03 lamps peaks at approximately 420nm.

Details of Actinic 05 and Actinic 09 lamps, which are intended for applications requiring radiation peaking at rather shorter wavelengths, are given on Data Sheets PL 1830 and PL 1853.

Caution: These lamps emit UV radiation. Precautions must be taken in the design of an installation to avoid harm to personnel, especially to skin and eyes.



Handbook Ref.

7.1.10

To reorder this data sheet quote

6.79 PL 1829/1

Replaces

PL 1829

FEATURES

■ Low installation, running and maintenance costs make possible inexpensive apparatus with short run-up times and simple cooling arrangements.

■ Spectral power distribution suits spectral sensitivity of most diazo papers used in photo-printing machines.

Temperature dependence

The output of these lamps is at a maximum when the temperature of the coldest part of the glass (usually central, underneath) is 40-50°C. In enclosed machines, it is usually necessary to employ forced-air cooling. This applies especially to the high-loaded lamps TLADK 30W, TLAK 40W and 120/140W.

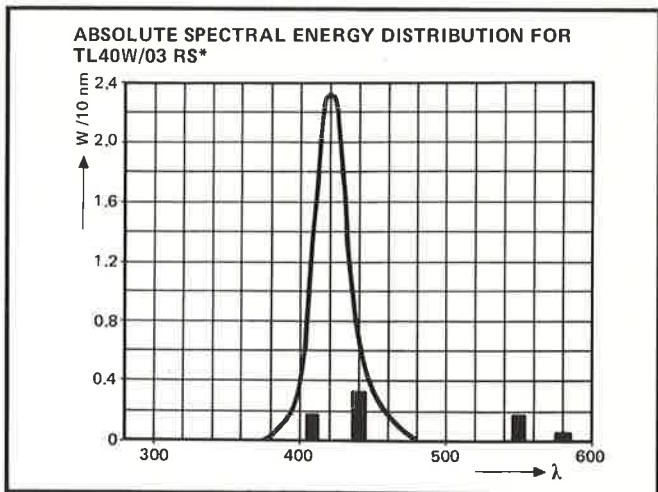
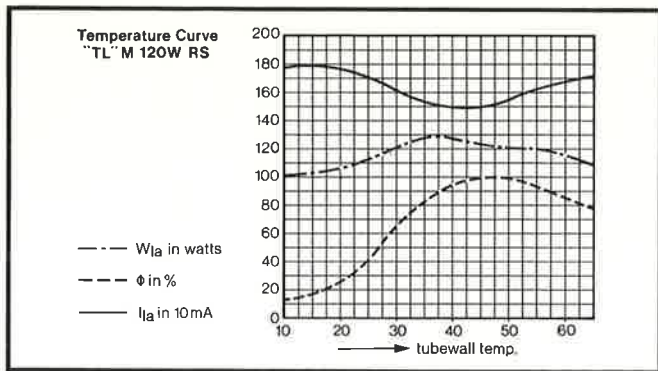
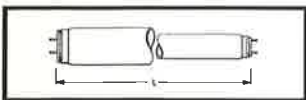
Note:

TL...T lamps - Silicone coated (as MCFE).

TLAK, TLADK lamps - with external strip, to be connected to earth.

TL...RS lamps - with 3V electrodes.

TLM...RS lamp - with 3V electrodes and internally-connected external strip, not to be earthed.



DIMENSIONS & WEIGHTS

Catalogue No.	Dimension L (mm)	Diameter (mm)	Cap	Weight (g)	Packing quantity
TL 20W/03T	590-0	38	Bi-pin	156	25
TLADK 30W/03	437-6	26	Bi-pin	76	25
TL 40W/03RS	1199-6	38	Bi-pin	292	25
TLAK 40W/03	590-0	38	Bi-pin	156	25
TLM 120W/03RS	1500-25	38	Bi-pin	380	25
TL 140W/03RS	1500-25	38	Bi-pin	402	25

LAMP DATA

Catalogue No.	Lamp Voltage V	Lamp Current A	For circuits	Depreciation (%)†
TL 20W/03T	57	0-37	Switchstart & 10V XS	15
TLADK 30W/03	44	0-84	Special circuit	30
TL 40W/03RS	103	0-43	Switchstart & 3V XS	15
TLAK 40W/03	47	0-88	Switchstart & 10V XS	30
TLM 120W/03RS	100	1-50	Special circuit	40
TL 140W/03RS	125	1-40	Special circuit	40

† Measured after 2000 hours' operation, compared with output at 100 hours.

All data are averages, measured under standard conditions.

Conventional lamp circuits are shown on Data Sheet PL 1830.

*W/10nm applies to TL 40W/03RS, and must be multiplied by the following factors for the other lamp types:-

Catalogue No.	Factor
TL 20W/03T	0-4
TLADK 30W/03	0-45
TLAK 40W/03	0-6
TLM 120W/03RS	2-2
TL 140W/03RS	2-5

ORDERING DATA

Please order lamps in the form given in the following example, in multiples of the packing quantity:-

50 Philips fluorescent lamps
TL 40W/03RS

Made in Holland.

CI/SIB (63.9)

UDC 696.6:628.94

ACTINIC 05

Fluorescent lamps for use as long-wave UV sources

A range of linear fluorescent lamps, identical in dimensions and electrical characteristics to the corresponding standard white lamps, for providing highly efficient sources of actinic (long-wave UV) radiation.

RANGE

- TL 6W/05 – 225mm (9in.) mini bi-pin cap.
- TLD 15W/05 – 450mm (18in.) bi-pin cap.
- MCFE 20W/05 – 600mm (2ft) bi-pin cap.
- TLADK 30W/05 – 450mm (18in.) bi-pin cap.
- MCFE 40W/05 – 600mm (2ft) bi-pin cap.
- MCFE 40W/05 – 1200mm (4ft) bi-pin cap.
- TLS 40W/05 – 1200mm (4ft) single-contact cap.
- MCFE 65/80W/05 – 1500mm (5ft) bi-pin cap.
- TLM 120W/05RS – 1500mm (5ft) bi-pin cap.

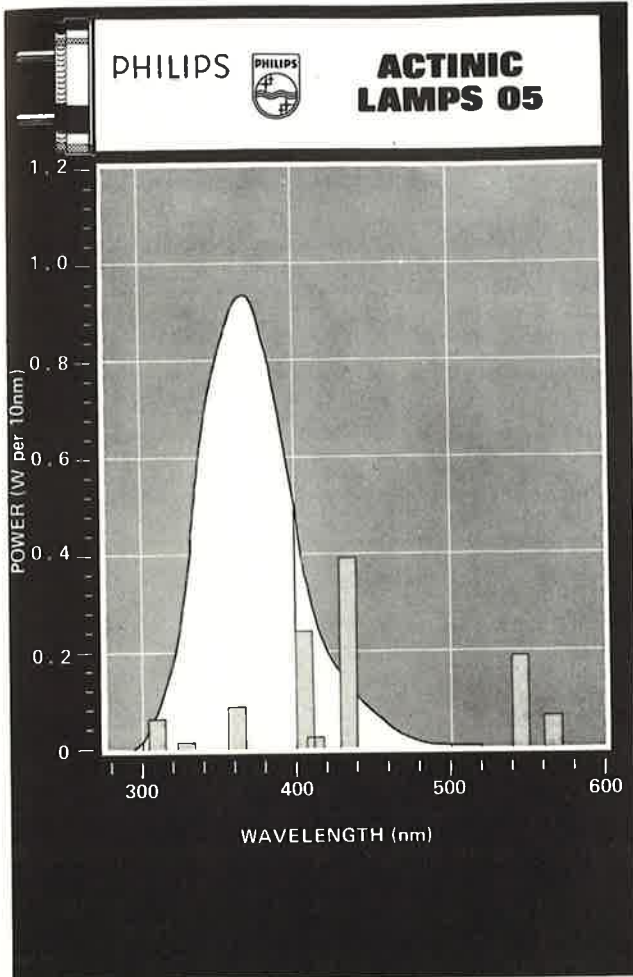
APPLICATIONS

For applications where a low-cost, linear source of long-wave UV radiation is required, such as:-

- Printing and copying processes
- Lacquer prehardening.
- Insect traps

Note:- The output of Actinic 05 lamps peaks at approximately 370nm. Details of Actinic 03 lamps, which are intended for applications requiring radiation peaking at rather longer wavelengths, are given on Data Sheet PL 1829.

Caution:- These lamps emit UV radiation. Precautions must be taken in the design of an installation to avoid harm to personnel, especially to skin and eyes.



Handbook Ref.

7.1.11

To reorder this data sheet quote 6.79 PL 1830/1

Replaces

PL 1830

FEATURES

- Low installation, running and maintenance costs make possible inexpensive apparatus with short warm-up times and simple cooling arrangements.
- Suitable for use with Woods glass or similar filters to provide black light sources.
- Identical in dimensions and electrical characteristics to standard white fluorescent lamps; can operate in the same luminaires and on the same control gear.

Note:

TL and TLD lamps – switchstart circuits only.

TLADK lamps – with external strip, to be connected to earth.

TLS lamps – with internal starting strip; single-contact cap. For replacement only.

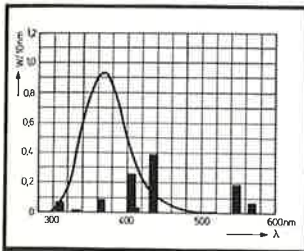
TLM...RS lamps – with 3V electrodes and internally-connected external strip, not to be earthed.

MCFE lamps – with silicone coat.

Temperature dependence

The output of these lamps is at a maximum when the temperature of the coldest part of the glass (usually central, underneath) is 40-50°C. In enclosed machines, it is usually necessary to employ forced-air cooling. This applies especially to the high-loaded lamps TLADK 30W, MCFE 40W 600mm, TLM 120W.

Absolute spectral energy distribution for MCFE 40W/05*



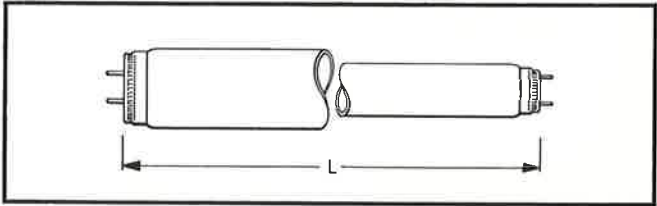
*W/10nm applies to MCFE 40W/05, and must be multiplied by the following factors for the other lamp types:-

Catalogue No.	Factor
TL 6W/05	—
TLD 15W/05	0.3
MCFE 20W/05	0.4
TLADK 30W/05	0.45
MCFE 40W/05 600mm	0.6
TLS 40W/05	1.0
MCFE 65/80W/05	1.6 (65W circuit)
TLM 120W/05RS	2.2

LAMP DATA

Catalogue No.	BS Lamp Voltage V	BS Lamp Current A	For circuits	Depreciation (%)*
TL 6W/05	44	0.16	Switchstart	25
TLD 15W/05	56	0.31	Switchstart	15
MCFE 20W/05	57	0.37	Switchstart & 10V XS	15
TLADK 30W/05	44	0.84	Special circuit	25
MCFE 40W/05 600mm	47	0.88	Switchstart & 10V XS	25
MCFE 40W/05	103	0.43	Switchstart & 10V XS	15
TLS 40W/05	109	0.42	Special circuit	15
MCFE 65/80W/05	110	0.67	Switchstart & 10V XS	20
TLM 120W/05RS	100	1.50	Special circuit	30

*Measured after 2000 hours' operation, compared with output at 100 hours. All data are averages, measured under standard conditions. Data for MCFE 65/80W/05 measured in 65W circuit. Conventional lamp circuits are shown on Data Sheet PL 1839.



DIMENSIONS & WEIGHTS

Catalogue No.	Dimension L (mm)	Diameter (mm)	Cap	Weight (g)	Packing quantity
TL 6W/05	212.1	16	Mini bi-pin	22	25
TLD 15W/05	437.6	26	Bi-pin	76	25
MCFE 20W/05	590.0	38	Bi-pin	156	25
TLADK 30W/05	437.6	26	Bi-pin	76	25
MCFE 40W/05	600.0	38	Bi-pin	156	25
MCFE 40W/05	1199.6	38	Bi-pin	292	25
TLS 40W/05	1199.6	38	Single-contact	292	25
MCFE 65/80W/05	1500.25	38	Bi-pin	360	25
TLM 120W/05RS	1500.25	38	Bi-pin	380	25

ORDERING DATA

Please order lamps in the form given in the following example, in multiples of the packing quantity:-

50 Philips fluorescent lamps TLADK30W/05.

Made in Holland.

CI/SIB
(63.9)

UDC
696.6 : 628.94

ACTINIC 09

Fluorescent lamps with long-wave UVA output

A range of linear fluorescent lamps, identical in dimensions and electrical characteristics to the corresponding standard white lamps, with high efficiency output of actinic (long-wave UVA) radiation.

RANGE

TL D 15W/09 450mm (18in.) bi-pin cap.
TL 20W/09 600mm (2ft) bi-pin cap.
TLK 40W/09 600mm (2ft) bi-pin cap.
TL 40W/09 1200mm (4ft) bi-pin cap.
TL 65/80W/09 1500mm (5ft) bi-pin cap.
TL 85W/100W/09 1800mm (6ft) bi-pin cap.

APPLICATIONS

1. Process Installations

- Printing and photo-copying
- Photochemical processes
- Insect traps

2. Skin Treatment

- Especially cosmetic UV sun-tanning as by Solaria/Sunbeds.

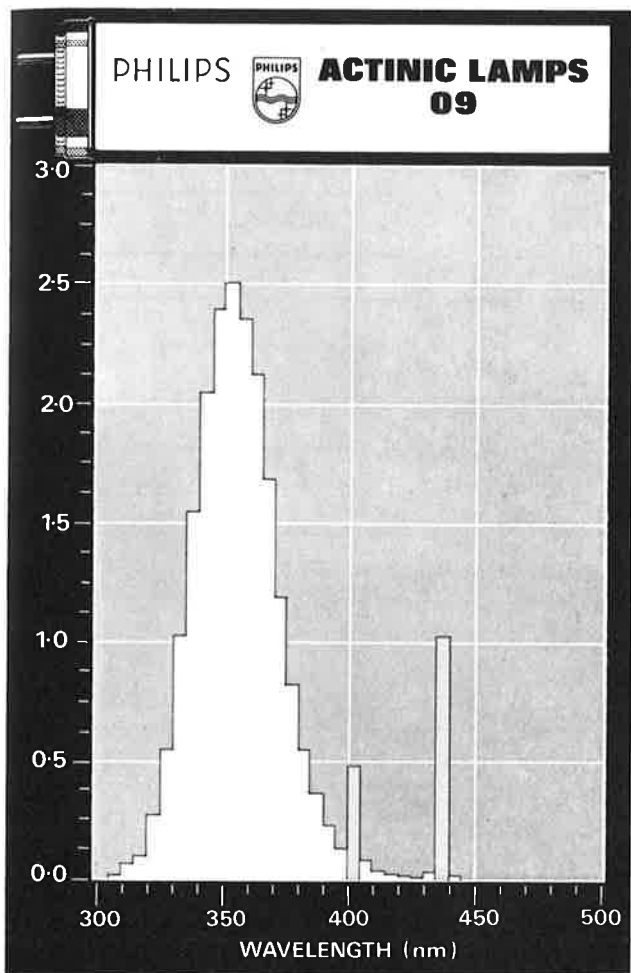
Caution: These lamps emit UV radiation.

Precautions must be taken in the design of process installations to avoid exposure for operatives and users (especially to skin and eyes).*

All equipment manufacturers incorporating this lamp should provide instructions to users with warnings for avoidance or limitation of UV exposure as appropriate.

Users of UV equipment should carefully observe instructions for use provided by equipment manufacturers.

*Reference may be made to H.M.S.O. publication No ISBN 085951 0638.



13

Handbook Ref.

7.1.12

To reorder this Data Sheet quote 6 79 PL 1853/1

Replaces PL 1853

FEATURES

- High efficiency, low running costs.
- Operate on standard switch start fluorescent control gear.
- Short run-up times and simple cooling arrangements.

Note:-

TL TLD and TLK lamps - for switchstart circuits only.

Temperature dependence

The output of these lamps is at a maximum when the temperature of the coldest part of the glass (usually central, underneath) is 40-50°C. In enclosed equipment, it is usually necessary to employ forced-air cooling.

Note:-

The output of Actinic 09 lamps peaks at about 355 nm. UVB content is less than 0.5% of UVA output.

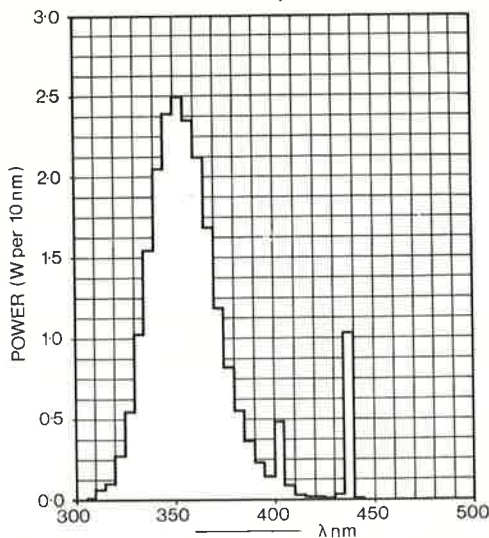
ORDERING DETAILS

Please order lamps in the form given in the following example, in multiples of the packing quantity:-
50 Philips fluorescent lamps
TL 20W/09.

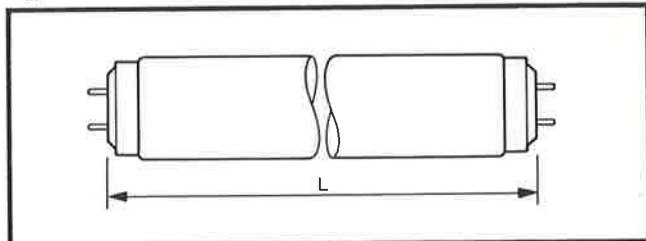
†W/10 nm applies to TL 40W/09 and the following factors should be applied for other ratings.

Catalogue No.	Factor
TLD 15W/09	0.25
TL 20W/09	0.4
TLK 40W/09	0.6
TL 40W/09	1.0
TL 65/80W/09	1.9
TL 85/100W/09	2.2

ABSOLUTE SPECTRAL POWER DISTRIBUTION
FOR TL 40W/09 †



DIMENSIONS



DIMENSIONS & WEIGHTS

Catalogue No.	Dimension L (mm) Max	Diameter (mm) Nom	Cap	Weight (g)	Packing quantity
TLD 15W/09	437	26	Bi-pin	76	25
TL 20W/09	590	38	Bi-pin	156	25
TLK 40W/09	590	38	Bi-pin	156	25
TL 40W/09	1199	38	Bi-pin	292	25
TL 65/80W/09	1500	38	Bi-pin	360	25
TL 85W/100W/09	1764	38	Bi-pin	451	12

ELECTRICAL DATA

Catalogue No.	BS Lamp Voltage V	BS Lamp Current A	For circuits	Depreciation (%)*
TLD 15W/09	56	0.31	Switchstart	30
TL 20W/09	57	0.37	Switchstart	25
TLK 40W/09	47	0.88	Switchstart	30
TL 40W/09	103	0.43	Switchstart	25
TL 65/80W/09	110	0.67	Switchstart	30/35
TL 85W/100W/09	120	0.80	Switchstart	30/36

*Measured after 2000 hours' operation, compared with output at 100 hours. All data are averages, measured under standard conditions. Data for TL 65/80W/09 measured in 65W circuit.

Conventional lamp circuits are shown on Data Sheet PL 1839.

Made in Holland.

LL

Spectral lamps

A range of light sources with identical dimensions and interchangeable electrical characteristics, for producing monochromatic lines of known wavelength for physical and chemical research.

Caution: Certain lamps emit UV radiation down to 300 nm, and may generate ozone. Precautions must be taken in the design of an installation to avoid harm to personnel, especially to the skin and eyes.

RANGE

Twenty-five lamps, containing high-purity gases or vapour as follows:

Glass envelopes

Hg (low pressure)	A
Hg (high pressure)	Kr
Cd	Xe
Zn	Na
Hg, Cd, Zn	Rb
He	Cs
Ne	K

Quartz envelopes

In	*Hg, Cd, Zn
Tl	*In
Ga	*Tl
*Hg (low pressure)	*Ga
*Hg (high pressure)	
*Cd	
*Zn	

*These lamps are primarily intended for producing ultra-violet spectra.

APPLICATIONS

- Biology
- Chemistry
- Interferometry
- Polarimetry
- Spectroscopy



FEATURES

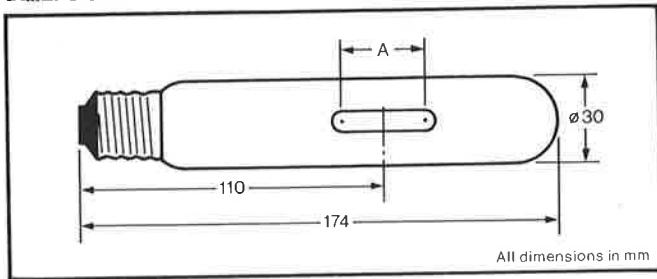
■ Combination of ultra-pure gas/vapour filling and electrodes that permit a very high current density produce light sources capable of emitting high energy in a single line, or in a few lines.

■ Lamps are physically identical and electrically interchangeable to permit comparative tests.

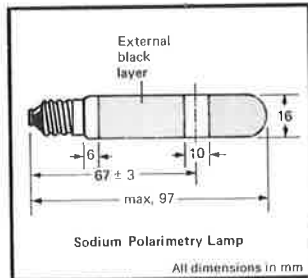
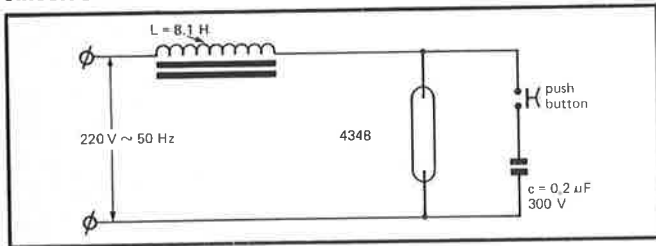
■ Lamps with quartz discharge tubes and outer envelopes permit UV investigations.

■ All lamps are fitted with standard ES cap.

DIMENSIONS



CIRCUIT DIAGRAM



LAMP DATA

Catalogue No.	Gas or vapour filling	Outer bulb	Wattage W	Useful arc length A (mm)	Main use
93123	Hg (low pressure)	Glass	12	38	1
93136	Hg (high pressure)	Glass	90	25	1
93162	Cd	Glass	16	24	1
103137	Zn	Glass	16	24	1
93145	Hg, Cd, Zn	Glass	75	24	1
93088	He	Glass	60	32	1
93099	Ne	Glass	20	27	1
93100	A	Glass	16	27	1
93101	Kr	Glass	11	27	1
93102	Xe	Glass	07	27	1
93122	Na	Glass	14	19	1
93104	Rb	Glass	08	33	1
93105	Cs	Glass	08	33	1
93103	K	Glass	10	33	1
103778	In	Quartz	25	25	2
126162	Tl	Quartz	20	30	2
126121	Ga	Quartz	20	30	2
93109	Hg (low pressure)	Quartz	12	40	3
93110	Hg (high pressure)	Quartz	90	25	3
93107	Cd	Quartz	16	24	3
93106	Zn	Quartz	16	24	3
93146	Hg, Cd, Zn	Quartz	75	24	3
103778	In	Quartz	25	25	3
126162	Tl	Quartz	20	25	3
126121	Ga	Quartz	20	20	3

Main uses

- 1:- Primarily for investigations of visible spectra.
- 2:- For investigations of visible and UV spectra.
- 3:- Primarily for investigations of UV spectra.

Common characteristics

- Cap:- ES
 Lamp current:- approx. 0.9A
 Weight:- 60 g
 Burning position:- Any

SODIUM POLARIMETRY LAMP

Type No.	Minimum supply voltage V	Lamp voltage V	Lamp current mA	Average life H*	Base
4348	200	50	82	100	MES

* On an average of 1 burning hour per switching.

ORDERING DATA

Please order lamps in the form given in the following example, in multiples of the packing quantity:

4 Philips spectral lamps 93104

Packing quantity for all lamps: 4

Made in Holland.

AUTO LAMPS

Page

Tungsten Auto Bulbs
Halogen Auto Bulbs

PL1818 431
PL1820 433

629.1.066

TUNGSTEN AUTO BULBS

Lamps for side, tail and auxiliary lighting.

Festoon lamps.

Double-filament (Duplo-D) automobile headlight lamps.

RANGE

Side or tail:- 12V, with wedge or MCC base.

Indicator:- 12V 3W or 1.2W with wedge base.

Auxiliary:- 6V, 12V or 24V, with BA7s or MCC base.

Festoon:- 6V, 12V or 24V, in ratings from 3W to 21W.

Headlight:- 12V 45/40W, Duplo-D. clear or cadmium yellow finish.

APPLICATIONS

For use in all British and European road vehicles fitted with suitable lampholders and headlight reflector systems.



14

Handbook Ref

8.11

To reorder this data sheet quote

3.78 PL 1818

Replaces

NEW

FEATURES

■Duplo: Dipped filament shield prevents light from reaching the bottom half of the reflector, giving a sharp cut-off to the top of the beam to improve visibility and reduce dazzle.

■Where appropriate, lamps are 'E' marked, signifying compliance with International Standards and approval for use in new vehicles, and ensuring high standards of performance when used for service replacements.

LAMP DATA

Catalogue No.	Volts* (nominal)	Watts (nominal)	Length		Cap	Packing quantity
			A (max) (mm)	B (max) (mm)		
Side or Tail bulbs						
501	12	5	20.7	10.3	Wedge	10
12929	12	4	27.4	8.6	MCC	10
Indicator lamps						
504	12	3	20.7	10.3	Wedge	10
12516	12	1.2	14.5	5	Wedge	10
Auxiliary lamps						
282	6	0.6	20.7	6.8	BA7s	10
281	12	2	20.7	6.8	BA7s	10
283	24	3	20.7	6.8	BA7s	10
6913	6	2	23.9	8.6	MCC	10
12913	12	2	23.9	8.6	MCC	10
13913	24	2	23.9	8.6	MCC	10
Festoon lamps						
253	6	5	36	11	Festoon	10
256	12	3	33	8	Festoon	10
254	12	5	36	11	Festoon	10
12854	12	10	36	11	Festoon	10
265	12	10	41	11	Festoon	10
267	12	15	41	15.5	Festoon	10
12807	12	18	41	15.5	Festoon	10
273	12	21	41	15.5	Festoon	10
653	24	5	36	11	Festoon	10

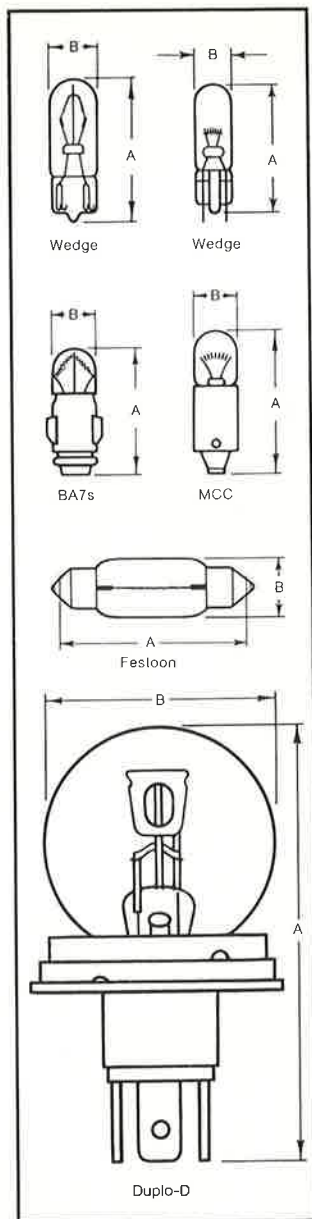
*Design voltages are 6.75, 13.5 and 28V

DUPLO-D LAMP DATA

Cat. No.	European No.	Volts	Watts	Length		Cap	Finish	Packing quantity
				A (max) (mm)	B (max) (mm)			
423	6620	6	45/40	82	41.5	P45t	Clear	200
410	12620	12	45/50	82	41.5	P45t	Clear	200
411	12620/86	12	45/50	82	41.5	P45t	Cadmium yellow	200

Please order lamps in the form given in the following example, in multiples of the packing quantity and quoting the Catalogue No., voltage and wattage of the lamps:—
200 Philips headlight lamps 12V 45/50W, No. 411.

For details of tungsten halogen headlight bulbs, see Data Sheet PL 1820



Drawings not to scale

See packing for country of origin.

HALOGEN AUTOBULBS

Tungsten halogen single and double filament types

Single filament tungsten halogen lamps to provide the main beam in four-headlamp systems, and for use in auxiliary lighting equipment such as spot and fog lamp units.

Double filament tungsten halogen with shielded dip filaments to provide anti-dazzle, sharp cut-off beams.

A miniature lamp for applications where a lower wattage is appropriate.

RANGE

Single filament:— Types H1 (axial filament) and H3 (transverse filament), in 6V 55W, 12V 55W and 24V 70W versions.

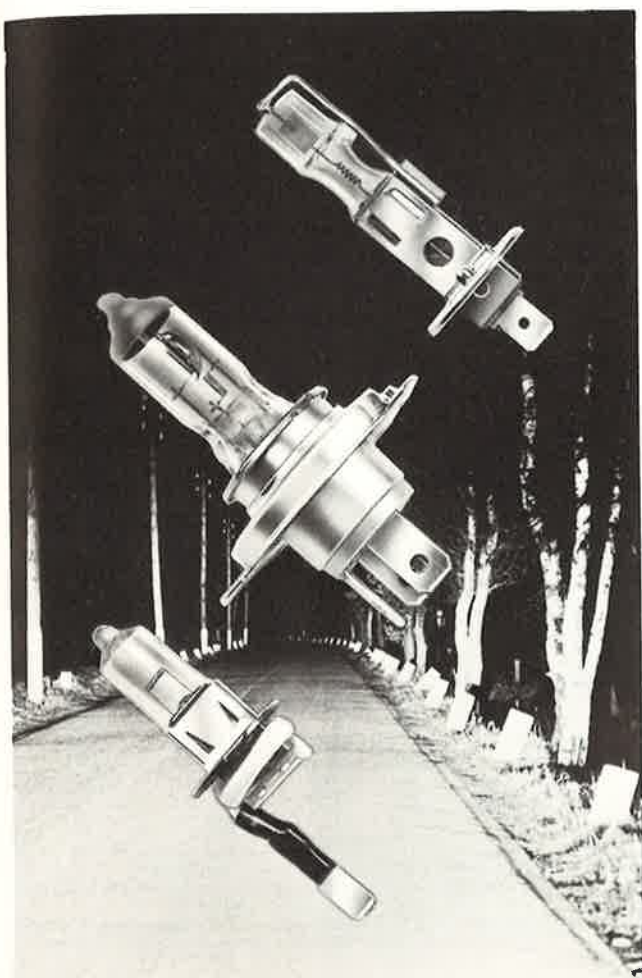
Double filament:— Types H4 12V 60/55W and 24V 75/70W, in clear or cadmium yellow versions.

Miniature:— Type 12452, 12V 20W.

APPLICATIONS

For use in purpose-designed headlight units to bring the advantages of high-intensity tungsten halogen lighting to road vehicles. Type 12452 is suitable for any application where a miniature lamp with relatively high output is appropriate, including:—

- Reversing lights
- Fog rear warning lights
- Inspection lamps
- Mo-ped headlights
- Portable lamps for camping
- Heavy-duty torches
- Instrument illumination in scientific instruments.



Handbook Ref.

8.1.2

To reorder this data sheet quote

2.78 PL 1820

Replaces

NEW

FEATURES

■ Tungsten halogen regenerative cycle maintains high light output throughout rated life of lamp.

■ Lamps are 'E' marked signifying approval for use in new vehicles, and assuring high standards of performance when used for service replacement purposes.

■ Accurately constructed, with precise positioning of the filaments and dip shield, where appropriate, to ensure correct focus and beam control.

■ Miniature type provides high levels of illumination with low heating effect.

■ All products are of proven reliability.

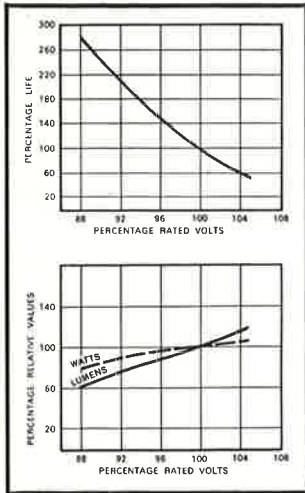
SPECIFICATION

■ Manufactured to International and EEC standards.

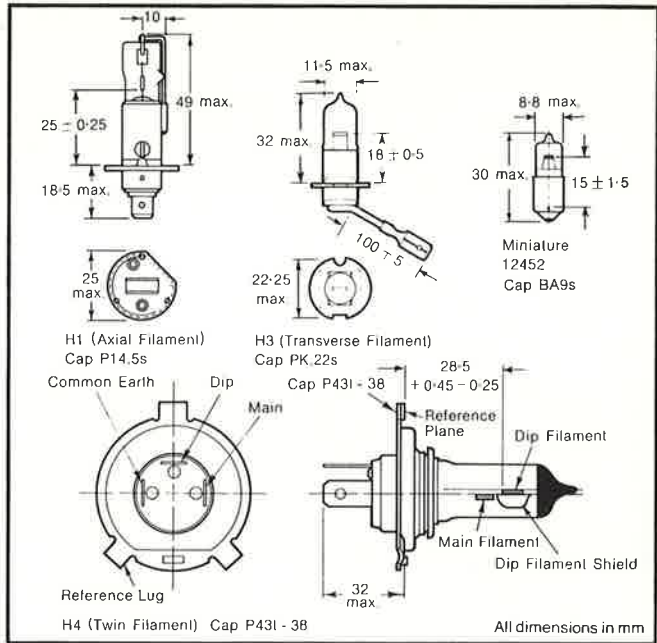
For full specifications see ECE Regulation No. 37.

Miniature type 12452 is not Internationally standardised.

Variation of Electrical and Light Characteristics with Applied Voltage



These curves are based on averages obtained with many lamps, and may be used as an approximate guide to performance. Theoretical values of extended life may not be realised in practice, since factors such as vibration, handling, cleaning and frequency of switching have an appreciable effect on lamp life.



LAMP DATA

International Type	Catalogue No.	Volts	Watts	Cap	Filament axis	Finish	Packing quantity
H1	6258	6	55	P14.5s	Axial	Clear	10
H1	12258	12	55	P14.5s	Axial	Clear	10
H1	13258	24	70	P14.5s	Axial	Clear	10
H3	6336	6	55	PK22s	Transverse	Clear	10
H3	12336	12	55	PK22s	Transverse	Clear	10
H3	13336	24	70	PK22s	Transverse	Clear	10
H4	12342	12	60/55	P43t	Axial	Clear	10
H4	12342/86	12	60/55	P43t	Axial	Cadmium yellow	10
H4	13342	24	75/70	P43t	Axial	Clear	10
H4	13342/86	24	75/70	P43t	Axial	Cadmium yellow	10
—	12452	12	20	BA9s	Transverse	Clear	10

ELECTRICAL CHARACTERISTICS

Type	Catalogue No.	Filament	Test Voltage*	Maximum Wattage*	Nominal luminous flux (lumens)*	Average life (hours)*
H1	6258	—	6.3	63	1350	150
H1	12258	—	13.2	68	1550	150
H1	13258	—	28	84	1900	150
H3	6336	—	6.3	63	1050	150
H3	12336	—	13.2	68	1450	150
H3	13336	—	28	84	1750	150
H4	12342	Dip	13.2	68	1000	200
H4	12342	Main	13.2	75	1650	100
H4	13342	Dip	28	80	1200	200
H4	13342	Main	28	85	1900	100
—	12452	—	13.2	20	400	100

*The test voltages chosen relate to the circuit volts of a lead-acid battery under full charge. Wattage, luminous flux and average life are measured at the test voltage.

HANDLING: If the quartz bulb has been handled, it should be cleaned with a solvent such as methylated spirits to remove traces of grease before lighting.

SEAL TEMPERATURE: Precautions must be taken to ensure that the temperature of the quartz-metal seal does not exceed 350°C, though the bulb temperature must be greater than 250°C.

PHOTOGRAPHIC LAMPS

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Studio & Theatre Lamps	PL1812/1 451

CI/SIB
UDC 771.44

PHOTOFLUX

Flashbulbs, Cubes, Topflash and Flashbar

A series of flashbulbs, cubes and units matched to balance daylight colour and black-and-white films, to suit the needs of the amateur photographer.

RANGE

PF1B:- Capless battery-fired flashbulb.

AG3B:- Capless battery-fired flashbulb (alternative fitting to PF1B).

PFC4:- Battery flashcube giving four flashes, each in its own reflector.

Magicube:- Battery-less version of PFC4.

PF8P:- 'Topflash' eight flash unit for use with certain cameras with piezo firing systems.

Flashbar:- Ten-flash unit in two rows of five, back-to-back, each with its own reflector.

APPLICATIONS

The provision of artificial daylight for indoor flash photography, with sufficient intensity for the majority of amateur applications.

The range can also be used to high-light shadow areas outdoors ('fill-in' flash).

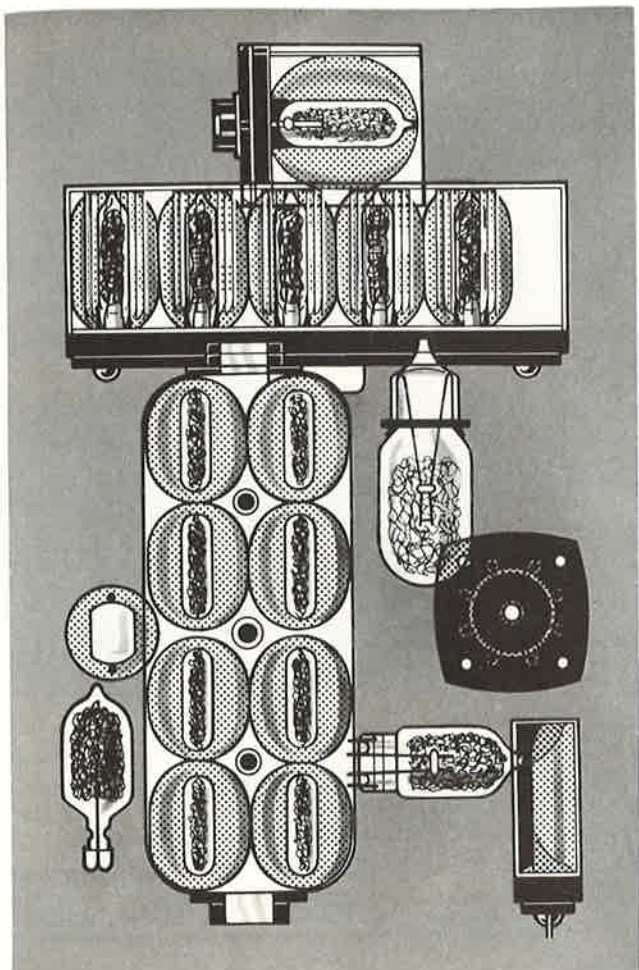
■ Types PF1B and AG3B are for use in simple battery-capacitor flashguns.

■ Type PFC4 cube is made for battery-operated Instamatic, pocket and some instant cameras.

■ Magicube is made for other camera types not requiring a battery.

■ Type PF8P, 'Topflash', for use with pocket and instant cameras with piezo ignition.

■ Flashbar is for use with specific instant picture cameras.



Handbook Ref

9.1.1

To reorder this data sheet quote 10.79 PL 1816/1

Replaces

PL 1816

15

FEATURES

PF1B, AG3B

- Blue lacquered to match the colour balance of daylight colour and black-and-white films. The lacquer also reduces the risk of shattering bulbs.
- Blue safety spot indicates the condition of the bulb.
- Low cost per flash; higher output than flashcubes.
- Interchangeable by means of a socket adaptor.

PFC4, Magicube

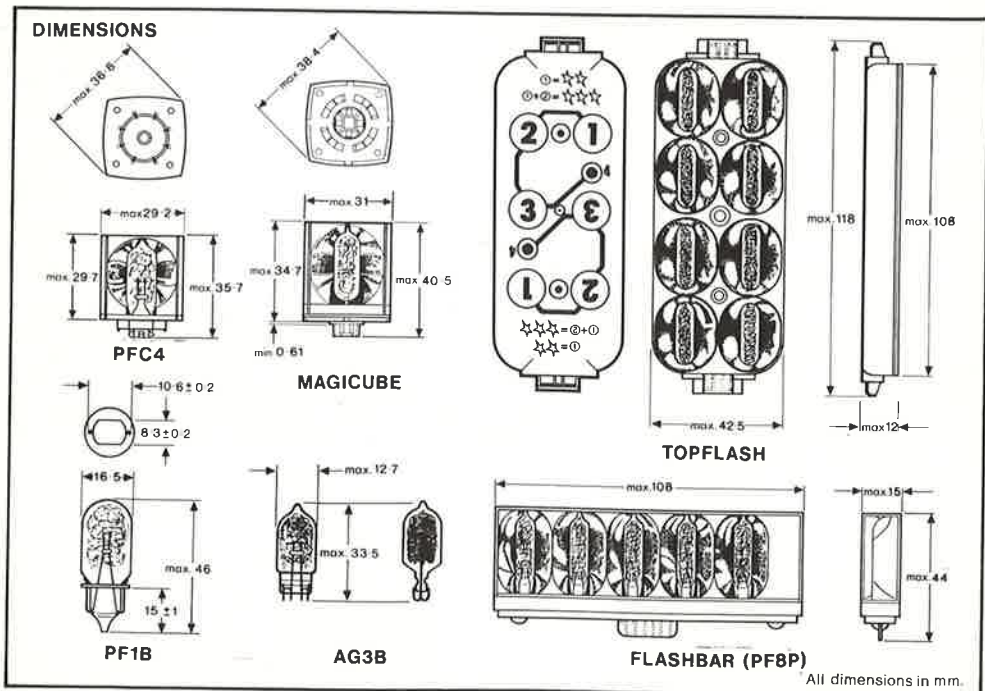
- Four separate flashes per unit, each with its own reflector.
- Simple to use, in a handy small size.
- Transparent outer cover gives added protection from shattering bulbs.
- Non-interchangeable base fittings prevent wrong type of cube being used.

Topflash (PF8P)

- Eight separate flashes per unit, each with its own reflector.
- Simple to use; the ultra-slim profile slips easily into the pocket.
- No battery required. Piezo ignition.
- Bulbs are automatically fired in numbered sequence. The top 4 flashes are used first, then the unit is turned over for the remaining 4.
- By flashing the bulbs furthest from the lens Topflash reduces the red-eye effect.
- Only Topflash has a button behind each bulb permitting multiple flash – also enables a failed bulb to be bypassed.
- Multiple flash feature: it is possible to fire up to three bulbs simultaneously for increased output.
- Transparent outer cover gives added protection from shattering bulbs.

Flashbar

- Ten separate flashes per unit, each with its own reflector.
- Simple to use and carry.
- Bulbs are automatically fired in sequence; when the five bulbs to the front have been fired, the Flashbar is simply reversed in the camera.
- Transparent blue outer cover gives added protection from shattering bulbs.
- Hafnium filled for high output.
- Prismatic cover gives improved light distribution.



GUIDE NUMBER TABLE (in accordance with ISO 1230 for distance in feet)

Film Speeds		Shutter Speeds							
ASA	DIN	PF8P Topflash 1/25-1/60 (X)	Magicube 1/25-1/60 (X)	PFC4 1/25-1/30 (X)	PF1B 1/25-1/30 (X)	PF1B 1/50-1/60 (X)	AG3B 1/25-1/30 (X)	AG3B 1/50-1/60 (X)	Flashbar 1/25-1/30 (X)
25-32	15-16	40	40	40	65	45	65	45	80
40-50	17-18	50	50	50	85	60	85	60	100
64-80	19-20	65	65	65	105	75	105	75	125
100-125	21-22	80	80	80	125	90	125	90	155
160-200	23-24	100	100	100	170	120	170	120	200
250-320	25-26	130	130	130	210	150	210	150	250
400-500	27-28	160	160	160	260	180	260	180	310

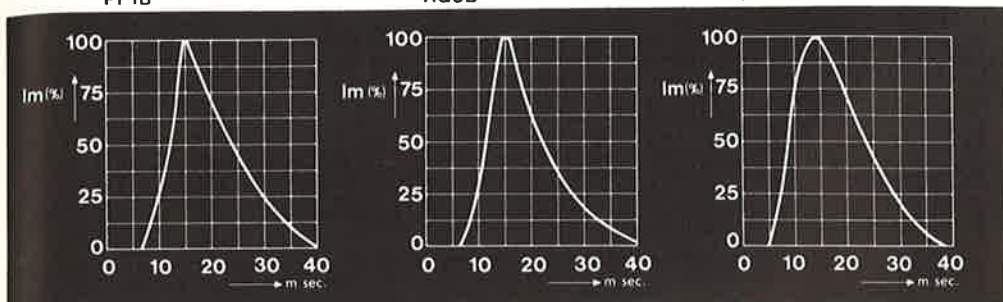
Camera f-stop (aperture) = Guide Number : Distance in feet, Divide Guide Number by 3 for approximate distance in metres.

LIGHT OUTPUT DATA

PF1B

AG3B

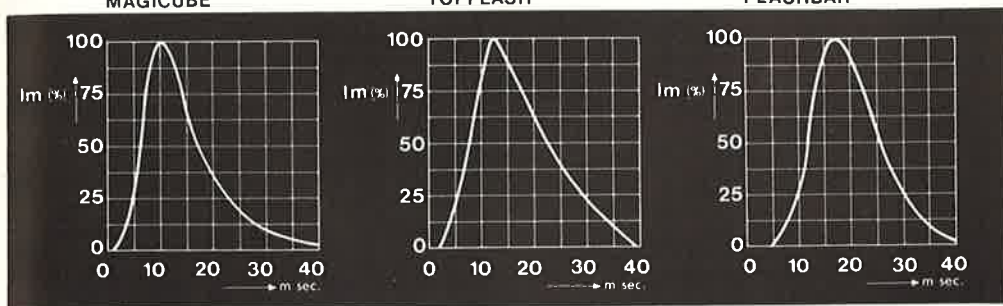
PFC4



MAGICUBE

TOPFLASH

FLASHBAR



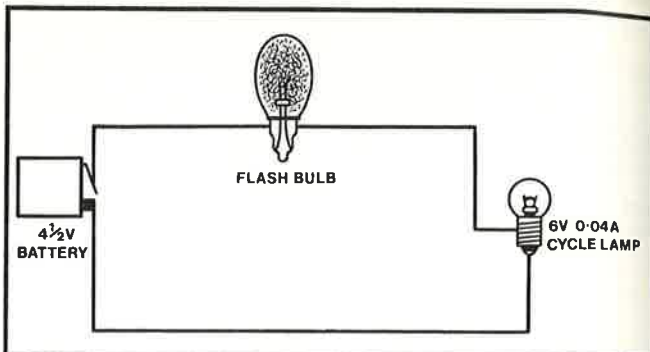
PERFORMANCE DATA

Catalogue number	Total output (Lumen seconds)	Time to peak (milli-seconds)	Duration above half-peak (milli-seconds)	Voltage range
PF1B	7500	15	12	3-30
AG3B	7500	15	11	3-30
PFC4	—	15	13	3-30
Magicube	—	10	11	—
PF8P Topflash	—	12	15	—
Flashbar	—	13	10	3-30

Notes for users

- All Photoflux flashbulbs are lacquer coated for safety. However, a safety shield should always be used where the flash is in close proximity to the subject, to protect against the possibility of a bulb shattering.
- Care must be taken to avoid sudden knocks. It is possible for mechanically-operated units (Magicubes) to be inadvertently fired as a result.
- Flashbulbs and units should not be dismantled for any reason.
- All flash products should be kept in their original packing until needed, to protect the lacquer and contact points.
- Blue indicator spots are incorporated in some flashbulbs, cubes and units which change colour to pink if an air leak develops. Should this change in colour occur, or if a bulb, cube or unit appear to be damaged in any way, do not use it.
- Ensure that batteries are renewed regularly, and that contacts are clean.
- In the case of the AG3B and PF1B, a straight press fit into the flash-gun socket is all that is required. Do not twist, as this can displace the contacts and render the bulb inoperative.
- Do not flash in explosive atmospheres or in close proximity to materials of a highly inflammable nature.
- Allow bulb to cool after use and before removal.
- Damaged flashbulbs and units, or those that have failed to fire, should be returned to your supplier for disposal, investigation or replacement as necessary.

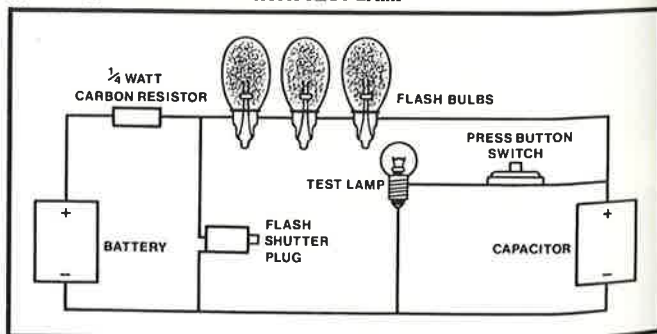
CONTINUITY TEST CIRCUIT



Rough handling insufficient to cause external damage and to change the safety spot, may result in a broken filament so that the flashbulb cannot be fired. A flashbulb can be tested for continuity of circuit by connecting it in series with a suitable lamp. The circuit consists of a 4.5V battery connected in series with the flashbulb and a 6V

0.04A cycle rear lamp. When the test switch is closed the resistance of the lamp is such that the current through the flashbulb is less than 1/10th of that necessary to fire it. The filament of the test lamp will glow if there is continuity through the flashbulb. Each flashbulb must be tested separately. Applies to PF1B, AG3B and PFC4 only.

MULTIPLE FLASH CIRCUIT WITH TEST LAMP



As the capacitor is charged through the flashbulbs, discharging the capacitor through the test lamp via the press button switch proves continuity in the flash circuit.

The flashbulbs are connected in series so that any sockets not in use must be short-circuited. As the number of flashbulbs increases, so must the value of the components.

Number of flash bulbs	Capacitor mfd.	Wkg. Voltage of capacitor	Battery V	Resistor kΩ	Test Lamp V A
1-6	250	25	22.5	3	6 0.04
7-12	500	45	45.0	5	12 0.20
13-18	750	70	67.5	10	12 0.10

ORDERING DATA

Catalogue No.	Basic packing carton	Ordering quantity	
		Inner box	Outer box
PF1B	10 bulbs	200 bulbs	1600 bulbs
AG3B	10 bulbs	200 bulbs	2000 bulbs
PFC4	3 cubes - 12 flashes	72 cubes	576 cubes
Magicube	3 cubes - 12 flashes	72 cubes	576 cubes
PF8P Topflash	1 unit - 8 flashes	20 units	160 units
Flashbar	1 unit - 10 flashes	20 units	200 units

Flashbar: Made in USA
PF8P, Magicube and AG3B: Made in Holland.
PFC4, PF1B: Made in Great Britain.

PHOTOLITA ARGAPHOTO PHOTOCRESCENTA DARKROOM

Classes P1, P2 and P3

A range of photoflood and photopearl lamps, single- and double-ended tungsten halogen photo lamps, darkroom safelight lamps and high-intensity enlarger lamps for both amateur and professional use.

APPLICATIONS

Class P1 Photoflood:— High light output, balanced for 3400K colour film, for both still and cine photography.

Class P1 tungsten halogen:— Single- and double-ended lamps for 3400K balanced colour film.

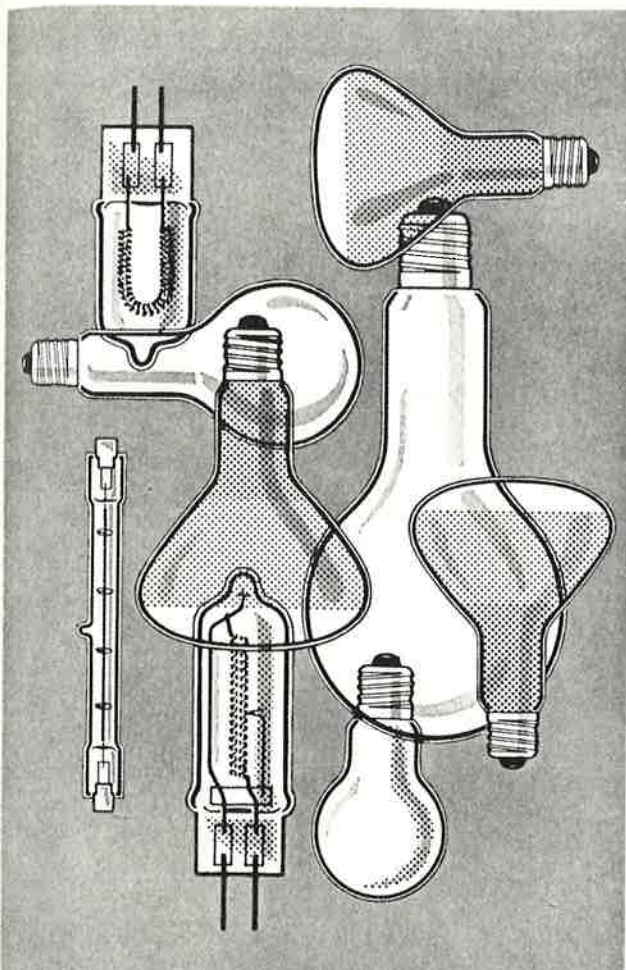
Class P2 Photopearl:— Lamps for use in professional studios, for fill-in or process cameras, for 3200K colour film.

Class P3 Photocrescenta:— Enlarger lamps for both amateur and professional use.

Darkroom:— Safelight lamps made from dark red or yellow/green coloured glass, for use with orthochromatic film and bromide papers respectively.

FEATURES

- Photoflood (Photolita) and Photopearl (Argaphoto) lamps are available in pearl or reflector versions; the latter provide an efficient forward illumination without external reflector housings.
- Tungsten halogen lamps maintain constant light output throughout their life.
- Small size of tungsten halogen lamps permits the design of slim, lightweight housings for movie lights, etc.
- Special opalising process for enlarger lamps ensures even illumination on the baseboard.



Handbook Ref.

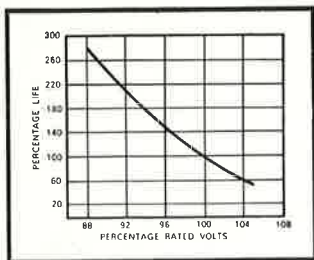
9.1.2

To reorder this data sheet quote 11.79 PL 1817/1

Replaces

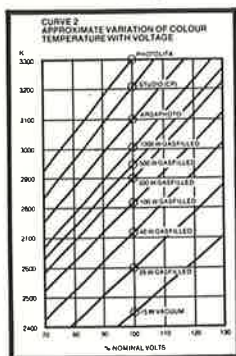
PL 1817

PERFORMANCE CHARACTERISTICS

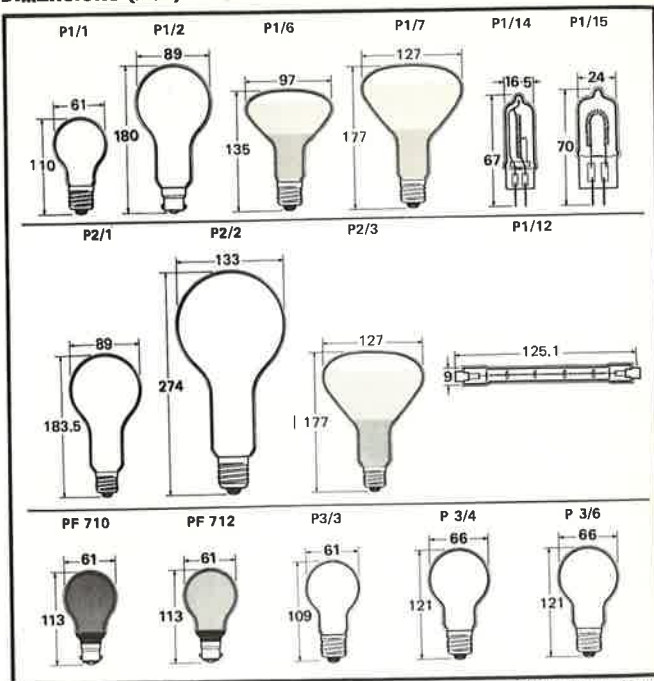


Curve 1 - Variation of life to applied voltage

This is a general lamp curve showing voltage variation from 88-104%; photolamps have high-temperature filaments and must not be over-volted. The curve shows average figures, and indicates that life is considerably dependent on applied voltage. Gross undervolting may not achieve expected results, particularly for halogen lamps, as other factors influence lamp life.



DIMENSIONS (max)



All dimensions in mm

Curve 2 - Variation of colour temperature with applied voltage
Whilst a nominal colour temperature is quoted for various types, it should be noted that there is a tolerance of $\pm 100K$ for photolamps, and that ordinary lamps are not controlled in this respect.

ORDERING DATA

Please order quoting Catalogue Number and Lamp reference, in multiples of the packing quantity.

NOTES FOR USER

General: Photographic lamp filaments are particularly brittle. Handle gently, and avoid vibration and jolts when alight. Lamps may be operated via dimmers or series/parallel switching while setting-up, to extend useful life.

PRODUCT DATA

Type	Catalogue Number	Lamp reference	Watts	Volts	Cap	Film rating K	Finish	Average Life hours	Nominal Light output	Packing quantity
Photoflood (Photolita)	PF207	P1/1	275	240/250	B22d/E27	3400	Pearl	3	8000 lm	25
	PF208	P1/2	500	240	B22d/E27	3400	Pearl	6	15000 lm	25
"	PF215	P1/6	375	240	E27	3400	Reflector	4	1300*	25
"	PF218	P1/7	500	240	E27	3400	Reflector	6	8000*	9
Photopearl (Argaphoto)	PF308	P2/1	500	240	E27	3200	Pearl	100	11000 lm	32
	PF210	P2/2	1000	240	E40	3200	Pearl	100	23000 lm	9
	PF318	P2/3	500	240	E27	3200	Reflector	100	3000*	9
Tungsten halogen†	PF801R	P1/12	1000	240/250	R7s	3400	Clear	10	34000 lm	10, 100
	PF810	P1/14	650	240/250	G6.35	3400	Clear	15	20000 lm	10, 100
	PF811	P1/15	1000	240/250	G6.35	3400	Clear	15	33000 lm	10, 100
Darkroom	PF710	Yellow-green	—	240/250	B22d	—	Yellow-green	—	—	50
	PF712	Dark red	—	240/250	B22d	—	Dark red	—	—	50
Photocrescenta	PF603	P3/3	75	240/250	B22d/E27	—	Opalized	100	1150 lm	50
	PF605	P3/4	150	240/250	B22d/E27	—	Opalized	100	2700 lm	50
	PF607	P3/6	275	240/250	B22d/E27	—	Opalized	3	7200 lm	50
	"	PF607	P3/6	275	240/250	B22d/E27	—	Opalized	3	7200 lm

*Light output in centre beam candles.

†For Class P2 Tungsten-halogen lamps see 'Studio & Theatre Lamps', PL 1812.

Lamp P1/1: Made in UK.

Remainder: Made in Holland.

628.94

PROJECTION LAMPS

Class A1

Lamps held in stock for use in slide and film projectors.

For further information see
Photolamp booklet PL 1281

RANGE

Halogen and non-halogen types,
tabulated separately in LIF
Classification sequence.

APPLICATIONS

For use in slide and film projectors,
and for other applications such as:

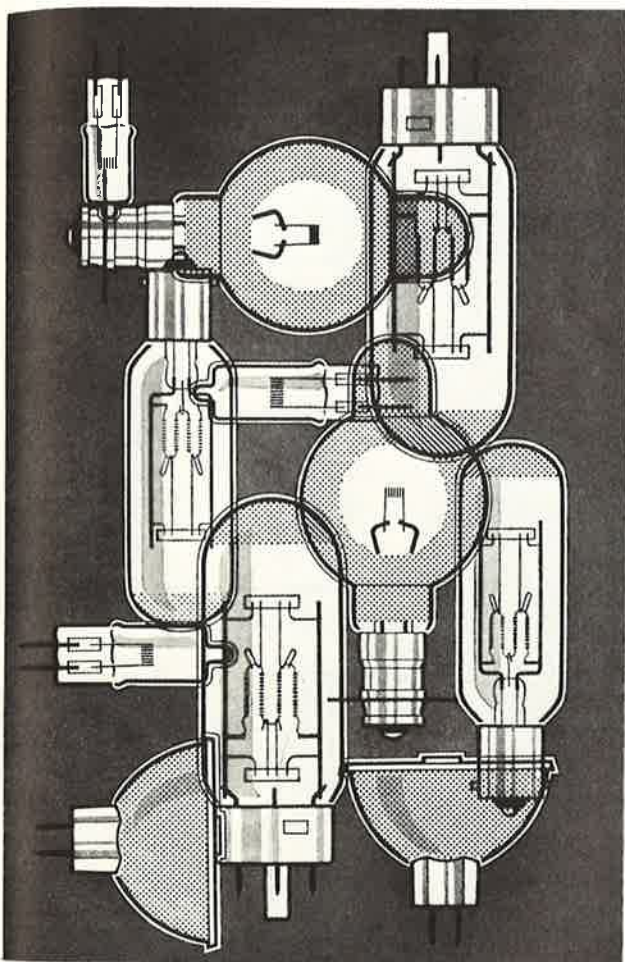
- Overhead projectors
- Microfilm and microfiche readers
and copiers
- Medical apparatus
- Fibre optics

FEATURES

- Tungsten halogen lamps give the
benefits of increased output and life,
small dimensions and high lumen
maintenance throughout life.
- Manufactured to a consistently high
degree of accuracy.

SPECIFICATION

Manufactured in accordance with
International standards where
applicable.



Handbook Ref.

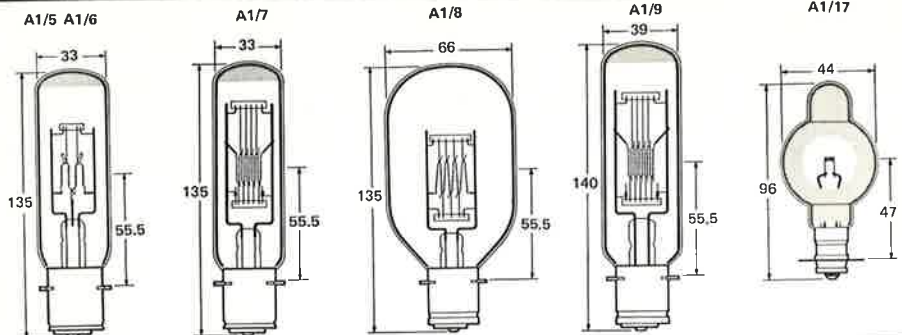
9.1.3

To reorder this data sheet quote 10.79 PL1810/1

Replaces

PL 1810

Non-Halogen Types



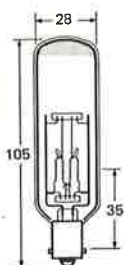
A1/37

A1/167

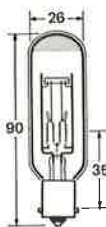
A1/168

A1/178

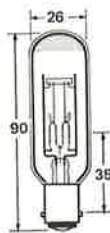
A1/180



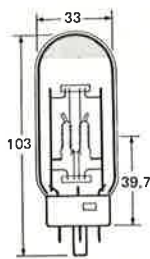
A1/183



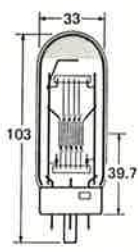
A1/186



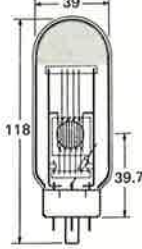
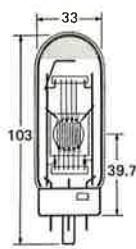
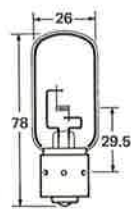
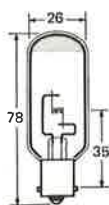
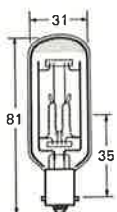
A1/193



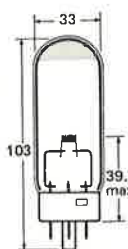
A1/205



A1/207



A1/212



All dimensions in mm

Burning position

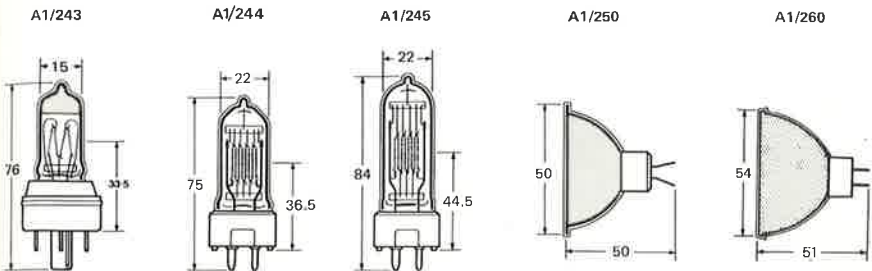
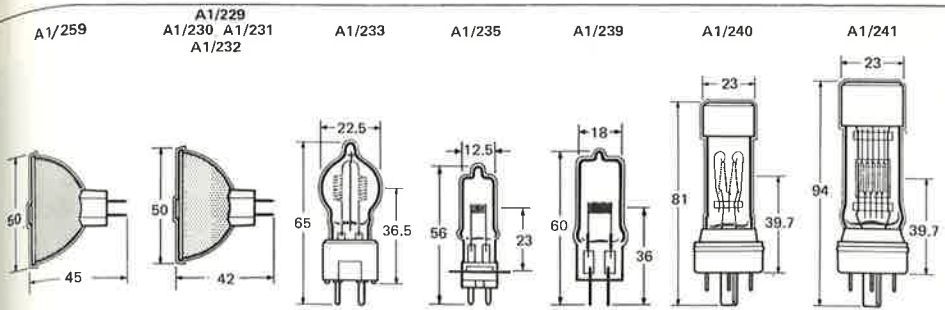
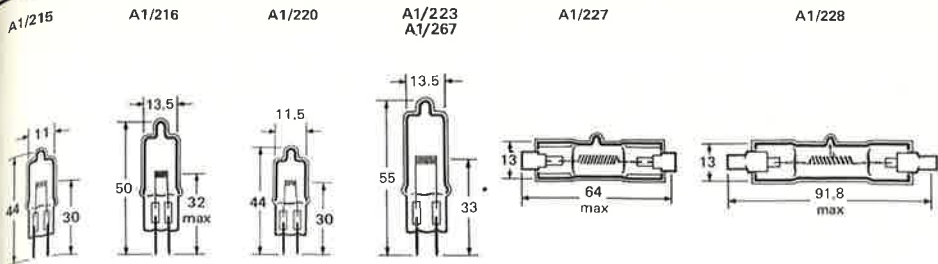
D: Vertical cap down $\pm 15^\circ$

E: Vertical cap down $\pm 30^\circ$

LAMP DATA (NON-HALOGEN TYPES)

LIF No.	Catalogue No.	Watts	Volts	Cap	Average Life (hrs)	Nominal Lumens	Burning position	Packing quantity
A1/5	6070C	250	240	P28s	50	5200	D	50
A1/6	6131C	300	240	P28s	25	6900	D	50
A1/7	6152C	500	240	P28s	25	11400	D	50
A1/8	375C	500	240	P28s	50	11000	E	32
A1/9	6153C	750	240	P28s	25	18500	D	50
A1/17	13120C	50	8	P30s	25	—	D	50
A1/37	7212N	300	240	B15s	25	6900	D	50
A1/167	13141N	150	240	BA15s	25	2700	D	50
A1/168	13141W	150	240	BA15d	25	2700	D	50
A1/178	6280C	300	240	BA15d	25	6900	D	50
A1/180	6282C	500	240	G17q	25	11400	D	50
A1/183	7066N	300	240	B15s	25	6900	D	50
A1/186	7238N	100	12	BA15s	25	2800	D	50
A1/193	7909J	100	12	BA21s-4	25	2800	D	50
A1/205	6294C	500	240	G17q	25	—	D	50
A1/207	6296C	1000	240, 250	G17q	25	—	D	50
A1/212	6289C	150	24	G17q	25	4100	D	50

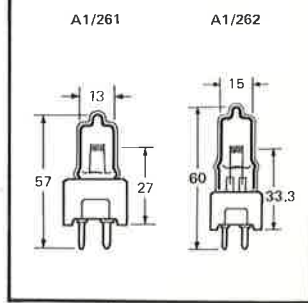
Halogen Types



LAMP DATA (HALOGEN TYPES)

LF No.	Catalogue No.	Watts	Volts	Cap	Average Life (hrs)	Nominal Lumens	Burning position	Packing quantity
A1/215	7023	100	12	GY8.35	50	3000	A	100
A1/216	7158	150	24	G6.35	50	5000	A	100
A1/220	7027	50	12	G6.35	50	1400	A	100
A1/223	7724	250	24	G6.35	50	8500	A	100
A1/227	12216R	420	120	R7s	75	10000	Any	50
A1/228	12260R	600	120, 240/250	R7s	75	16250	Any	50
A1/229	6847	50	8	GZ6.35	50	—	B	50
A1/230	6853	75	12	GZ6.35	50	—	B	50
A1/231	6834	100	12	GZ6.35	50	—	B	50
A1/232	6423	150	15	GZ6.35	50	—	B	50
A1/233	—	650	240/250	GY9.5	75	16500	A	50
A1/235	7763C	250	24	PG22	50	8500	A	100
A1/239	7787	400	36	G6.35	50	14500	A	100
A1/240	—	300	240	G17t	50	7200	C	50
A1/241	—	500	240	G17t	50	—	C	50
A1/243	—	150	240	G17t	50	3000	C	50
A1/244	7389	500	240/250	GY9.5	75	14500	Any	50
A1/245	7764	800	240/250	GY9.5	75	21500	A	50
A1/250	—	50	8	2-tab	50	—	B	50
A1/259	—	250	24	G5-3	25	—	—	—
A1/260	6604	75	12	GZ6.35	50	—	B	50
A1/261	5973	100	12	GY9.5	50	3000	A	100
A1/262	5974	150	24	GY9.5	50	5000	A	100
A1/267	6947	250	24	G6-35	*	8500	A	100

*Interchanges with A1/223 for cyclic switching projector only. Not for continuous burning.

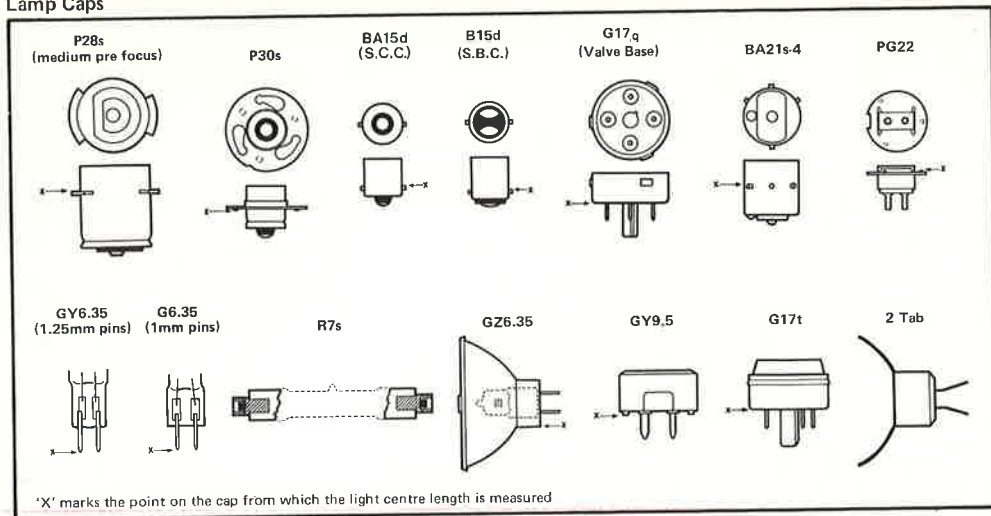


All dimensions in mm.

Burning position

- A: Vertical cap down $\pm 90^\circ$
- B: Horizontal $\pm 15^\circ$
- C: Vertical cap down $\pm 15^\circ$

Lamp Caps



NOTES FOR USERS

General

Read packing instructions.

Handling - Projection lamps - Are designed for high light output, and consequently have particularly brittle filaments. Always handle with care, and avoid jolts and vibration, particularly when switched on.

Spherical mirrors - When used with a rear spherical mirror, ensure that the lamp is correctly aligned in accordance with the equipment manufacturer's instructions to avoid uneven screen illumination or overheating of the filament.

Tungsten halogen lamps

Handling - Avoid touching the quartz bulb; fingerprints leave permanent brown stains when the lamp is switched on. Clean with methylated spirits if inadvertently touched.

Fuse - Lamps rated for supplies above 130V must be operated in series with the prescribed HBC fuse.

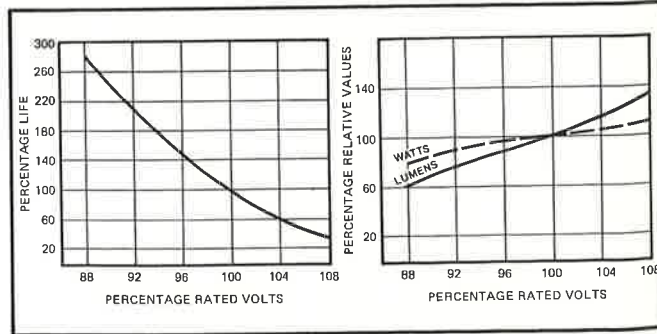
Operating temperature - Avoid overheating as this can cause the lamp to explode. The maximum permissible temperature for the 'pinch' (glass-to-metal seal) is 400°C. The bulb must be kept above a minimum temperature of 250°C and must not exceed 900°C.

Burning position - Attitudes other than the prescribed burning positions will reduce lamp life. Where lamps are used in a horizontal burning position, the filament plane must also be horizontal to prevent coils collapsing on to each other.

EFFECT OF VOLTAGE VARIATION ON LAMP LIFE

The theoretical extended life calculated from the curves below is not always realised in practice as many other causes influence this factor considerably, e.g. vibration, handling, cleaning, frequency of switching.

These curves are based on averages of many lamps, and can only be used as an approximate guide to performance.



ORDERING DATA

Please order lamps in the form given in the following example, quoting LIF Number, Catalogue Number, Wattage and Voltage, and in multiples of the packing quantity:

50 Philips projector lamps A1/7, Catalogue No. 6152C, 500W, 240V.

All lamps made in Holland except types A1/207, A1/233, A1/240, A1/241, A1/243 and A1/250 made in Great Britain.

MISCELLANEOUS PROJECTOR LAMPS

Classes M, F and G

Single-ended tungsten and tungsten halogen lamps for a variety of applications.

For further information see Photolamps booklet PL 1281.

RANGE

A comprehensive range of popular types, including certain types unique to Philips, tabulated in LIF Classification sequence.

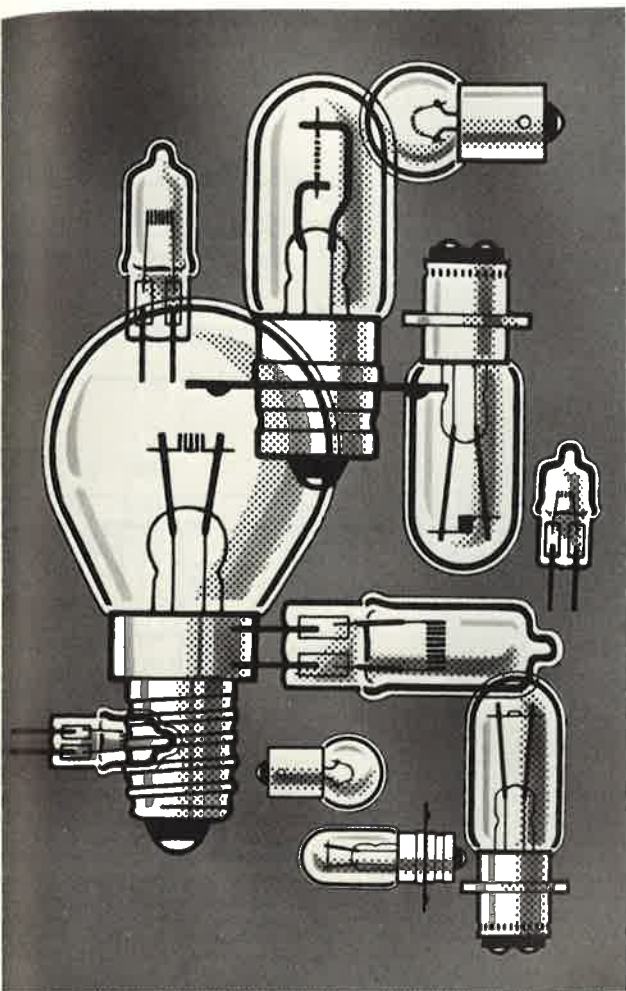
APPLICATIONS

Suitable for use in miscellaneous equipment such as:

- Micro-projectors
- Cine editors
- Microscopes
- Microfiche and microfilm readers and copiers
- Traffic signals
- Display and floodlight narrow spot fittings
- Optical sound projectors
- Disco effects projectors

FEATURES

- Increased light output of tungsten halogen types is maintained throughout longer working life.
- Manufactured to high standards of accuracy.



Handbook Ref.

9.1.4

To reorder this data sheet quote 10.79 PL 1811/1

Replaces

PL 1811

NOTES FOR USERS OF HALOGEN LAMPS

Handling – Avoid touching the quartz bulb of halogen lamps, since finger-marks appear as indelible brown stains when the lamp is operated. Lamps must be cleaned with a solvent such as methylated spirits if they are inadvertently handled.

Avoid jolting or vibrating the lamps while they are operating.

Seal (pinch) temperature – Precautions must be taken to ensure that the quartz/metal seal temperature does not exceed 350°C, while retaining the temperature of the bulb wall over 250°C and below 900°C

General

Spherical reflectors – Care must be taken to prevent the reflected image of the filament being superimposed on the filament itself, since this will lead to overheating of the filament and premature failure of the lamp.

Types M/16, M/19 and M/20 – These lamps have optically clear glass for operation cap-up, and like Class F lamps are often used for micro-projection and microscope illumination.

Type M/29 and M/30 – These miniature types give a relatively high output at about 3200K in a compact size.

Type M/33 – This lamp is similar to type A1/223 but with a life of 300 hours is useful for discotheque projectors, microfilm readers, etc.

Type M/35 – This lamp may be operated at 13.5V for use in boats or on motor vehicles, (100hr average life, 600 lm).

Lamp types M/28 and M/32 are manufactured to meet the conditions stated in BS 505:1971 'Road traffic signals'. See Data Sheet PL 1769.

STOP PRESS — LAMPS FOR MICROFILM READERS

By using optically correct axial filaments in smooth glass dichroic reflectors, Philips have designed lamps to replace either of two similar faceted mirror types of American origin, with no compromise in performance.

LIF No.*	Catalogue No.	Replaces ANSI No.	Volts	Watts	Cap	Average Life (hrs)	Integral reflector	Burning position	Packing quantity
F/	13189	EPZ/DJT	13.8	50	G x 5.3	1000	Parabolic	Horizontal/Base down	50
F/	13194	DED	13.8	85	G x 5.3	1000	Parabolic	Horizontal/Base down	50
F/	13186	EPX/EPV	14.5	90	G x 5.3	500	Elliptical	Horizontal/Base down	50
F/	13158	ELD/EJN	21.0	150	G x 5.3	40	Elliptical	Base down/Horizontal	50

*LIF Numbers to be allocated

LAMP DATA

LIF No.	Catalogue No.	Volts	Watts	Cap	Average Life* (hours)	Nominal Lumens	Other details (see key below)	Packing quantity
F/74	6106M	6	30	E14	100	510	f	100
G/5	7210C	6	1.0 Amps	P30s	100	80	a, e	50
G/29	7253C	4	0.75 Amps	P30s	50	30	a, d	50
M/16	13347C	6	15	PX22d	100	225	c, h, k	100
M/19	13702C	6	15	PX22d	100	225	c, h, k	100
M/20	13347W	6	15	B15d	100	225	c, h, k	100
M/28	7724	12	100	GY6.35	2000	2250	a, d, j	10
M/29	7387	6	10	G4	100	200	a, d, j	500
M/30	7388	6	20	G4	100	450	a, d, j	200
M/31	6814	6	10	B15s	200	115	Editor lamp	500
M/32	13512	12	50	GY6.35	2000	900	a, d, j	100
M/33	6958	24	250	G6.35	300	8400	a, g, j	10
M/35	—	12	20	G4	250	450	a, d	100
M/42	6605	6	10	G4	1000	140	a, d, j	200
M/43	5972	6	10	G4	300	150	a, d, j	200
M/44	6609	6	35	G4	2000	600	a, d, j	200

*Average life at rated volts in normal use.

Code to details

- a – tubular
- b – spherical

Burning position

- c – any except within $\pm 45^\circ$ vertical cap down
- d – any
- e – vertical cap down $\pm 45^\circ$
- f – any except within $\pm 45^\circ$ vertical cap up
- g – vertical cap down $\pm 90^\circ$

Other details

- h – in this case, light centre length is measured from filament to crown of bulb
- j – indicates a tungsten halogen lamp with quartz envelope
- k – light output taken in axis of lamp
- l – light output taken at right angles to lamp axis

ORDERING DATA

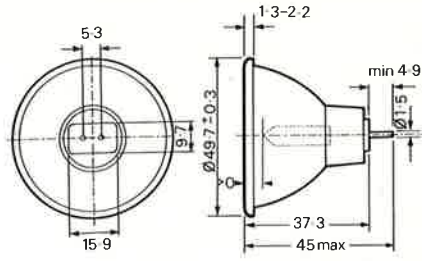
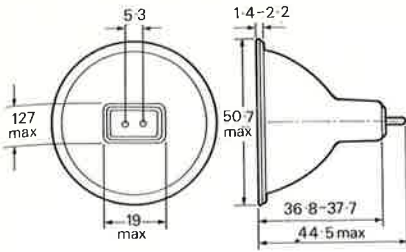
Please order in the form given in the following example, quoting LIF No., Catalogue No., voltage and wattage and in multiples of the packing quantity:

100 Philips projector lamps Type M/30, Catalogue No. 7388, 6V 20W.

All lamps made in Holland except M/31 – made in W. Germany.

ELD/EJN

EPZ/DJT DED EXP/EPV

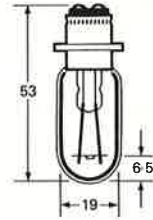
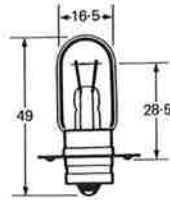
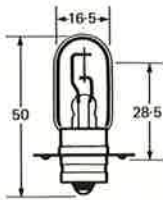
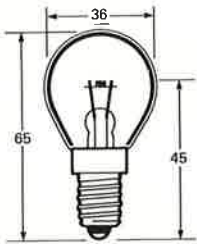


F/74

G/5

G/29

M/16



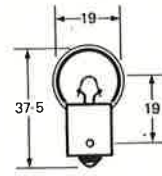
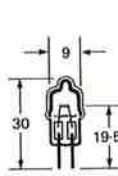
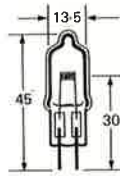
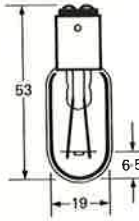
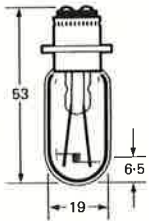
M/19

M/20

M/28

M/29 M/30

M/31



M/32

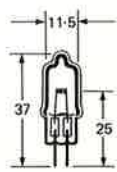
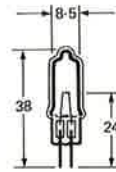
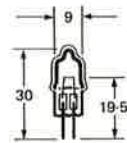
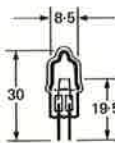
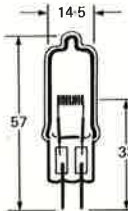
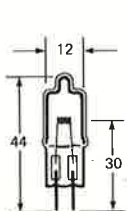
M/33

M/35

M/42

M/43

M/44



All dimensions in mm

STUDIO & THEATRE LAMPS

Classes CP, P2 & T

Tungsten and tungsten halogen lamps, for use in studio and theatre lighting equipment.

RANGE

Single filament (Class CP) and double ended (Class P2) lamps balanced at 3200K for studio work; 650W to 5kW. Six popular theatre spotlight lamps, Class T.

APPLICATIONS

Suitable for use in appropriate luminaires in situations such as:

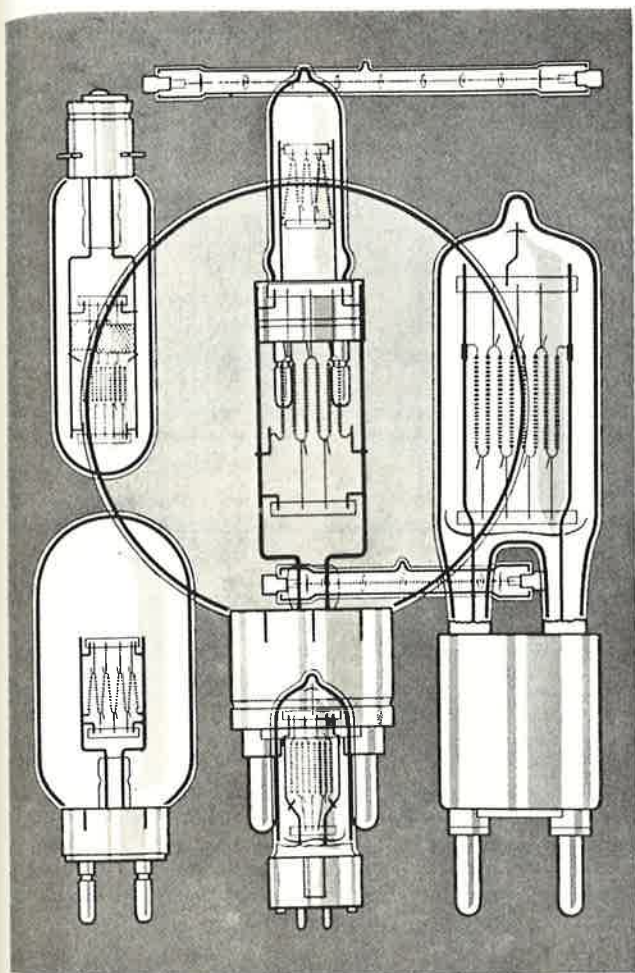
- Film and TV studios
- Theatres
- Stage lighting
- Ice rinks
- Circus rings
- Concert halls
- Clubs

FEATURES

■ Tungsten halogen lamps offer longer life than conventional tungsten alternatives, and maintain virtually constant lumen output and colour temperature.

SPECIFICATION

■ Designed to comply with International specifications where applicable.



Handbook Ref.

9.15

To reorder this data sheet quote

11.79 PL1812/1

Replaces

PL1812

AVERAGE PERFORMANCE CHARACTERISTICS

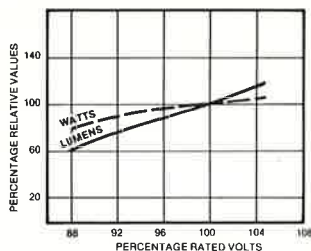
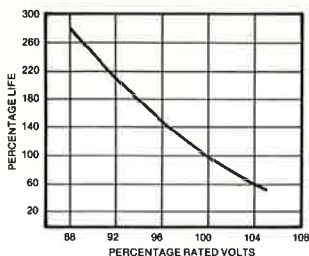
Curve 1/2 – Data becomes more inaccurate beyond about 80–120%. Over-volting photolamps can result in immediate failure; undervolting increases life expectancy while reducing colour temperature.

Curve 3 – Shows GLS lamp types in comparison with photographic lamps.

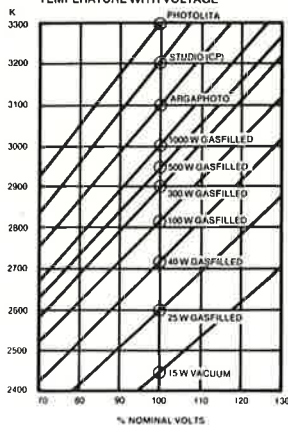
Curve 4 – Since the resistance of a cold lamp filament is approximately 1/17th of that when the lamp is hot, the inrush surge current at the instant of switching on can reach a theoretical maximum of 24 x rated current. In practice, supply leads, etc., normally constitute sufficient series impedance to limit surge current to 10 x rated current.

It is inadvisable to operate lamps from non current-controlled supplies having circuit impedances lower than 0.3 Ω.

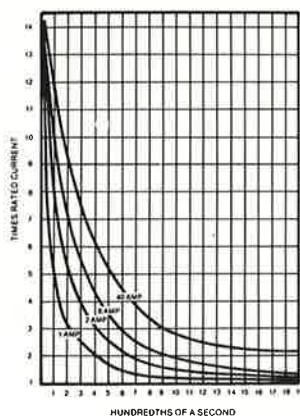
CURVES 1 and 2
VARIATION OF LIFE AND LIGHT CHARACTERISTICS WITH APPLIED VOLTAGE



CURVE 3
APPROXIMATE VARIATION OF COLOUR TEMPERATURE WITH VOLTAGE



CURVE 4
APPROXIMATE INRUSH CURRENT CURVES (ASSUMING NO IMPEDANCE IN CIRCUIT)



USERS' CAUTIONARY NOTES

Fusing – It is important to ensure that halogen lamps are protected by the correct HBC fuse to reduce the risk of shattering due to internal arcing at the instant of filament rupture.

Lamp Watts	500/ 800–	1.5–	5kW
	650 1250	2kW	
HBC Fuse (UK)	4A 6A	10A 30A	

These fuse ratings are for 240/250V lamps only.

Handling – Avoid touching the quartz bulb of halogen lamps, since fingermarks appear as indelible brown stains when the lamp is operated. Lamps must be cleaned with a solvent such as methylated spirits if they are inadvertently handled. Avoid jolting or vibrating the lamps while they are operating.

Safety – Halogen lamps are pressure-filled and can shatter in use if overheated, incorrectly fused, damaged or operated above the rated voltage. It is advisable to shield these lamps wherever possible for safety reasons.

Burning positions – Life expectancy may be reduced if lamps are operated in attitudes other than the recommended burning positions.

The maximum recommended seal temperature of quartz-halogen studio and theatre lamps is 400°C, (350°C in humid conditions or outdoors), while the bulb temperature is maintained between 250°C and 900°C.

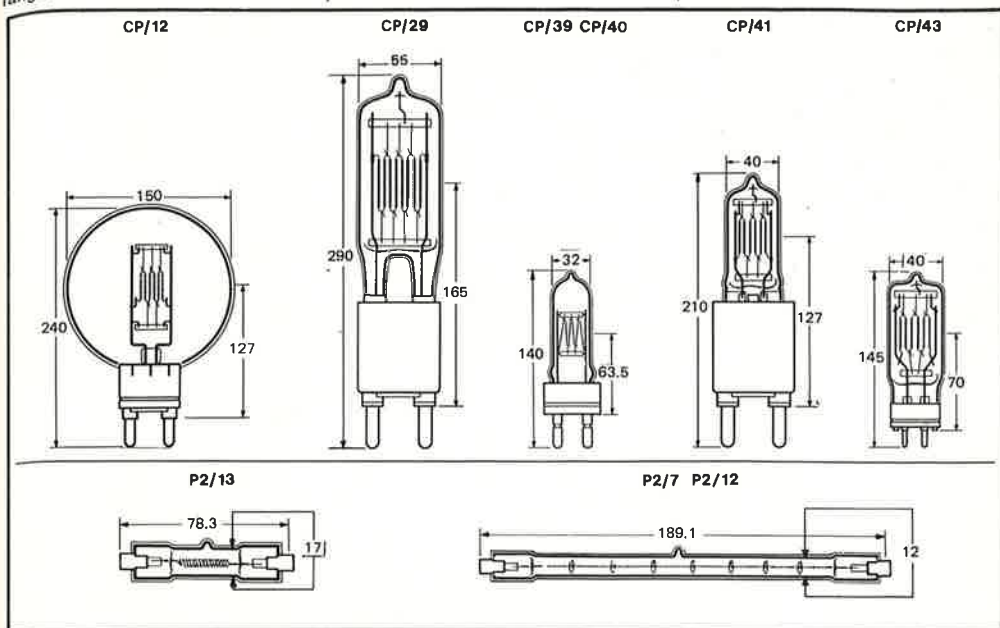
Lamp contacts or pins may deteriorate at temperatures above 300°C, causing arcing and subsequent lampholder contact problems.

LAMP DATA

Studio Lamps Classes CP and P2
Philips studio lamps are designed for TV and colour photography lighting based on colour sensitised materials balanced for 3200K. There are 2 groups of lamps in the Philips range:

- Orthodox hard glass non-halogen lamps.
- Quartz glass halogen lamps for smaller luminaire design and replacements for hard glass halogen and orthodox types.

All these lamps are used in a variety of spotlight, softlight and cyclorama fittings as appropriate. The fittings themselves can be free-standing, pole or track mounted or clamped, and on wheel base stands.

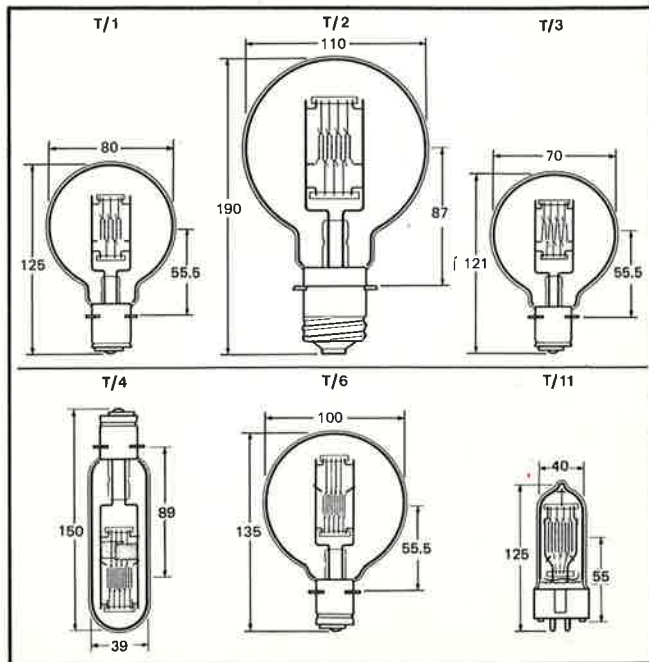


All dimensions in mm.

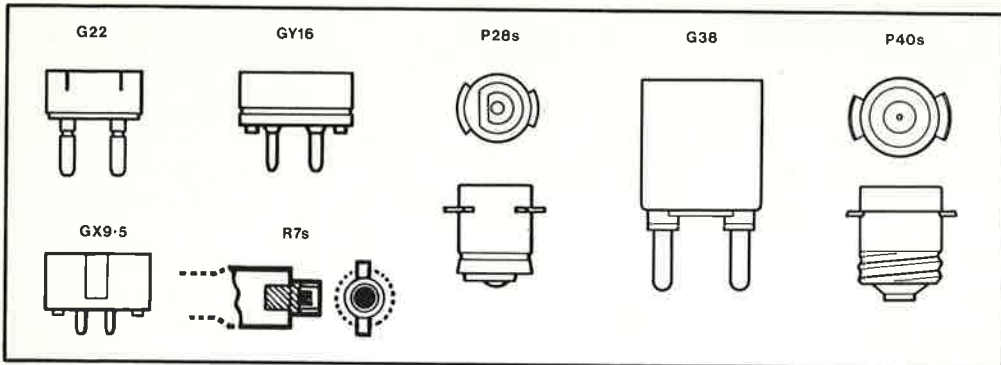
LAMP DATA

Theatre lamps Class T

Theatre lamps have highly concentrated filaments with high brightness. They are used in PROFILE lanterns which incorporate an efficient optical system producing a clear cut edge to the spotlight beam, and in FRESNEL lanterns where a reflector is used in conjunction with a fresnel lens to produce a soft beam.



LAMP CAPS



LAMP & ORDERING DATA

Lamp Ref. No.	Philips Type No.	Watts	Volts	Cap	Average life (hours)	Nominal light Output (lumens)	Burning position	Packing quantity	Delivery period in weeks	Tungsten Halogen alternative
Hard Glass Non-Halogen										
CP/12	13177P	2000	240	G38	100	50000	VBD $\pm 45^\circ$	6	—	CP/41
Hard Glass Halogen										
CP/28*	6377C	2000	240	P40s	100	52000	VBD $\pm 45^\circ$	12	20	
Quartz Halogen										
P2/7	13989R	1000	240/250	R7s	120	25000	Any	—	—	
P2/12	6358R	1250	240/250	R7s	200	33500	H $\pm 4^\circ$	—	—	
P2/13*	6366R	800	240/250	R7s	50	20000	Any	100	16	
CP/29	6379P	5000	240	G38	400	135000	VBD $\pm 45^\circ$	1	—	
CP/39	7801P	650	240	G22	100	16800	VBD $\pm 90^\circ$	4	—	
CP/40	7802P	1000	240	G22	200	26000	VBD $\pm 90^\circ$	4	—	
CP/41	5970P	2000	240	G38	300	52000	VBD $\pm 90^\circ$	4	—	
CP/43	6364P	2000	240	GY16	300	52000	VBD $\pm 90^\circ$	4	—	

*These lamps are not normally held in stock but are available in the minimum order quantities and delivery periods (from receipt of order) as shown. Since this data may change occasionally, please check at time of ordering for current situations.

Lamp Ref. No.	Philips Type No.	Watts	Volts	Cap	Average life (hours)	Nominal light output (lumens)	Burning position	Packing quantity
T/1	559C	500	240	P28s	200	9700	VBD $\pm 45^\circ$	18
T/2	490C	1000	240	P40s	200	21500	VBD $\pm 45^\circ$	9
T/3	558C	250	240	P28s	200	4000	VBD $\pm 45^\circ$	50
T/4	6291C	1000	240	P28s	200	22000	VBU $\pm 15^\circ$	30
T/6	7401C	1000	240	P28s	200	21500	VBD $\pm 75^\circ$	18
T/11	6928P	1000	240/250	GX9.5	750	22000	VBD $\pm 90^\circ$	4

Burning position

VBD – Vertical, base down

VBU – Vertical, base up

H – Horizontal

In CP and T types burning angles refer only to orientation in the plane which is at right angles to the filament plane.

Please order lamps in the form given in the following example, quoting Reference No., Catalogue No., voltage and wattage, and in multiples of the packing quantity:

200 Philips lamps Reference P2/6, Catalogue No. 6365R, 125/130V, 650W.

Made in Holland

MISCELLANEOUS

Page

CWF 300 Chef Aid KombiPak

PL1844

457

CI/SIB
(63.2)

UDC
696.6:628.976

CWF 300 Chef-Aid KombiPak

**Copper-finish fitting for heat lamp,
for keeping cooked food hot**

The Chef-Aid is invaluable for keeping cooked food hot and appetising. It includes a hard glass heat lamp which gives a bright, warming beam to maintain the temperature of the food and to provide a good display light.

RANGE

CWF/300 fitting complete with 300E/06 hard glass heat lamp.

APPLICATIONS

For use over food distribution points, in situations such as:-

- Public houses
- Bars and clubs
- Restaurants
- Self-service cafeterias
- Staff canteens
- Hotels
- Running buffet areas

FEATURES

- Keeps cooked food and plates warm, reducing wastage and enabling more cooking to be done in advance.
- Discourages the formation of skins on soups, sauces and gravies. The heat radiation penetrates most foods without 'toasting'.
- Gives instant heat when switched on; heating ceases immediately when switched off. Ready for immediate use with no run-up time.
- Simple to install, either singly or in multiple units, to cover any application from a hot food counter in a pub to a large cafeteria area.
- Can be suspended either from cable or tubing.

continued



Handbook Ref.

10.1.1

To reorder this data sheet quote

8.78 PL 1844

Replaces

NEW

Features continued

■ Safe to use – Philips hard glass heat lamps are resistant to thermal shock (caused, for example, by accidental splashing with water). It is essential to ensure that only hard glass heat lamps are used as replacements in this fitting.

■ Attractive easy-clean design with polished copper finish matches most decors.

■ Brightly illuminates the food to display it in an appetising and eye-catching light.

MATERIALS & FINISH

Canopy and top cap: Spun and polished aluminium, anodised copper finish.

Lampholder: Porcelain ES.

SPECIFICATION

■ Type compliance with BS 4533. Class I electrical protection (earth required).

To specify state:

Polished copper-coloured food warming fitting complete with 300W hard glass heat lamp with ES cap. Philips Chef-Aid CWF/300 or equivalent.

RANGE OF OPERATION

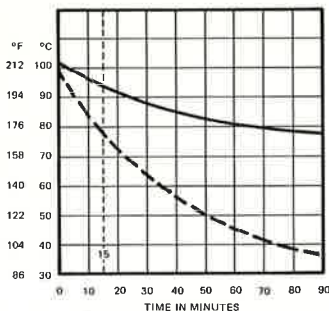
Supply voltage up to 250V
300W maximum.

For indoor use only. Use only hard glass heat lamps.

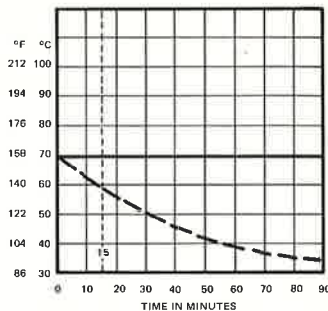
TYPICAL RESULTS

The graphs below are taken from a series of tests to show how the Philips Chef-Aid maintains food

temperature (Line 1). They also show how the temperature drops if no heating is used (Line 2).

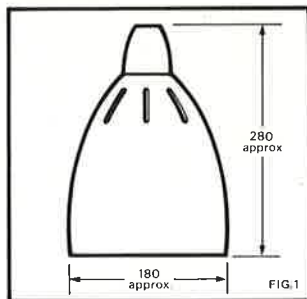


Steak & kidney pie
— Under Chef-Aid
- - - No heating



Cup of coffee
— Under Chef-Aid
- - - No heating

DIMENSIONS



All dimensions in mm

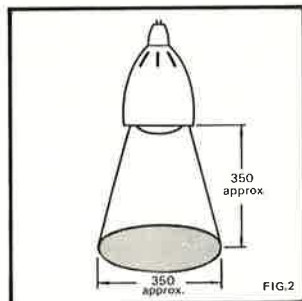


FIG.2

ORDERING DATA

Catalogue No.	Description	Box quantity
CWF/300 Chef-Aid KombiPak	Food Warming Unit (complete with heat lamp)	1

Replacement lamp data

Catalogue No.	Description	Watts	Cap	Volts	Finish
300E/06	Hard glass heat lamp	300	ES	230/250	Clear

Please order in the form given in the following example. The Chef-Aid is available individually packed:—

25 Philips Chef-Aid KombiPak CWF/300 (complete with hard glass heat lamp).

Mounting:

- (1) By means of suspension hook supplied.
- (2) By means of tube, either screwed directly on to $\frac{1}{2}$ in. threaded nipple revealed when suspension hook is removed, or fixed to top cap by suitable nuts after removing cable grommet.

The fitting should be mounted so that the distance between the bottom and the food is 330–450 mm (see Figure 2). If large areas are to be heated, additional Chef-Aid fittings should be installed such that the edges of the heat/light circles merge.

WEIGHT

Complete with lamp: 0.45 kg.

Lamp: Made in Holland.
Fitting: Made in England.

TECHNICAL SECTION

Part 1 – RADIATION AND VISION

RADIATION

- 1.1 Visible radiation (light)
- 1.2 Ultraviolet and infra-red radiation

VISION

- 1.3 Central and peripheral vision
- 1.4 Visual performance

LIGHTING QUANTITIES AND UNITS

- 1.5 Quantities, units and symbols

COLOUR

- 1.6 Colour appearance
- 1.7 Colour rendering

Part 2 – LAMPS AND LUMINAIRES

LAMPS

- 2.1 Lamp types
- 2.2 Incandescent lamps
- 2.3 Discharge lamps
- 2.4 Fluorescent lamps

CONTROL GEAR FOR LAMPS

- 2.5 Ballasts for discharge lamps
- 2.6 Ballasts for fluorescent lamps
- 2.7 Capacitors

LUMINAIRES

- 2.8 Photometric classifications
- 2.9 Classification by protection against electric shock
- 2.10 Classification according to enclosure
- 2.11 Classification for explosive zones

Part 3 – INTERIOR LIGHTING DESIGN

- 3.1 Information for lighting designer
- 3.2 Lighting objectives
- 3.3 Illumination levels
- 3.4 Lighting systems
- 3.5 Glare

Part 4 – CALCULATION OF AVERAGE ILLUMINANCE – THE 'LUMEN METHOD'

- 4.1 The 'Lumen method' formula
 - 4.2 Lamp output for lighting calculations
 - 4.3 Maintenance Factor
 - 4.4 Effect of lamp replacement cycle
 - 4.5 Utilization Factor
 - 4.6 Room Index
 - 4.7 Service Correction Factors
- ### SPACING/HEIGHT RATIO (SHR)
- 4.8 Maximum Spacing/Height Ratio
 - 4.9 Wide spacing

Part 5 – POINT-BY-POINT CALCULATIONS

- 5.1 Calculation of illuminance at a point
- 5.2 Worked example
- 5.3 Calculations for line and area sources
- 5.4 Isolux diagrams and lux tables

Part 6 – FLOODLIGHTING OF BUILDINGS AND MONUMENTS

- 6.1 Floodlighting techniques
- 6.2 Recommended illuminances

Part 7 – ENERGY/COST EFFECTIVE LIGHTING

- 7.1 Introduction
- 7.2 Cost elements in lighting
- 7.3 Good, energy-effective lighting – the six basic rules
- 7.4 Energy utilisation appraisal for lighting installations
- 7.5 Finance
- 7.6 Management objectives

Part 1

RADIATION AND VISION

RADIATION

1.1 Visible Radiation (Light)

Light may be defined as any radiation capable of causing a visual sensation directly. Light waves occupy only a very small part of the spectrum of electromagnetic waves (Fig 1.1). The limits of visible radiation are not well defined - the lower limit is generally taken as being between 380 and 400 nm and the upper limit between 760 and 780 nm (1 nanometre (nm) = 10^{-9} m).

The visible spectrum can be divided into a number of approximate wavelength ranges each of which makes a certain colour impression on the human eye:

380 - 436 nm violet	566 - 589 nm yellow
436 - 495 nm blue	589 - 627 nm orange
495 - 566 nm green	627 - 780 nm red

1.2 Ultraviolet and Infra-red Radiation

Electromagnetic radiations with wavelengths just beyond the violet and red ends of the visible spectrum are known as ultraviolet and infra-red radiation respectively.

The limits of the spectral range of ultraviolet radiation are not well defined but are usually considered as lying between 100 and 400 nanometres (1 nm = 10^{-9} m). For practical purposes this wavelength range is subdivided into three bands:

- UV-A from 315 to 400 nm
- UV-B from 280 to 315 nm
- UV-C from 100 to 280 nm

Radiation in the UV-A band passes through most types of glass and produces slight erythema (reddening of the human skin). Radiation in this band has the property of causing certain materials to fluoresce and of causing photochemical reactions in others. It is therefore used in various industrial processes.

Radiation in the UV-B band has both an erythematous and a pigmenting (tanning) effect on the human skin. Such radiation also forms vitamin D in the body, which has antirachitic action. This form of radiation is therefore used mainly for therapeutic purposes (UV-B sunlamps).

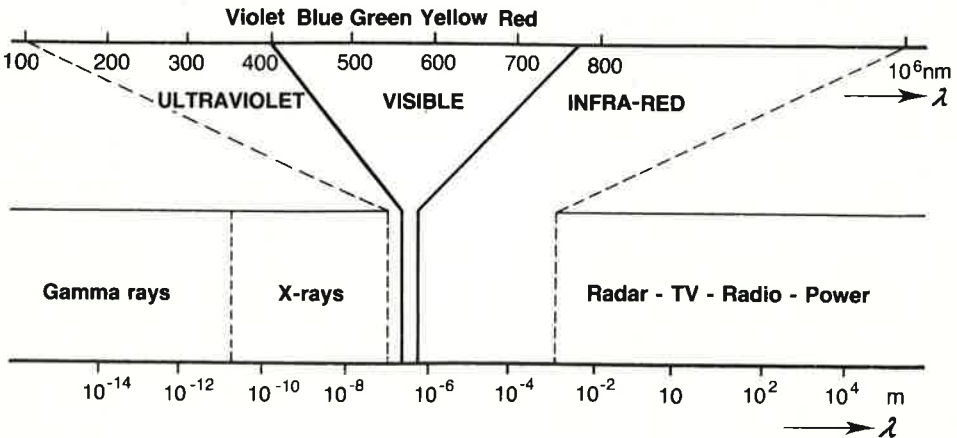
Radiation in the UV-C band has a germicidal effect. It can also cause certain materials to fluoresce. Erythema and conjunctivitis can also be caused. Radiation at wavelengths less than 200 nm forms ozone from oxygen or air.

Care must be taken in the design and use of UV equipment to ensure that personnel and surroundings cannot be harmed. Medical authorities should be consulted.

The limits of the spectral range of infra-red radiation are not well defined, but are usually considered to be between 780 nm and 1 mm.

For practical purposes, this wavelength range is subdivided into three bands:

Fig. 1.1. The electromagnetic spectrum



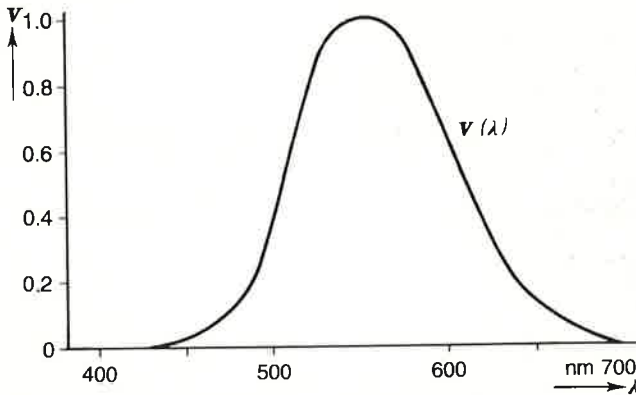
780 nm to 2 μm (short-wave infra-red)
 2 μm to 4 μm (medium-wave infra-red)
 4 μm to 1 mm (long-wave infra-red)

All radiation can be absorbed and degraded to heat, but the infra-red of shortwave infra-red radiation behaves, in many respects, in the same way as visible light. It can be reflected and concentrated onto an area, thus obviating many of the heat-loss problems associated with other methods of heating.

The wavelength of maximum emission is determined by the temperature of the emitter, thus shortwave emission is produced by a high temperature source, e.g. the incandescent lamp, while dull red or "black heat" emitters produce radiation in the long-wave band.

Infra-red radiation does not have a direct chemical effect like UV radiation and has a heating effect only.

Fig. 1.4 Spectral sensitivity of the average eye



VISION

1.3 Central and Peripheral Vision

The eye has a lens which focuses an image on a light-sensitive surface, the retina. The retina consists of a delicate layer of nerve tissue in which there are two types of nerve fibre endings called cones and rods. The concentration of cones and rods varies over the retinal area. A small depression in the centre of the retina, having a diameter of about 0.5 mm, contains only cones (the fovea). Outside this rod-free area, the rods and cones are mixed, the proportion of cones decreasing towards the periphery of the retina. Only the cones are sensitive to colour.

Central vision:

The cones in the fovea resolve an image showing the greatest detail of which the eye is capable.

Peripheral vision:

The periphery of the retina, which is composed chiefly of rods, does not produce sharp vision and objects seen by this area appear as fuzzy silhouettes. The periphery is, however, highly sensitive to movement and flicker.

1.4 Visual performance

a. Contrast

Contrast refers to the difference in luminance or colour of an object compared with that of the surroundings. The performance of a visual task becomes easier if contrast is increased.

b. Visual acuity

Visual acuity is a measure of the smallest detail that can be perceived. It varies with illuminance.

c. Speed of perception

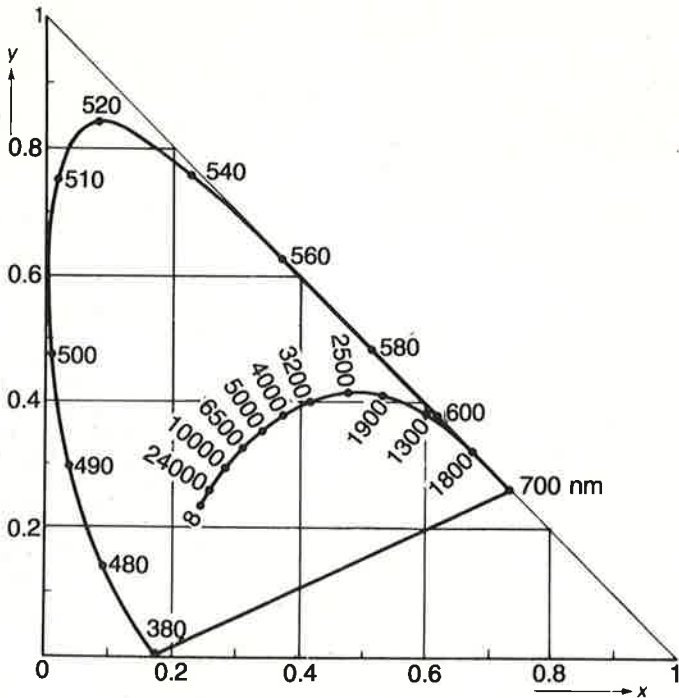
Speed of perception is related to the time interval between the presentation of an object and the perception of its form. It varies with illuminance.

d. Spectral sensitivity

The spectral sensitivity of the average eye is shown in fig 1.4 – the curve marked $V(\lambda)$.

The spectral sensitivity curve marked $V(\lambda)$ is taken into consideration when defining units of light.

Fig. 1.6. The CIE chromaticity diagram



LIGHTING QUANTITIES AND UNITS

1.5 Quantities, units and symbols

The unit of LUMINOUS FLUX is the LUMEN. This measures the quantity of light. By definition one watt of radiation at 555 nm is equal to 682 lumens. Other wavelengths are evaluated according to $V(\lambda)$.

The unit of ILLUMINANCE is the LUX. This is an illuminance of one lumen over an area of one square metre. (One foot-candle, i.e. one lumen per square foot, is equal to 10.76 lux: this unit is now obsolete).

The unit of LUMINOUS INTENSITY is the CANDELA. It is a measure of light output in a given direction. A uniform point-source with a luminous flux of 4π lumens has an intensity of one candela in every direction.

The unit of LUMINANCE is the CANDELA PER SQUARE METRE of apparent surface in a given direction. Luminance is the intensity per unit area of a surface (by emittance or reflection) in a given direction. It should not be confused with *illuminance*. The LUMINOUS EFFICACY of a lamp is measured in lumens per watt. Unless

otherwise stated, the LDL value of luminous flux should be adopted. Note that the power dissipated by a discharge lamp may not be the same as its named rating. Also, to calculate circuit efficacy, it is necessary to take into account both lamp power and ballast losses.

Quantity	Quantity symbol	Unit	Unit symbol
Luminous Intensity	I	Candela	cd
Luminous Flux	ϕ	Lumen	lm
Illuminance	E	Lux	lx
Luminance	L	Candela per sq metre	cd/m ²
Luminous Efficacy	η	Lumens per Watt	lm/W

Notes: ϕ is the Greek letter phi (pronounced fie).
 η is the Greek letter eta (pronounced eeta).

COLOUR

1.6 Colour Appearance

CIE chromaticity co-ordinates

The CIE chromaticity system (see CIE Recommendation No. 15) permits the specification of colour appearance in terms of two chromaticity co-ordinates x , y (fig 1.6). These can be published by a lamp manufacturer for each lamp type, and are calculated from the lamp's spectral power distribution.

Points on the curve marked 1300–24000 may also be specified by colour temperature.

Colour Temperature

Colour temperature is a term used to describe the colour of a near-white light source by comparing it with the colour of a full radiator. The temperature of the full radiator, in Kelvin, at which a colour match is obtained, is said to be the colour temperature of the source.

The curve formed on the CIE chromaticity diagram by plotting the chromaticities of a hypothetical full radiator at various temperatures, is known as the full radiator locus. Any source that has a chromaticity on this locus may be specified by a colour temperature.

A source not on the locus but near it can be described by means of its 'correlated' colour temperature, that is, the temperature of the full radiator at which its colour resembles most closely that of the source.

1.7 Colour Rendering

In order to be able to compare the colour rendering characteristics of various types of light source, the concept of a colour rendering index, based on the appearance of a number of test colours under different illuminants, was introduced by the CIE (CIE Recommendation No. 13). The average of the colour differences occurring when the test colours are alternately illuminated,

first by the lamp under test and then by a reference source, provides a measure of the colour rendering properties of the test source.

The calculation of the colour rendering index of a source is based upon:

- the spectral reflection characteristics of the test colours
- the spectral power distribution of the source under test
- the spectral power distribution of the reference source
- standardised characteristics of the average human eye.

The general colour rendering index is calculated for an average of 8 surface colours and is also referred to as the Ra 8 index. The value of the index varies from 50 to 100. The value 50 corresponds to the colour rendering of the original Warm White fluorescent lamp. The maximum value of 100 is only likely to occur when the spectral distributions of the test source and the reference source are identical. The reference light source used for sources with a correlated colour temperature of 5000K and below is a full radiator of the nearest colour temperature. (Above 5000K, the reference source is 'reconstituted' daylight of the appropriate colour temperature). Incandescent lamps and some types of discharge lamp, e.g. xenon lamps, have a spectral power distribution very near to that of a standard source. The colour rendering of these lamps is therefore very good, although their efficacy is low.

Other lamps, e.g. low pressure sodium lamps, have a spectral power distribution so different from that of a standard source, that their colour rendering is either very poor or cannot be specified at all, but their efficacy is high.

Part 2

LAMPS AND LUMINAIRES

LAMPS

2.1 Lamp Types

Electric lamps fall into three categories: Incandescent Lamps, Discharge Lamps, and Fluorescent Lamps. This part reviews the principal types in each category. For more detailed information see the Data Sheets.

The characteristics of the principal types are summarised in the Table (Fig 2.1). For a comparison of efficacies see Fig 7.3a.

2.2 Incandescent Lamps

(a) Principles

The incandescent lamp produces light because of the passage of current through its filament, which is heated to incandescence. The higher the temperature the greater will be the portion of radiation falling within the visible region of the spectrum. Tungsten wire is used because of its relatively high melting point; a temperature of about 3400K can be achieved, e.g. in certain photographic

lamps. The filament of a typical 1000-hour GLS lamp operates at about 2850K.

The luminous output and life of filament lamps vary with applied voltage. For further details see the Data Sheets.

Efficacy is relatively low, but is increased by the use of coiled-coil filament formation and inert gas filling to reduce the rate of evaporation of the filament. All Philips GLS and decorative lamps between 25W and 150W have coiled-coil filaments.

(b) Tungsten Halogen Lamps

Tungsten Halogen have bromide or iodide added to the gas filling. This re-cycles tungsten and enables the filament to be operated at a higher temperature for a given hours rating, and hence at a higher efficacy.

The bulb wall must attain at least 250°C, and the gas filling pressure is usually higher than for non-halogen types. The

Fig 2.1 Characteristics of principal lamp types.

Light Source	Dimming Facility	Restrike time (mins)	Efficacy	Colour Rendering	Lifetime	Initial Costs	Ra8	Colour Temp. K
Incandescent (normal lamps)	yes	0	moderate	excellent	moderate	low	100	2700–2900
Pressed-glass (incandescent)	yes	0	moderate	excellent	medium	low	100	2700–2900
Tungsten halogen	yes	0	moderate	excellent	medium	relatively low	100	3000
Fluorescent	yes	0	high	good	long	high	50–100	2700–6500
Mercury	no	> 4	high	medium	long	high	20–47	3750–4500
Metal halide	no	4–5	high	good	long	high	65–70	4000–4600
Sodium (high pressure)	no	> 4	very high	medium	long	high	12–29	1950–2250
Sodium (low pressure)	no	7–12*	very high	poor	long	high	—	—

*With low loss ignitor type circuits quick restriking is possible.

bulbs are therefore much smaller and of strong construction. Almost all recently developed incandescent lamps are of the halogen type.

(c) Lamps with Internal Reflectors

Reflectorised lamps have increased in variety and popularity. Ratings range from 35W to 300W. The internal reflectors are of aluminium or a diffusing coating (e.g. Superlux). Beam characteristics are determined by filament shape and position relative to the reflector. Some lamps also have a refractive finish to the front glass. Pressed glass lamps have more efficient reflectors and more controlled beams, and some of them are suitable for unprotected use outdoors.

The reflector of 'Cool-beam' PAR38 lamps is of the dichroic type, reflecting light into the beam but transmitting infra-red radiation through to the rear of the lamp. (Note: it is necessary to ensure that the lamp-holder and luminaire are suitable for additional heating).

(d) Photographic and Projector Lamps

Photographic and Projection Lamps range from 10W to 2000W and are designed to suit the various optical systems. All types designed for new equipment are tungsten halogen lamps.

Philips have recently developed a tungsten halogen lamp for amateur 'movie-lights' which has a low gas-filling pressure. The risk of a lamp bursting in the event of an accident or misuse is substantially reduced.

(e) Flashbulbs

Photoflux expendable flashbulbs rely on the rapid burning of shredded zirconium metal in an oxygen filled bulb. Ignition is by the firing of a coated filament by current from a battery, by an electric discharge from a piezo device in the camera (Topflash), or by spring-loaded detonation (Magicube). A blue filter on the bulb adjusts the colour temperature to 5300K.

2.3 Discharge Lamps

(a) Low Pressure Sodium

In these lamps sodium metal is vaporized to a low pressure and produces monochromatic yellow light with very high efficacy. The lamp is available in two forms:

- (i) A U tube containing the discharge within an outer thermal jacket (SOX).
- (ii) A linear discharge tube contained in an outer thermal jacket (SLI).

(b) High Pressure Sodium

These lamps operate with sodium vapour at high pressure and produce a golden yellow light. The discharge tube is of aluminium oxide. The lamps are available in two forms:

- (i) An elliptical outer envelope with a diffusing coating (SON).
- (ii) A clear tubular envelope (SON/T).
- (iii) A bulbous envelope with an internal reflecting coating (SON/R).

(c) High Pressure Mercury

These lamps operate with a mercury vapour arc at high pressure. The light from the arc is supplemented by light from phosphors activated by ultra-violet radiation. The lamps have a cool white light and are available in two forms:

- (i) An elliptical envelope with an internal phosphor (HPL-N).
- (ii) A bulbous envelope with an internal phosphor and reflecting coating (HPL-R).

(d) Metal Halide

These lamps are similar to high pressure mercury lamps but contain metallic halides, e.g. of thallium, indium and sodium. This enables the lamp designer to tailor the spectral power distribution. Lamps of different makes are not interchangeable. Metal Halide lamps are available in two forms:

- (i) An elliptical envelope with an internal diffusing coating (HPI).
- (ii) A clear tubular envelope (HPI/BUS).

(e) Mercury Blended

These lamps combine a high pressure mercury discharge tube with a tungsten filament. The filament acts as a ballast to the discharge tube and also increases emission at the red end of the spectrum. They are available in elliptical envelopes with an internal phosphor coating (ML, MLL), and in a version with internal reflector (MLR).

2.4 Fluorescent Lamps

The fluorescent lamp is physically a low pressure discharge lamp, but is regarded as a separate category of lamp because the majority of the light is produced by phosphors activated by the discharge. The phosphors are coated on the inside of the envelope and can be blended to give the lighting properties desired.

A range of 'colours' is available. There is a choice of colour appearance (e.g. cool or warm). There is also a choice of colour rendering. In the past there has been a

trade-off between high colour rendering index and high efficacy. Recently, new phosphors have become available from work on TV tubes. It is now possible to combine high efficacy with colour rendering suitable for commercial applications. See Colour 80 Series Data Sheets.

CONTROL GEAR FOR LAMPS

2.5 Ballasts for Discharge Lamps

All discharge lamps require a means of controlling their current. The device used is known as a ballast, and on 50Hz supplies usually takes the form of an inductor. The ballast determines the power taken by the lamp and can affect the service period. There must therefore be compatibility between the ballast and the lamp.

Some discharge lamps require also an ignitor, for starting. In general, electronics are becoming more widely used in control circuits, and lead to improved performance and reduced ballast losses. A recent introduction is the 'low-loss' circuit for SOX lamps, based on a choke plus ignitor, which replaces the former leakage auto-transformer. The new circuit has the advantage of instant re-starting and lower power loss.

For some ignitors there is an upper limit on cable length between the ignitor and the lamp/ballast. Further information is available in leaflet CIS 80.

2.6 Ballasts for Fluorescent Lamps

Fluorescent lamps, like discharge lamps, require a ballast. The most common circuit is the Switch Start circuit, in which the main elements are the ballast and a starter. When the starter contacts close, the lamp electrodes are pre-heated. The starter contacts then open, and the inductive pulse from the ballast helps to start the lamp.

Starterless circuits dispense with the starter, but require more complicated windings. The ballast losses are higher than for Switch Start, and starterless lamps must be used.

A recent development is the Electronic Start circuit. This combines the absence of moving parts of Starterless circuits with the low losses of the Switch Start circuit.

2.7 Capacitors

The principal use of capacitors in lighting circuits is in shunt across the supply terminals, to increase the Power Factor. (Note: $PF = W/VA$). Shunt capacitors do not affect the lamp circuit. They reduce the supply current but not the power consumption. The tolerance on their capacitance is 10%.

Other capacitors are used as part of the lamp circuit. These capacitors are usually of 5% tolerance, and may be of voltage rating higher than supply voltage.

Fig 2.8a Classification according to luminous flux distribution.

Luminaire class	Flux distribution about horizontal %	
	Above	Below
Direct	0 - 10	90 - 100
Semi-direct	10 - 40	60 - 90
General-diffuse	40 - 60	40 - 60
Direct-indirect	40 - 60	40 - 60
Semi-indirect	60 - 90	10 - 40
Indirect	90 - 100	0 - 10

Fig 2.8b Classification in terms of maximum spacing/mounting-height ratio.

Luminaire class	Max spacing/mounting - height ratio
Highly concentrating	Up to 0.5
Concentrating	0.5 to 0.7
Medium spread	0.7 to 1.0
Spread	1.0 to 1.5
Wide spread	Over 1.5

LUMINAIRES

Luminaires are described in detail in the data sheets. Here some of the ways of classifying luminaires are explained.

It is quite usual, for example, to prefix the word luminaire with a term describing the type of light source it houses – fluorescent lamp, incandescent lamp: or by a reference to the application for which it was designed – industrial, commercial, or even more specifically (high-bay industrial, commercial display-lighting). The method of mounting employed is another important feature of a luminaire – recessed, semi-recessed, pendant, bracket, post top, column, catenary, and so forth.

2.8 Photometric Classifications

Luminous flux distribution. Luminaires for general indoor lighting are classified by the CIE in accordance with the percentage of total luminous flux distributed above and below the horizontal. See Fig 2.8a.

Distribution of direct component. Direct, industrial lighting luminaires can be classified according to the distribution of their direct component of light. The classification is derived from maximum space/mounting-height ratios. See Fig 2.8b.

BZ Classification:

Luminaires are classified according to the way that their Direct Ratio varies with Room Index, see CIBS (IES) Report No. 2. The BZ number may be used in calculations of UF for luminaires for which UF tables are not published. A number of common fallacies should be noted. The BZ number is not a figure-of-merit: also, it is not an index of intensity distribution or of luminance distribution. (The BZ number has however been borrowed for the IES system of glare calculation, which is at present under revision).

2.9 Classification by protection against electric shock

The following notes are a guide to the official definitions, which can only be interpreted in conjunction with detailed requirements for construction.

Class I: A luminaire with an earthing terminal, and so constructed as to comply with the requirements of BS 4533 for protection against electric shock. Usually, protection is by a metal enclosure bonded to the earthing terminal.

Class II: A luminaire without an earthing terminal, and so constructed as to

comply with the requirements of BS 4533 for protection against electric shock. Usually, protection is by two separate barriers of insulating material. Class II equipment bears a mark consisting of a square in an outer-square.

- Notes: 1. Class 0 luminaires have no earthing terminal and have reduced protection against shock. By law, Class 0 equipment is not permitted in the U.K.
2. Class III luminaires derive protection against shock by being for use on safety-type extra-low voltage supplies.

2.10 Classification according to enclosure

Luminaires are classified according to the type of protection against ingress of dust and moisture. The type of compliance is indicated by the letters IP followed by two numerals, the first referring to dust and the second to moisture. (Note: the two numerals should be pronounced separately). The full classification for equipment in general is listed in Fig 2.10.

The IP system supersedes the earlier classification of equipment as "rainproof" etc. accompanied by marking with symbols. Normally, the only IP classifications relevant to luminaires are:

IP 23	IP 24	IP 25
	IP 54	IP 55
	IP 64	IP 65

Luminaires without special protection ('ordinary' luminaires) may be regarded as classified IP 20, but this minimal classification should not normally be used.

2.11 Classification for Explosive Zones

Places where explosive gases may be present (e.g. in a refinery) are designated by the authorities as Zone 1 (high risk) or Zone 2 (low risk). In both these zones only specially protected luminaires may be used. The following is a guide to the meaning of the classifications: the classification of each type of luminaire must have the approval of the appropriate certifying authority.

- ex 'd': luminaire so constructed that internal hot gases cannot reach the external atmosphere. Note: this classification corresponds to the previous 'flameproof'
- ex 'e': non-sparking luminaire for TLX fluorescent lamps.

Type N: non-sparking luminaire for bipin fluorescent lamps (also for filament and discharge lamps).

In the U.K. only ex 'd' luminaires are permitted in Zone 1: all the above three luminaires are permitted in Zone 2. In some

countries ex 'e' luminaires are permitted in some parts of Zone 1.

Luminaires for explosive zones are not necessarily suitable also for adverse conditions of dust and moisture. The IP classification also must be considered.

Fig 2.10

Derivation of the two IP Classification numerals. Numerals used for luminaires are in **bold type**

<i>Degrees of protection indicated by the first characteristic numeral</i>		
First characteristic numeral	Short description	Degree of protection Brief details of objects which will be 'excluded' from the enclosure
0	Non-protected	No special protection
1	Protected against solid objects greater than 50mm	A large surface of the body, such as a hand (but no protection against deliberate access). Solid objects exceeding 50mm in diameter
2	Protected against solid objects greater than 12mm	Fingers or similar objects not exceeding 80mm in length. Solid objects exceeding 12mm in diameter
3	Protected against solid objects greater than 2.5mm	Tools, wires, etc., of diameter or thickness greater than 2.5mm. Solid objects exceeding 2.5mm diameter
4	Protected against solid objects greater than 1.0mm	Wires or strips of thickness greater than 1.0mm. Solid objects exceeding 1.0mm in diameter
5	Dust-protected	Ingress of dust is not totally prevented but dust does not enter in sufficient quantity to interfere with satisfactory operation of the equipment
6	Dust-tight	No ingress of dust

Degrees of protection indicated by the second characteristic numeral

Second characteristic numeral	Short description	Degree of protection Details of the type of protection provided by the enclosure
0	Non-protected	No special protection
1	Protected against dripping water	Dripping water (vertically falling drops) shall have no harmful effect
2	Protected against dripping water when tilted up to 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at any angle up to 15° from its normal position
3	Protected against spraying water	Water falling as a spray at an angle up to 60° from the vertical shall have no harmful effect
4	Protected against splashing water	Water splashed against the enclosure from any direction shall have no harmful effect
5	Protected against water jets	Water projected by a nozzle against the enclosure from any direction shall have no harmful effect
6	Protected against heavy seas	Water from heavy seas or water projected in powerful jets shall not enter the enclosure in harmful quantities
7	Protected against the effects of immersion	Ingress of water in a harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time
8	Protected against submersion	The equipment is suitable for continuous submersion in water under conditions which shall be specified by the manufacturer. <i>Note.</i> Normally, this will mean that the equipment is hermetically sealed. However with certain types of equipment it can mean that water can enter but only in such a manner that it produces no harmful effects

Part 3

INTERIOR LIGHTING DESIGN

3.1 Information for lighting designer

Before starting to design the lighting installation for a new building, there should preferably already have been close collaboration between the architect, the client, the lighting designer and the heating and air-handling engineer.

Drawings, showing the suggested plan and cross-section of each room, including the proposed constructional details of the ceilings and walls, are required for consideration by the lighting designer. If there is to be an air-conditioning system, the arrangement of the ducting and the layout of the luminaires should be considered jointly.

In order to make the necessary detailed calculations concerning the type and quantity of lighting equipment necessary, advance information on the surface reflectance of walls, ceilings, and floors is required. Similarly, calculations concerning the luminance ratios in the interior call for details of the interior decor and furnishing.

3.2 Lighting Objectives

Working Interiors

The most important aim when designing the lighting installation for a room in which work is to be carried out is the provision of good visual conditions at the working plane. A secondary aim should be the creation of a complete visual environment that will have a positive influence on the performance and well-being of the occupants.

Shops, Department Stores and Exhibition Rooms

In rooms used for the display of goods or exhibits the main purpose of the lighting is to obtain an attractive and commanding presentation which shows the objects concerned to the best advantage. In show windows, the aesthetic and advertising value of the lighting should predominate. This can be ensured by using high luminance levels. Alternatively, spotlights, coloured lighting, programmed kinetic lighting, and other such devices can be used to obtain the same result.

In museums and art galleries, the lighting used must give the correct colour rendering to the various paintings, textiles, documents, etc., on show. At the same time, precautions have to be taken against possible discoloration or fading which could result from exposing these objects to too prolonged or too bright a light. Thus, the illumination resulting from both natural and artificial light should either be considerably reduced or completely eliminated during the time that a display area is closed to the public.

For further guidance see CIBS (IES) Technical Report No. 14.

Domestic Interiors

In rooms intended for general use, it is the aesthetic and visual comfort of the lighting, which plays the dominant role. If, however, visually exacting tasks are to be performed in such rooms, the lighting requirements applicable to working interiors should be borne in mind.

Communicating Areas

In entrance halls, corridors, passages, and on stairs, the lighting is primarily intended for orientation and safety purposes. In these areas, therefore, vertical illuminance may be more important than horizontal illuminance.

3.3 Illumination Levels

The illumination level in a working interior should be based on the requirements of:

- Visual performance
- Visual comfort and pleasantness, and
- Economy

Three different levels of lighting can be established, depending on the type of interior, and the activity carried out:

- The minimum for circulation areas.
- The minimum for working interiors.
- The optimum for working interiors.

Recommendations for service illuminances can be found in the complete schedule of the CIBS (IES) Lighting Code for Interiors. Fig 3.3 is a summary of parts of that schedule.

Fig 3.3 Examples of recommended service illuminances. For complete schedule, refer to CIBS (IES) Lighting Code for Interiors. 'Service' - see 4.1

	Code (lux) illuminance	Examples of area or activity
General lighting for rooms and areas used either infrequently and/or casual or simple visual tasks	20	Exterior circulation areas
	30	Outdoor stores, stockyards
	50	Exterior walkways and platforms, indoor car parks
	75	Docks and quays
	100	Theatres and concert halls, hotel bedrooms, bath rooms
	150	Circulation areas in industry, stores and stock rooms
General lighting for working interiors	200	Simple tasks.
	300	Rough bench and machine work; general processes in chemical and food industries, casual reading and filing activities
	500	Medium bench and machine work; motor vehicle assembly; printing machine rooms; general offices, shops and stores
Additional localized lighting for visually exacting tasks	750	Proof reading; general drawing offices, offices with business machines
	1000	Fine bench and machine work; office machine assembly, colour work; critical drawing tasks
	1500	Very fine bench and machine work; instrument and small precision mechanism assembly, electronic components, gauging and inspection of small intricate parts May be partly provided by local lighting
	2000	Minutely detailed and precise work, e.g. very small parts of instruments, watch making and engraving operating area in operating theatres 2000 lux minimum

3.4 Lighting Systems

An analysis of the room to be illuminated and of the visual task to be carried out will aid the choice of the lighting system to be used and the location and arrangement of the luminaires.

The most common lighting systems are shown in Fig 3.4.

a. General Lighting

General lighting is obtained by placing a number of luminaires in a more or less regular arrangement over the whole ceiling area (Fig 3.4a). The result is a horizontal illuminance of a certain average level and with adequate uniformity.

Higher illuminances than 1000 lux may be necessary for visually exacting tasks. From the economic viewpoint these can usually

more sensibly be obtained by means of additional localised or local lighting, as appropriate.

General lighting, which gives uniform lighting conditions, should be used for rooms in which there are no fixed working places – especially offices where the layout of desks and furniture may frequently change.

b. Directional Lighting

This term is used to describe lighting in which the light comes predominantly from a preferred direction, usually either by means of a special arrangement of mirrored fluorescent lamp luminaires or by the use of spotlights having wide-beam reflectors (Fig 3.4b).

Fig. 3.4. Lighting Systems

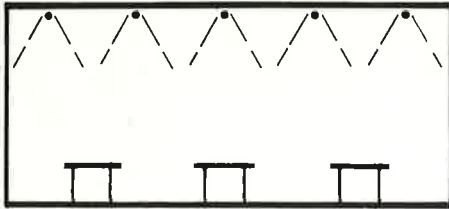


Fig. a. General lighting

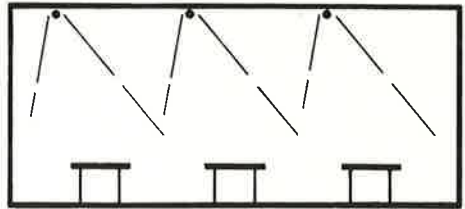


Fig. b. Directional lighting



Fig. c. Localized lighting

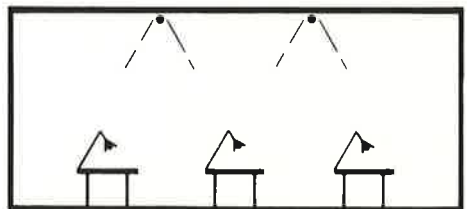


Fig. d. Local lighting

This type of lighting is often used:

- As accent and display lighting.
- To create shadows on materials in order to show their shape and texture.
- To illuminate surfaces which, in their turn, act as secondary light sources (indirect lighting).

Directional lighting may be used in combination with general lighting as a means of overcoming the possibly monotonous effect produced by the latter.

c. Localized Lighting

In some cases it may be advantageous to concentrate luminaires in certain areas of the ceiling in order to produce a sufficiently high illuminance on the main places of interest (Fig 3.4c).

This type of lighting is useful for localized working areas in factories, where the production equipment is not likely to be moved.

d. Local Lighting

Local lighting is produced by placing luminaires close to the visual task so as to illuminate only a very small area. It is supplemented by one of the other lighting systems (Fig 3.4d).

Local lighting is recommended when:

- The work involves very critical visual tasks.
- The viewing of forms or textures requires

that the light come from a particular direction.

- The general lighting, due to obstructions, does not penetrate certain areas.
- Higher illuminances are necessary for the benefit of older workers or workers with reduced visual performance.

Local lighting should essentially be used to supplement general lighting, and not as a means of effecting economies in general lighting. (If work stations with in-built lighting are transferred, subsequent occupants will have inadequate lighting). Examples of local lighting are shown in Fig 3.4.1.

3.5 Glare

Glare, either direct or reflected, is experienced if luminaires or windows are too bright compared with the general brightness within the interior.

Glare usually takes the form of discomfort glare, but in extreme cases can lead to disability in seeing.

Discomfort glare is generally experienced as a feeling of discomfort after having been in an area where there is a minor amount of glare for some length of time. An example would be an installation of bare lamp batters which is within the normal field of view.

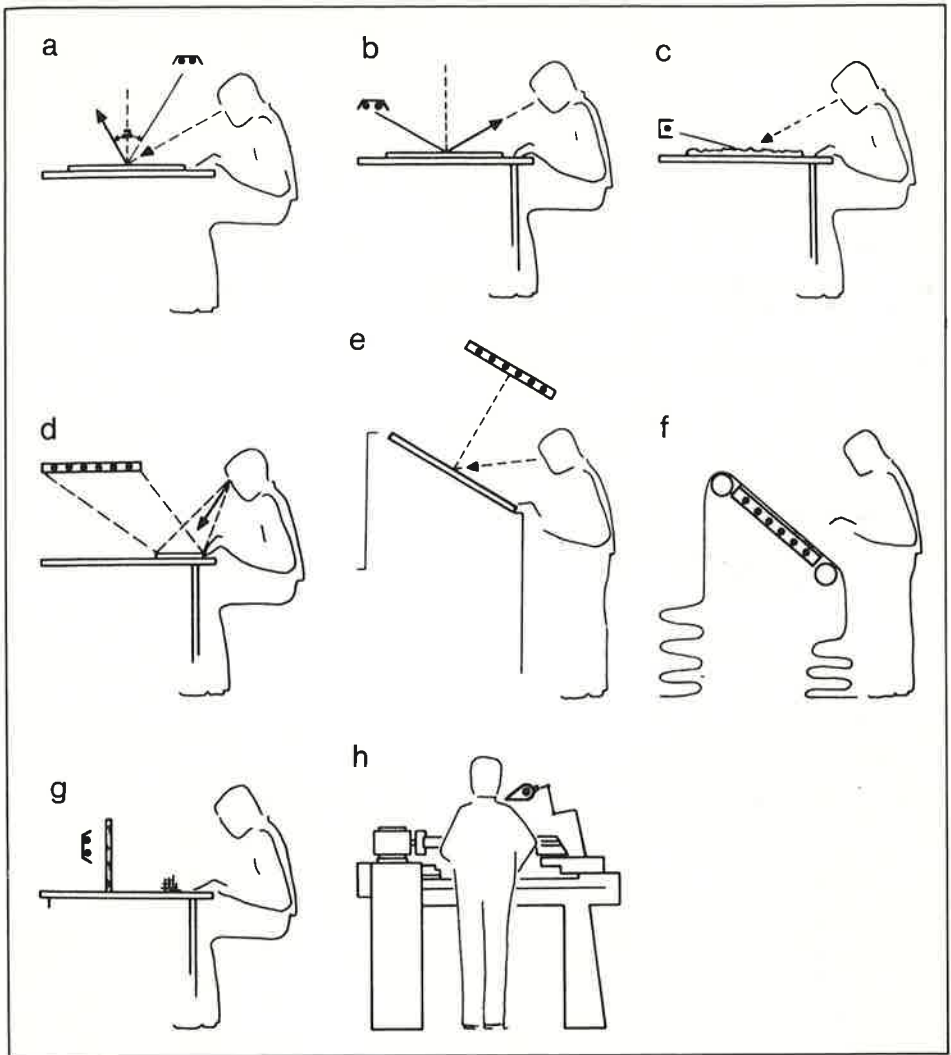


Fig 3.4.1.

Examples of Local Lighting

- (a) To prevent veiling reflections, reflected light must not coincide with angle of view.
- (b) The observation of specular detail on a diffuse background is aided if reflected light does coincide with angle of view.
- (c) Low-angle lighting used to emphasize surface irregularities.
- (d) Reflected light from a source having large surface area facilitates detection of blemishes in a polished surface.
- (e) Diffuse lighting from an extended source aids typesetting.
- (f) Irregularities in transparent materials are revealed using transmitted light from a diffuse source.
- (g) Silhouette is an effective means of checking contour
- (h) Directional lighting is needed to reveal form and texture.

The degree of discomfort glare depends primarily on:

- Luminance of the light sources.
- Number, and apparent size of the light sources.
- General luminance of the environment.
- Position of the sources in the field of view.

Fig 3.5 illustrates the glare zone within which the luminance of luminaires should be restricted to avoid direct glare i.e. between 5° and 30° below the horizontal plane of the luminaires.

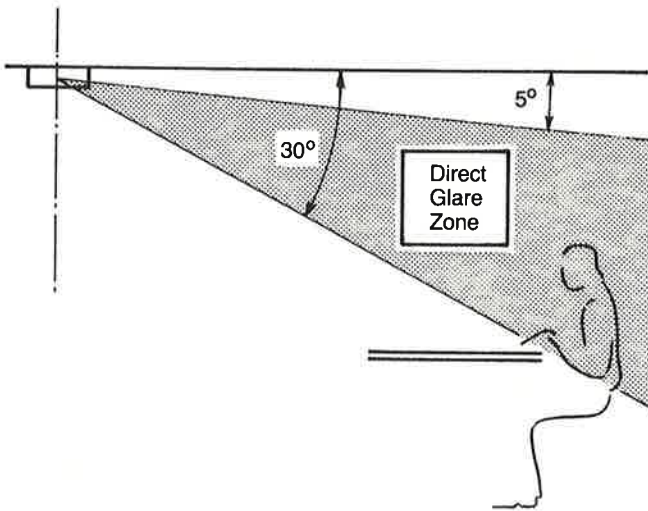
The IES Glare Index system, described in CIBS (IES) Technical Report No. 10, attempts to evaluate the degree of dis-

comfort glare for some interiors. It does not however allow fully for the luminance distribution of luminaires and of adjacent surfaces, and is being revised.

Reflected Glare and Veiling Reflection

If light sources are reflected by objects having glossy surfaces, bright patches occur which may obscure the details of the objects. If the patches are so bright that they provide a feeling of discomfort, the effect is called reflected (discomfort) glare. If the effect is a reduction of contrasts within the area of the task without discomfort it is referred to as veiling reflection.

Fig. 3.5. Direct glare zone



Part 4
CALCULATION OF AVERAGE
ILLUMINANCE – THE
'LUMEN METHOD'

Part 4

CALCULATION OF AVERAGE ILLUMINANCE – THE 'LUMEN METHOD'

4.1 The 'Lumen Method' formula

The lighting level of workrooms and offices is usually prescribed in terms of the average illuminance on a horizontal working plane, this being a horizontal plane considered to be at the height of the work above the floor (normally 0.85m) and covering the entire floor area.

By the Lumen Method, the average illuminance is calculated from:

$$E = \frac{F \times UF \times MF}{A}$$

where:

E = Average illuminance over the working plane (lux). Calculated for average output through lamp service and halfway through a cleaning cycle, i.e. service illuminance.

F = Total luminous flux of the lamps. LDL or a lower value where relevant (see 4.2 and 4.4).

A = Area of working plane (sq. metres).

UF = Utilization Factor for the luminaire, the spacing, and the room.

Note: Printed values of UF must first be multiplied by the appropriate Service Correction Factors (See Section 4.7).

MF = Maintenance Factor for the installation. (See Section 4.3).

In some instances it may also be necessary to apply Correction Factors for abnormal conditions, e.g. low supply voltage, high ambient air temperature, absorption by tall furniture.

Worked Example

An office measuring 6 metres x 10 metres is illuminated by 15 single lamp luminaires each housing lamps with a light output (LDL) of 4800 lumens. The decor is light in colour. What will be the average illuminance assuming the MF is 0.9, the corrected UF is 0.5, and that the lamps are group

replaced at 6000 hours?

$$E = \frac{(15 \times 4800) \times 0.5 \times 0.9}{6 \times 10}$$

$$E = 540 \text{ lux.}$$

4.2 Lamp Output for Lighting Calculations

For the purpose of standard lighting calculations the value to be adopted for lamp light output is the average light output during the relevant service period. For fluorescent and discharge lamps, data sheets show declared lumen outputs based on measurements at 2000 hours. Because the light output curve is supra-linear during the first 2000 hours, this value represents the average output over approximately the first 6000 hours and is known as the LDL value. (LDL = Lighting Design Lumens). For simple calculations it is common for lighting designers to adopt the LDL value without further adjustment. (Note: the 100 hour value, if published, must not be used in the same way).

If the lamp replacement period is to be greater than 6000 hours, the reduced value of average light output has to be calculated. The percentage reduction from the LDL value is:

$$d \left(\frac{R}{2} - 2 \right) \%$$

where:

d is the lamp's depreciation rate in percent per thousand hours.

Notes: 1. depreciation may be taken as linear after 2000 hours.

2. if **d** is not known, **d=4** may be taken for common lamps.

R is the replacement period in thousands of hours.

Example:

The planned replacement period is to be 8000 hours and for the lamp selected **d=4**: then, the LDL value should be reduced by 8%.

If the lighting installation is not to have planned replacement, the average time to electrical failure may be over 10,000 hours.

The lamp light output must be calculated for the 5000 hour point or later. This increases the number of lamps required, and the running costs will be increased proportionately. In almost all instances, planned replacement will be found to be more economic (See Section 4.4).

4.3 Maintenance Factor

For lighting calculations the lighting designer has to select an appropriate Maintenance Factor. This factor is the ratio of the illuminance halfway through a cleaning cycle to what the illuminance would be if the installation was clean. Thus, the Maintenance Factor allows for depreciation of illuminance due to dust and dirt on the lamps, the luminaires and the room surfaces: it does not allow for depreciation in the light output of the lamp, which is assessed separately (See 4.2 and 4.4).

Sometimes lighting designers use fixed values of MF (e.g. MF=0.8 for commercial installations). This practice is deprecated, since it produces over-design for an installation which is to be regularly cleaned, and produces under-design for an installation where there is no cleaning schedule. Guidance on the assessment of Maintenance Factors is contained in CIBS (IES) Technical Report No. 9.

Installations should be regularly cleaned for reasons of hygiene. In addition, adoption of regular cleaning permits the lighting designer to raise the MF, e.g. from 0.8 to 0.9. For the two values quoted, there would be a saving of approximately 10% in capital costs (luminaires and installation time), and also in running costs (electrical energy and number of replacement lamps). The cleaning cycle should be planned to fit in with the lamp replacement cycle.

4.4 Effect of lamp replacement cycle

In all but the smallest installations, it is sensible to replace the lamps as a group, at planned intervals. The following comments refer to replacement of fluorescent lamps, but apply also to the majority of discharge lamps. The advantages of planned replacement are as follows. Item 6 explains the connection between lamp replacement cycle and lighting calculations by the Lumen Method.

1. Labour cost can be substantially reduced by phasing the replacement cycle to fit the cleaning cycle.

2. Where lamp quantities are large, special discount and delivery arrangements may be possible.
3. Where there would be an interruption to a production process, replacement can be planned for a non-production period.
4. Lamps will be of matching output and colour, initially and over the service period.
5. Replacing lamps before electrical wear-out reduces the possibility of failure of control gear.
6. The value of lumens to be used in lighting calculations is increased compared with the value applicable to random replacement. (See Section 4.2). This means that the installation will require fewer luminaires, with consequent savings in capital costs and running costs. Savings in electricity cost alone are likely to be greater than the extra cost of replacing lamps at shorter intervals.

The optimum replacement period depends on the energy costs and labour costs of the particular installation. A common rule is that the lamps should be group-replaced when the cost of wasted energy has become as high as the cost of lamp replacement. A further limit is that lamps should be replaced before their output has depreciated 20% below the LDL value. If the depreciation rate of a particular lamp is not known, a rate of 4% per thousand hours may be taken. In installations where randomly failed lamps are not replaced until the cycle time, the depreciation rate for light output should be increased (e.g. by one percentage point per thousand hours).

4.5 Utilization Factor

The Utilization Factor can be regarded as an indication of the effect of the lighting equipment and the interior combined in producing horizontal illuminance. For example, a UF of 0.3 means that the lumens reaching the horizontal plane are 30% of the lumens of the lamps operated bare under standard conditions. The UF allows for the direct illuminance and for the indirect illuminance due to reflections from room surfaces.

The Utilization Factor is dependent on:

- Light distribution of the luminaire.
- Light output ratio of the luminaire.
- Reflectances of the ceiling, walls and floor.

Fig. 4.5. Example of table of utilization factors

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	20	35	39	43	45	48	50	52	54	55
	30		32	36	39	42	46	48	50	52	54
	10		29	33	37	40	44	46	48	51	53
50	50	20	34	37	41	43	46	48	49	51	53
	30		31	35	38	41	44	46	48	50	52
	10		29	32	36	38	42	44	46	49	51
30	50	20	33	36	39	41	44	46	47	49	50
	30		30	33	37	39	42	44	46	48	49
	10		28	31	35	37	41	43	44	47	48
0	0	0	26	29	33	35	38	40	41	43	45

Multiply by each Service Correction Factor

- Room index.
- Arrangement of the luminaires in the room.

For each type of luminaire the Utilization Factor is given in the Photometric Data Sheets as a function of room index and of selected reflectances for room surfaces. If the reflectances are not known, the combination, ceiling=70%; walls=50%; floor=20% is usually taken as typical for rooms having rather light surface colours. Note: if later the room is given dark decor, the illuminance will be reduced. Each luminaire data sheet carries one (and sometimes more) UF tables as illustrated in Fig 4.5.

The following should be noted:

1. The UF entries are to be read as decimals. For example, 37 represents 0.37.
2. The UF entries must be multiplied by each Service Correction Factor (See Section 4.7).
3. 'Floor' reflectance refers to the floor cavity reflectance, at the horizontal plane. It does not refer e.g. to the published reflectance of tiles or carpets. Floor reflectance should not normally be taken as over 20%, and is often nearer 10%.
4. Similarly, 'ceiling' reflectance refers to the ceiling cavity. 'Walls' are the portions between the two planes.

5. A UF table is usually calculated for a nominal spacing (SHR NOM - see Section 4.9). If luminaires are spaced closer, the UF will be slightly reduced: It would be wise to multiply the published value by 0.95.
6. Unless otherwise stated, UF refers to the UF of the floor cavity, i.e. UF (F).

4.6 Room Index

The room index is a means of representing the proportions of a room. The RI is calculated from the following equation.

Note: All dimensions must be consistent, e.g. metres throughout.

$$RI = \frac{S}{2M}$$

where:

S = Average side (mean of length and width).

M = Mounting height above the working plane.

The working plane is usually regarded as 0.85m above the floor.

Worked Example

Length of room = 10m.

Width of room = 6m.

Mounting height above the working plane = 3.0m minus 0.85m.

$$RI = \frac{8}{2 \times 2.15} = 1.8$$

Fig. 4.7. Example of table of service correction factors

Service Correction Factors

	40W 1200mm	65W 1500mm	85W 1800mm	85W 2400mm	
Rating Factor	1.05	1.00	1.00	1.05	
Amalgam Factor		1.13			
Ballast Lumen Factor SS	1.00	0.99			
Ballast Lumen Factor XS			0.96	0.99	

Utilization Factors UF (F)

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	20	35	39	43	45	48	50	52	54	55
			32	36	39	42	46	48	50	52	54
			29	33	37	40	44	46	48	51	53
50	50	20	34	37	41	43	46	48	49	51	53
			31	35	38	41	44	46	48	50	52
			29	32	36	38	42	44	46	49	51
30	50	20	33	36	39	41	44	46	47	49	50
			30	33	37	39	42	44	46	48	49
			28	31	35	37	41	43	44	47	48
0	0	0	26	29	33	35	38	40	41	43	45

Multiply by each Service Correction Factor

4.7 Service Correction Factors

For fluorescent lamp luminaires, each UF table should be accompanied by a table headed 'Service Correction Factors'. Fig 4.7 shows a typical table. The service correction factors give the corrections which should be made to the basic UF value obtained from the UF table:

- (i) a correction to be used if the luminaire rating selected is different from that for which the photometric information was measured (i.e. the 'rating factor').
- (ii) a correction for using an amalgam lamp in this particular luminaire instead of a standard lamp (Amalgam Factor).
- (iii) a correction for the extent to which the ballast provides power to the lamp. According to design, ballast lumen factor (BLF) usually varies between 0.92 and 1.02. Where there is a choice of SS (switchstart) or XS (starterless) ballasts, these are shown separately.

Note: Some luminaire manufacturers do not publish BLF. Where the information is not available it may be wise to assume 0.95.

Worked Example

A luminaire is a close-ceiling type using two 1500mm 65W Colour 84 Amalgam lamps. What will be the corrected UF after applying the appropriate service correction factors if the basic UF = 0.46?

- (i) Rating Factor = 1.05
- (ii) Amalgam Factor = 1.15
- (iii) Ballast Lumen Factor = 1.02

Therefore final UF = basic UF x each SCF
 $= 0.46 \times 1.05 \times 1.15 \times 1.02$
 $= 0.57$

It will be seen that failure to apply the service correction factors would have resulted in a 20% error.

SPACING/HEIGHT RATIO (SHR)

4.8 Maximum Spacing/Height Ratio

The CIBS (IES) Lighting Code recommends limits for acceptable diversity of illuminance. Guidance is therefore needed as to the maximum spacing for luminaires.

The recommended limit on diversity is that the minimum repeated illuminance in an installation should not be less than 80% of the average illuminance.

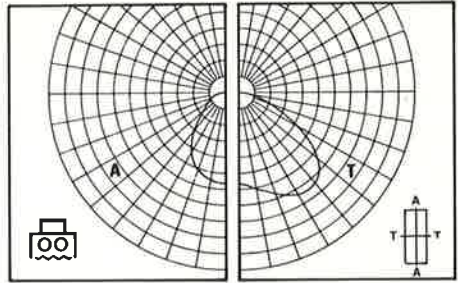
To keep within this limit, luminaires should not be spaced further apart in either direction than the maximum indicated in the data sheets by the entry SHR MAX (the maximum of the centre-to-centre spacing to the mounting height above the horizontal plane).

For example, an SHR MAX of 2.0, with a mounting height of 1.5 metres, means that the luminaires can be spaced at up to 2 times the mounting height in both directions, i.e. at up to 3 metres.

For linear luminaires it is assumed that the mounting height does not exceed the length of the luminaire. Otherwise, it may be necessary to mount the luminaires closer together axially. Special care should be taken if the intensity distribution in the axial plane is concentrating.

If linear luminaires are mounted end-to-end (or nearly so) it may be possible to increase the spacing between rows above the limit of SHR MAX. The new limit is given by SHR MAX TR i.e. the limit in the transverse direction for end-to-end mounting.

Fig. 4.9a. Example of polar curve showing wide intensity distribution in the transverse plane



4.9 Wide Spacing

Some luminaires, notably the 'WideSpread' range of fluorescent luminaires, have a widespread transverse light distribution (Fig 4.9a), which allows these luminaires

Fig. 4.9b. Example of two utilization factor tables for a WideSpread luminaire

Utilization Factors UF (F)

SHR NOM 1.25

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	20	29	34	38	40	44	47	48	51	52
	30		25	30	34	37	41	44	46	49	50
	10		22	27	31	34	38	42	44	47	49
50	50	20	27	32	36	38	42	44	46	48	49
	30		24	28	33	35	39	42	44	46	48
	10		21	26	30	33	37	40	42	45	47
30	50	20	26	30	34	36	40	42	43	45	47
	30		23	27	31	34	37	40	42	44	46
	10		20	25	29	31	35	38	40	43	44
0	0	0	19	23	27	29	33	35	37	39	41

Utilization Factors UF (F)

SHR 2.25 TR x 1.25 AX

Room Reflectances			Room Index								
C	W	F	0.75	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0
70	50	20	-	-	40	42	46	48	50	52	53
	30		-	-	36	39	43	45	47	50	51
	10		-	-	34	37	40	43	45	48	50
50	50	20	-	-	38	40	43	46	47	49	50
	30		-	-	35	38	41	43	45	47	49
	10		-	-	32	35	39	41	43	46	47
30	50	20	-	-	36	38	41	43	45	46	48
	30		-	-	33	36	39	41	43	45	46
	10		-	-	31	34	37	40	41	44	45
0	0	0	-	-	29	32	35	37	38	40	42

to be spaced apart more widely transversely than many conventional luminaires. Where the room proportions permit, economies in installation costs can be made by reducing the number of rows required. The Hermes 2 range of high bay discharge lamp luminaires also have WideSpread distribution, with corresponding wide spacing possibilities.

There is a further consideration. Luminaires having conventional light distributions with limited spacing/height ratios often make it impossible to design down to CIBS (IES) Code lighting levels. The result is that the schemes are over-designed, providing higher illuminances than necessary. WideSpread distributions provide the opportunity to spread the light and to reduce the number of luminaires to the calculated number, while meeting Code limits on diversity of illuminance.

Sometimes two Utilization Factor tables are published for WideSpread luminaires. (Fig 4.9b).

In the example, the upper table is headed

SHR NOM 1.25, i.e. it has been calculated for a conventional 'square' array where the luminaires are spaced axially and transversely at 1.25 times the mounting height above the working plane. 'Nominal' spacing is spacing equally in both directions, with half-spacing at the walls, at the round value of spacing just less than the value of SHR MAX.

The lower table applies to a special non-square layout. Provided that linear luminaires are close axially, the spacing between rows in the transverse direction can be increased up to the limit indicated by SHR MAX TR. The lower table is calculated for $SHR\ TR = 2.25$, which is an abbreviation meaning - 'calculated for spacing to height ratio in the TRANSVERSE direction of 2.25 times the mounting height above working plane'.

At a wider average spacing the UF values are slightly higher than the UF values at a closer spacing. This implies a slightly smaller quantity of luminaires being required for a given illuminance.

Part 5

POINT-BY-POINT CALCULATIONS

5.1 Calculation of Illuminance at a Point

It can happen, because of obstructions, or because of the absence of reflecting surfaces as in floodlighting, that there is no indirect component of light at the point under consideration.

The only light is that received directly from the source or sources that can be seen directly from the point. Where the sources can be regarded as 'point' sources (i.e. their size is small relative to the distance) the Inverse Square Law and Cosine Rule are used to calculate the illuminance.

Note: As an approximate guide, a luminaire can be regarded as a 'point' source when the distance is at least five times the largest luminous dimension of the luminaire. Consider an 85W 1800mm luminaire - this can be regarded as a 'point' source when at distances greater than 10 metres.

The illuminance at a point on a surface is inversely proportional to the square of the distance between the source and the point and directly proportional to the cosine of the angle of inclination of the surface away from the incident light (Fig 5.1a). This relation can be expressed as follows:

$$E = \frac{I \cos \theta}{D^2}$$

Where:

E = Illuminance at the point.

I = Luminous intensity of the source towards the point.

D = Distance from source to point.

θ = Angle between the line of the incident light and a line at right angles to the surface at the point i.e. a 'normal'.

Note: θ is the Greek letter theta (pron. 'theeta'), and is used to denote angles.

When the point on the surface is displaced to one side of a light source (Fig 5.1b), the trigonometry involved becomes a little more complex because of the need to calculate the oblique distance D. For simplicity it is easier to express D in terms of H and the equation then becomes:

$$E = \frac{I \cos^3 \theta}{H^2}$$

Where:

E = Illuminance at the surface at P.

I = Luminous intensity of the source towards P.

H = Mounting height of the source above P.

θ = Angle between the line of the incident light and a line at right angles to the surface at the point. This is equal to the angle between the vertical

Fig. 5.1a. Illuminance at a surface due to a point source

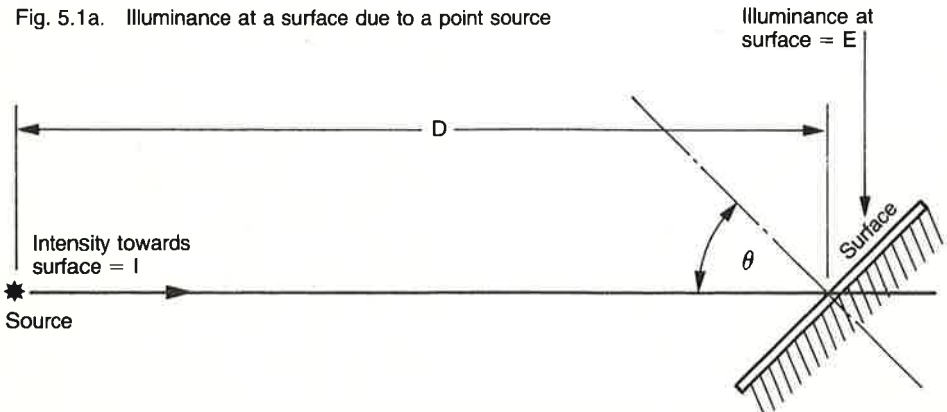
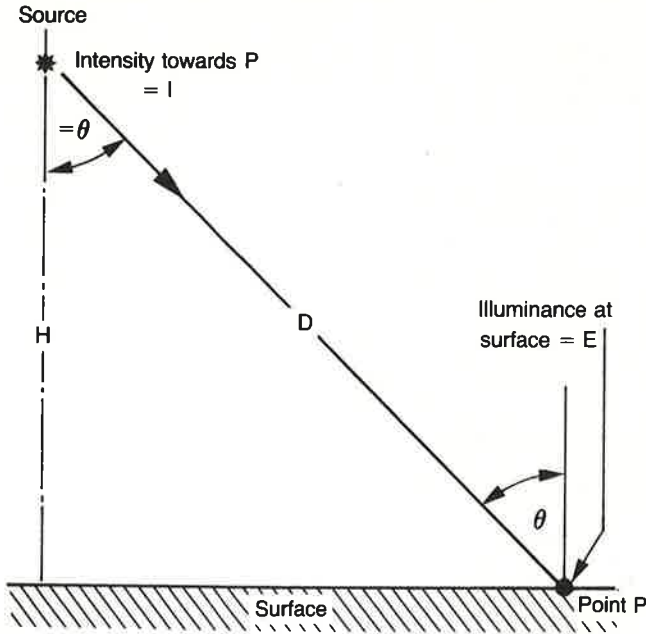


Fig. 5.1b. Illuminance at a point not beneath the source



through the source and the line from the source to P .

- (i) The angle θ can be determined by trigonometry or by drawing to scale and using a protractor.
- (ii) Values of $\text{Cos}^3 \theta$ are listed in the table. (Fig 5.1c).
- (iii) Given the angle θ , the luminous intensity value I may be read from the polar curve of a luminaire.

Fig 5.1c

Table of selected values of $\text{Cos}^3 \theta$

θ	$\text{Cos}^3 \theta$	θ	$\text{Cos}^3 \theta$
0°	1.00	50°	0.27
5°	0.99	55°	0.19
10°	0.96	60°	0.13
15°	0.90	65°	0.08
20°	0.83	70°	0.04
25°	0.74	75°	0.02
30°	0.65	80°	0.00
35°	0.55	85°	0.00
40°	0.45	90°	0.00
45°	0.35		

5.2 Worked Example

A particular location in a chemical plant requires an illuminance of 300 lux at an inspection cover in a pit. Due to chemical plant obstructions the inspection cover receives illumination from two luminaires A and B only:

- (i) directly above the cover at a height of 10 metres.
- (ii) 7 metres away at the same height of 10 metres.

For the general lighting it is proposed to use the Hermes 2 luminaire housing SON 400W lamps set at lampholder position zero.

Will the general lighting be sufficient to illuminate the inspection cover or will supplementary lighting be required to provide the 300 lux specified?

$$\text{By trigonometry, } \frac{7}{10} = \text{Tan } \theta = 0.7$$

$$\therefore \theta = 35^\circ$$

Intensities for luminaires A and B are obtained from the luminous intensities table provided on the Hermes 2 data sheet. See also Fig. 5.2.

Fig. 5.2. Luminous intensities cd/1000lm Hermes 2 luminaire with SON lamp LDL = 45000

Elevation Angle	Lamp Position				
	0	1	2	3	5
0	570	470	372	301	189
5	570	474	377	307	192
10	562	476	387	320	205
15	546	478	403	343	231
20	515	467	413	369	271
25	461	438	406	381	310
30	387	388	378	370	330
35	298	318	328	337	328
40	218	245	265	286	305
45	148	175	200	226	263
50	88	109	132	156	202
55	44	57	74	93	134
60	21	27	35	45	73
65	10	13	16	20	33
70	6	7	7	9	14
75	4	4	4	5	6
80	2	3	2	3	3
85	1	2	1	2	2
90	1	1	1	1	1

The 'elevation angle' in the first column corresponds to the angle θ used in the calculation.

Note that the values of luminous intensity relate to a standardised lamp output of 1000 lumens.

This means that we have to multiply the values once for every thousand lumens in the real lamp output. The real lamp output is in this case 45,000 lumens; therefore every value in the table must be multiplied by 45.

Example: Consider lampholder position 0. The luminous intensity at 35° will be: 298 (from table) \times 45 = 13,410 candelas.

This method of quoting luminous intensity values is necessary because of the constant improvement taking place in lamp performance.

Luminous Intensity of luminaire A towards inspection cover

Lampholder position 0; $\theta = 0^\circ$;

Luminous Intensity = 45×570

\therefore Luminous Intensity for luminaire A = 25,650 candelas

Luminous Intensity of luminaire B towards inspection cover

Lampholder position 0; $\theta = 35^\circ$

Luminous Intensity = 45×298

\therefore Luminous Intensity for luminaire B = 13,410 candelas

Two inverse square law calculations are required:

Contribution at P from luminaire A

$$E = \frac{I}{H^2} \times \text{Cos}^3 \theta,$$

$$E = \frac{25,650}{10^2} \times 1.0 = \frac{25,650}{100}$$

$\therefore E = 256$ lux from luminaire A

Contribution at P from luminaire B

$$E = \frac{I}{H^2} \times \text{Cos}^3 \theta,$$

$$E = \frac{13,410}{100} \times 0.55$$

$\therefore E = 73$ lux from luminaire B

Total illuminance from A plus B equals $256 + 73 = 329$ lux. This is sufficient to meet the specification provided that the lamp and reflector are kept in a clean condition; otherwise, supplementary lighting will be required.

5.3 Calculations for line and area sources

Such calculations are beyond the scope of these pages. For details see text books, (e.g. Light Calculations and Measurement by Keitz), or the Lighting Design Handbook published jointly by the Lighting Industries Federation and the Electricity Council.

5.4 Isolux diagrams and lux tables

Computerised design programmes have made it possible to produce economically and quickly design aids (e.g. isolux diagrams) for applications such as interior and exterior floodlighting, sports lighting, road-lighting, interior lighting for offices or for high and low bay industrial areas.

An isolux line is a line on the working plane where the illuminance has a constant value. (Fig 5.4a).

Such diagrams can be produced for all types of luminaire, i.e. tubular fluorescent, high bay discharge floodlights, road lighting lanterns, plotted to a scale to match the scale of the plans of the building or area, to allow direct reading of the illuminances.

In the example shown, the isolux diagram for a fluorescent luminaire has been placed on the plan of the lighting installation over the point P where an illuminance check is required. The total illuminance at P is determined by summing the contributions from surrounding luminaires which are touched by an isolux line.

In this example the sum is $40 + 10 + 5 + 5 = 60$ lux per 1000 lamp lumens.

Assuming the use of 1500mm 65W fluorescent lamps having lighting design lumens of 4800 and assuming twin lamp luminaires, the total illuminance at P would be

$$\frac{60 \times 4800 \times 2}{1000} = 576 \text{ lux.}$$

Similar isolux diagrams can be produced for floodlights mounted at various mounting heights and aimed at different angles.

Alternatively, lux tables can be produced for areas such as tennis courts, play areas, minor league football and rugby pitches, practice areas, etc. Examples are given in Figs 5.4b and 5.4c.

Fig. 5.4a. The use of an isolux diagram to determine the horizontal illuminance at a point.

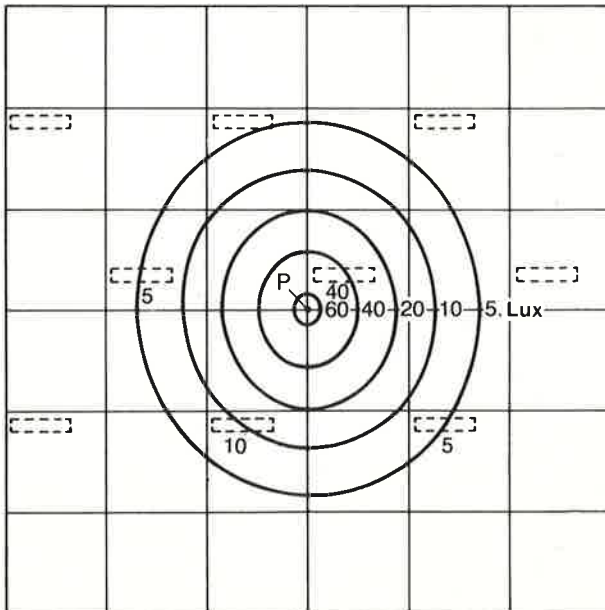


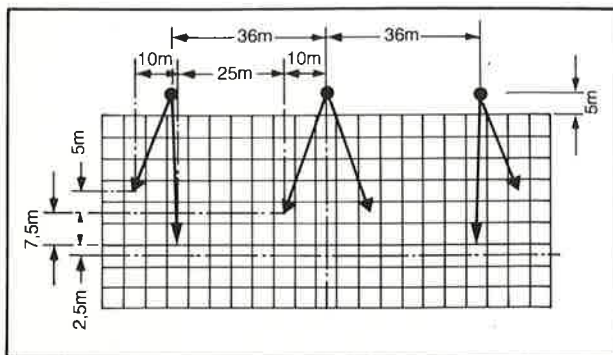
Fig. 5.4b Floodlighting of football training fields
(115 lux)

Y-Values	X-Values												
	-30.0	-25.0	-20.0	-15.0	-10.0	-5.0	0.0	5.0	10.0	15.0	20.0	25.0	30.0
50.0	95.	92.	90.	89.	103.	103.	101.	103.	103.	89.	90.	92.	95.
45.0	123.	130.	117.	112.	124.	121.	117.	121.	124.	112.	117.	130.	123.
40.0	134.	149.	124.	120.	144.	143.	139.	143.	144.	120.	124.	149.	134.
35.0	105.	123.	109.	122.	158.	157.	152.	157.	158.	122.	109.	123.	105.
30.0	101.	108.	107.	117.	146.	145.	141.	145.	146.	117.	107.	108.	101.
25.0	81.	91.	95.	101.	122.	121.	119.	121.	122.	101.	95.	91.	81.
20.0	76.	90.	90.	94.	108.	108.	106.	108.	108.	94.	90.	90.	76.
15.0	84.	100.	94.	98.	108.	107.	106.	107.	108.	98.	94.	100.	84.
10.0	91.	119.	125.	118.	114.	108.	107.	108.	114.	118.	125.	119.	91.
5.0	105.	165.	159.	132.	113.	102.	99.	102.	113.	132.	159.	165.	105.
0.0	102.	151.	148.	126.	108.	96.	93.	96.	108.	126.	148.	151.	102.

Computer-calculated values of the illuminance (in lux) on the football field at the positions shown. (X and Y values are in metres).

The X axis coincides with the centre line.

The Y axis coincides with a line drawn through the centres of the two goals.



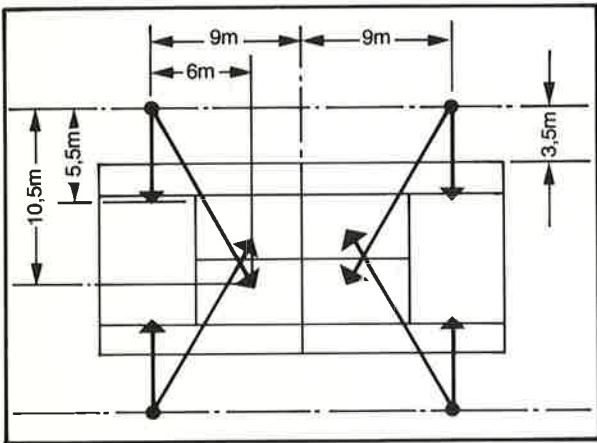
Plan of part of a football training field showing the positions of the masts and the aiming points of the floodlights.

HNF 002 (2 x 9°) → → HNF 002 (2 x 23°) → →

Fig. 5.4c Floodlighting of tennis courts
Tournament level (300 lux)

X-Values		Y-Values																		
		-18.0	-16.0	-14.0	-12.0	-10.0	-8.0	-6.0	-4.0	-2.0	0.0	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0
9.0		34.	62.	97.	136.	184.	196.	193.	189.	171.	162.	171.	189.	193.	196.	184.	136.	97.	62.	34.
7.0		44.	84.	139.	196.	261.	277.	264.	260.	236.	228.	236.	260.	264.	277.	261.	196.	139.	84.	44.
5.0		53.	95.	149.	218.	285.	314.	312.	294.	266.	253.	266.	294.	312.	314.	285.	218.	149.	95.	53.
3.0		61.	106.	161.	240.	310.	349.	341.	322.	292.	276.	292.	322.	341.	349.	310.	240.	161.	106.	61.
1.0		64.	108.	167.	241.	305.	338.	339.	322.	304.	296.	304.	322.	339.	338.	305.	241.	167.	108.	64.
-1.0		64.	108.	167.	241.	305.	338.	339.	322.	304.	296.	304.	322.	339.	338.	305.	241.	167.	108.	64.
-3.0		61.	106.	161.	240.	310.	349.	341.	322.	292.	276.	292.	322.	341.	349.	310.	240.	161.	106.	61.
-5.0		53.	95.	149.	218.	285.	314.	312.	294.	266.	253.	266.	294.	312.	314.	285.	218.	149.	95.	53.
-7.0		44.	84.	139.	196.	261.	277.	264.	260.	236.	228.	236.	260.	264.	277.	261.	196.	139.	84.	44.
-9.0		34.	62.	97.	136.	184.	196.	193.	189.	171.	162.	171.	189.	193.	196.	184.	136.	97.	62.	34.

Computer-calculated values of the illuminance (in lux) on the court at the positions shown. (X and Y values are in metres).



Lighting scheme for a tennis court, showing positions of masts and aiming points of floodlights.

HNF 003 (2 x 29°) →

Part 6 FLOODLIGHTING OF BUILDINGS AND MONUMENTS

6.1 Floodlighting techniques

Direction of view. There will generally be several directions from which a building can be viewed, but often a particular one can be decided upon as the main direction of view.

Distance. Viewing distance is important, as this will decide the amount of detail visible on the facade.

Surroundings and background. If the surroundings and background of the building are dark, a relatively small amount of light is needed to make the building lighter than the background (Fig 6.1a).

If there are other buildings in the close vicinity, their lighted windows will give a strong impression of brightness. More light will then be needed for the floodlighting if it is to have any impact. The same is true if, in addition, the background is also bright (Fig 6.1b). Another solution can be found in the creation of a colour contrast instead of a brightness contrast.

Obstacles. Trees and fences around a building can form a decorative part of an installation. An attractive way of dealing with these is to place the sources of light behind them. Two advantages are gained:

firstly, the light sources are not seen by the viewer and secondly, the trees and fences are silhouetted against the light background of the facade. The impression of depth is thereby increased.

Water. The design can also take advantage of any expanse of water in the foreground, such as a lake, moat, river or canal. The lighted building will be reflected in the surface of the water, which serves as a 'black mirror'.

The form of the building. Once the main direction of view has been chosen, the choice of the direction of the light will depend on the shape of the building, or rather on the form of its ground plan or horizontal section. The position of the light sources may then be more or less fixed.

The light should come from a direction across the line of sight. This will provide good modelling as well as making the most of the texture of the building's surface materials.

6.2 Recommended Illuminances

Fig 6.2 gives some recommended illuminances for a number of building surface-materials with surroundings that are either poorly lit, well lit or brightly lit.

Fig. 6.1. A floodlit building with a background that is a) dark, and b) bright.

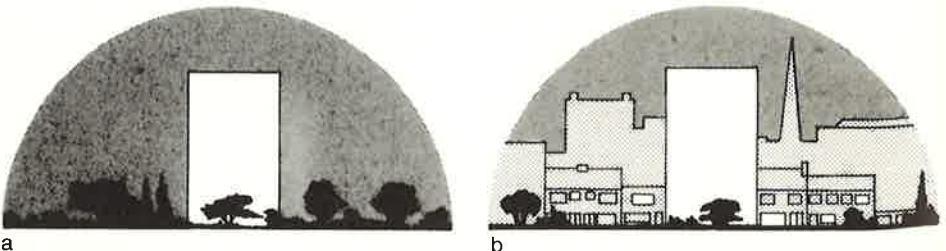


Fig 6.2 Recommended illuminances for flood lighting.

Surface			Illuminance (lux) Surroundings		
Type	Condition	Reflectance	Poorly lit	Well lit	Brightly lit
White brick	fairly clean	0.8	20	40	80
White marble	fairly clean	0.6-0.65	25	50	100
Light-coloured concrete or stone	fairly clean	0.4-0.5	50	100	200
Yellow brick	fairly clean	0.35	50	100	200
Dark-coloured concrete or stone	fairly clean	0.05-0.1	75	150	300
Red brick	fairly clean	0.15	75	150	300
Granite	fairly clean	0.1-0.15	100	200	400
Red brick	dirty	0.05	150	300	—
Concrete	very dirty	0.2	150	300	—

Part 7

ENERGY/COST EFFECTIVE LIGHTING

7.1 Introduction

Increasing energy costs and the national need for energy conservation have resulted in 'Energy Management' being regarded as an important task in all organisations.

Significant savings in energy consumption, and therefore cost, of providing lighting without reducing standards can be achieved by applying an 'Energy Effective Design' approach to lighting installations.

Many existing lighting installations are far from energy/cost effective; consequently opportunities exist to convert such installations by using more efficient equipment to provide the same, or sometimes better, lighting for a lower energy consumption and cost. Whilst more comprehensive information on this subject is provided in the 'Energy Effective Lighting Manual' this section outlines the key aspects to be considered with respect to energy effectiveness, cost effectiveness, design and appraisal.

Lighting is however a complex matter, inevitably so because of the wide range of equipment and applications. Philips Lighting have therefore set up an Energy Advisory Group with a specific responsibility for seeing that the maximum guidance and help is available to customers in the total area of efficient application of electrical energy and lighting matters.

7.2 Cost elements in lighting

Any programme directed at energy conservation and cost avoidance in lighting is dependent in no small degree upon the identification and understanding of the individual cost elements that make up the total cost of providing lighting. The relationship between the various cost elements is frequently complex. However, let us first look at a simple example:

An ordinary 240V 100W tungsten filament lamp may cost, say 25p. During its 1000 hour life the cost of the electrical energy consumed (at say 3.2p per unit) will be £3.20. Therefore of the total lamp and energy cost expenditure of £3.45 the cost

component attributable to the lamp is 7% and to the *energy* 93%.

For lighting provision we can identify the following cost elements:

- | | |
|--|------------------------|
| 1. Capital cost of lighting equipment | } Initial capital cost |
| 2. Installation cost (labour and materials) | |
| 3. Cost of replacement lamps | } Operating cost |
| 4. Maintenance, cleaning and lamp changing cost (labour) | |
| 5. Electrical Energy cost | |

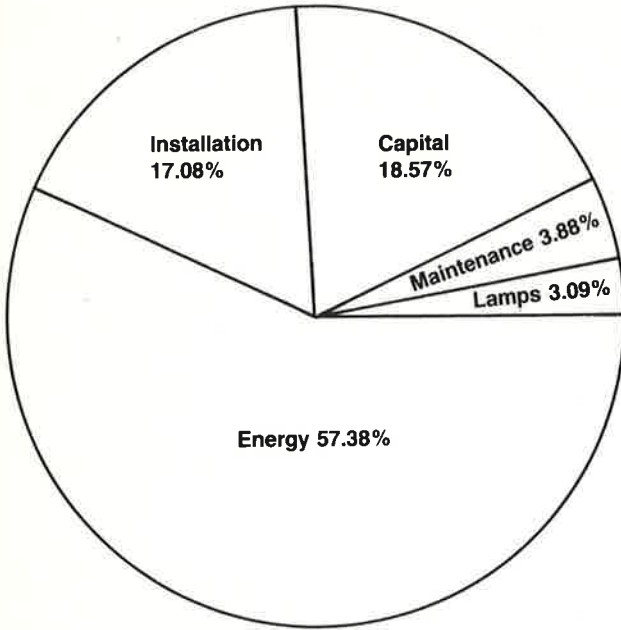
For convenience, incurred costs are normally expressed on an annual basis in order that the significance of individual cost sectors in relation to each other and the total cost may be assessed.

The examples of lighting cost breakdown in Figs 7.2 a, b and c are calculated on an annual basis. The annual operating costs of electricity, replacement lamps and maintenance are shown together with an annual apportionment of the capital expenditure for equipment and installation; the total cost circle therefore represents the total annual cost incurred.

A study of the cost breakdown for all lighting situations reveals that electrical energy is the major cost element. The very essence of energy management in lighting entails altering the individual cost elements by using more efficient lighting equipment or practices to provide the same (or sometimes better) lighting result for a lower electrical energy consumption and lower total cost.

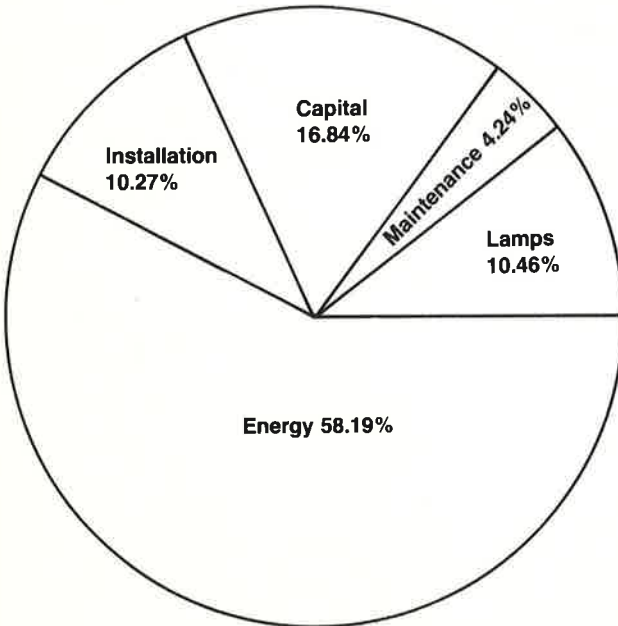
It is probably true to say that the large majority of lighting installations could be improved in terms of cost and energy consumption by the adoption of improved techniques and more efficient equipment. Some changes may require no, or very little capital investment to realise substantial benefits. In other cases investment in new equipment may be needed and evaluation of the capital investment required against the operational savings will be necessary.

Figs. 7.2. a b & c: Typical cost elements (of total annual lighting cost)



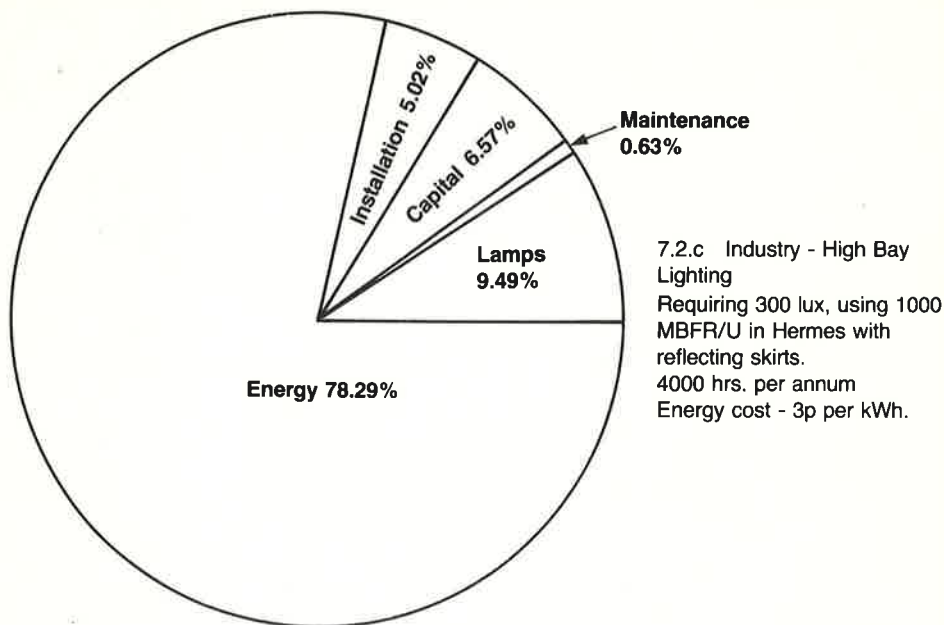
7.2a Commercial Office

Requiring 500 lux and good colour rendering using Natural 25 fluorescent lamps in 2 x 1800 mm 85W battens with prismatic controllers. 3000 hrs. per annum. Energy cost - 3p per kWh.



7.2.b Department Store

Requiring 500 lux plus display lighting, using Natural 25 fluorescent lamps. in 4 x 1800 mm 85W recessed modules plus 150W PAR-38 spotlights. 3000 hrs. per annum Energy cost - 3p per kWh.



Frequently the 'pay back' period is surprisingly short.

7.3 Good, energy-effective lighting – the six basic rules

Section 7.3 clearly indicates the close relationship between energy effectiveness and cost effectiveness. The objective is clearly to provide lighting to the standards, both quantity and quality, required with the minimum usage of electrical energy; to meet this basic requirement it is necessary to evaluate the equipment, techniques and services available for both existing and proposed installations.

The six basic rules for achieving energy effective lighting are:

- Rule 1 – Use the most efficient light source suitable
- Rule 2 – Use the lamp light output efficiently
- Rule 3 – Maintain lighting equipment in good order
- Rule 4 – Use well designed energy effective lighting schemes
- Rule 5 – Control the switching operation and usage of the lighting installation
- Rule 6 – Consider the effect of surrounding decor; use light decor where suitable.

There is no simple or standard answer for all lighting situations but if both existing and proposed schemes are looked at logically in relation to the six rules there is little doubt that most situations will provide opportunities for savings in both energy and monetary terms. Whilst the detailed application of these rules is described more fully in the 'Energy Effective Lighting Manual' the following comments provide basic guidance.

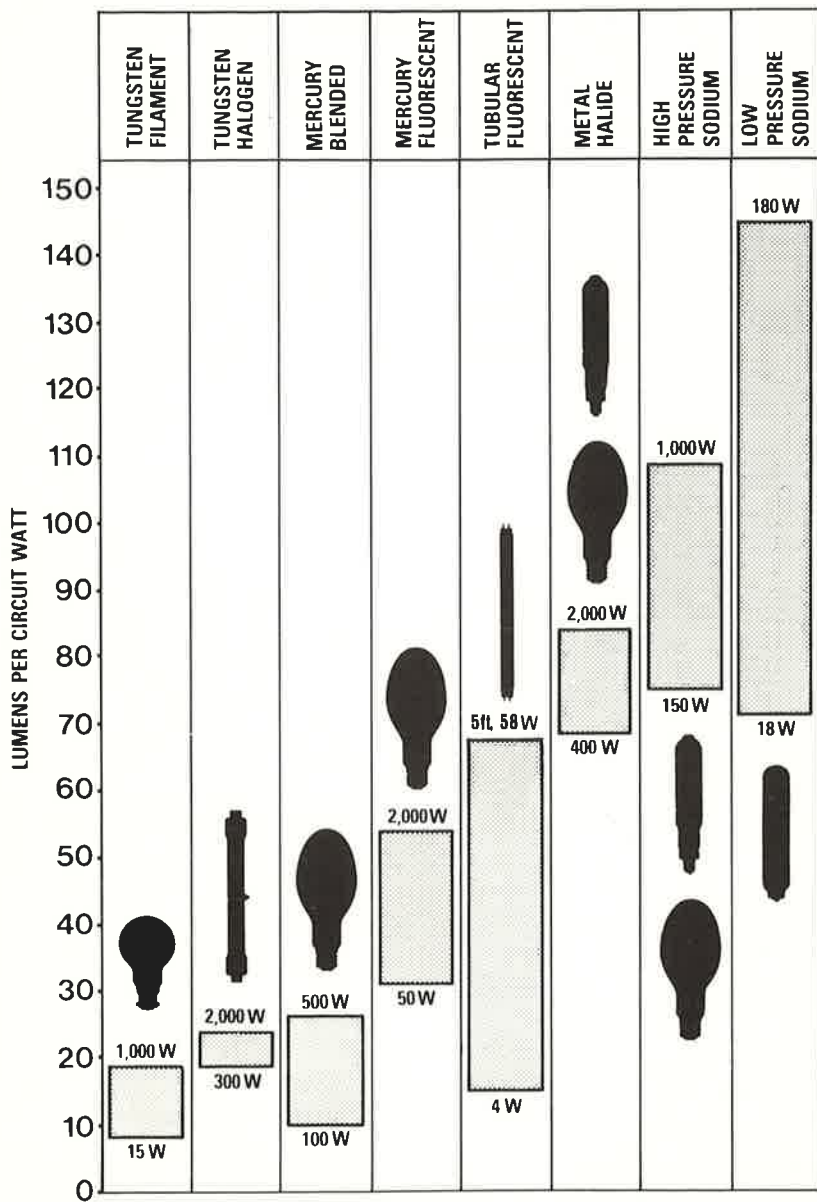
Rule 1 – Use the most efficient light source suitable

It is clearly good sense to use a lamp type which provides the maximum light output (lumens) per watt of installed electrical load having characteristics which are consistent with the other needs of the installation i.e. suitability.

Whilst the efficacies of each lamp type can be determined from the lamp and circuit data provided in the relevant sections of this Handbook, Fig 7.3a provides a general comparison of the wide range of efficacies attained by the main lamp types.

When designing a new installation the efficacies of suitable lamp types should be compared and those having the highest efficacies used.

Fig. 7.3a Lamp types - circuit efficacies - including control gear losses



When examining existing installations, identify the lamp type being used: if it has a low efficacy then it is possible it could be changed for a more efficient type. In some instances, no alterations are necessary, others may require certain modifications to the installation and/or equipment.

The criteria used to assess the suitability of a lamp type, with respect to the needs of the lighting installations, include:

- colour rendering
- colour appearance
- ratings (lumen outputs) available
- physical dimensions
- operational characteristics

Rule 2 – Use the lamp light output efficiently

This relates to the efficiency of the luminaire in allowing the maximum proportion of the lamp light output to reach the working plane, or surfaces to be illuminated. The LOR (Light Output Ratio) of a luminaire is not, in itself, a measurement of this efficiency, for example a bare fluorescent lamp in a batten luminaire emits light in almost every direction and has a high LOR but more light will reach the working plane beneath the luminaire if a suitable reflector is fitted to redirect some of the light even though the LOR is reduced. The only meaningful method of assessment is to compare the utilization factors of luminaires for each situation.

A similar method of comparison should be used to assess the efficiency of other types of luminaire for both interior and exterior

lighting installations. Extreme care needs to be exercised when selecting luminaires for floodlighting of areas or buildings; the range of light distributions available is considerable and misapplication will result in significant energy wastage and higher costs.

Rule 3 – Maintain lighting equipment in good order

Lighting systems operate efficiently only when they are well maintained. Poor maintenance and the accumulation of dust and dirt reduces the useful light output and so in effect increases the cost. Section 4.3 provides more detailed guidance on this subject with particular reference to the design of new installations but it should be remembered that the purchaser of a lighting scheme intends to pay for the light provided only. Any circumstance which reduces the amount of light output whilst leaving the energy consumption constant is a situation to be avoided. For existing installations it may, in some circumstances, be possible to improve the maintenance schedule, reduce the number of lamp points operating, thus reducing the energy consumption, and still retain the illumination level at the desired value. This is illustrated in Fig 7.3b.

Part of the maintenance programme for a lighting installation obviously includes the actual changing of the lamps. The light output of all lamps decreases with time, the rate of reduction in light output depend-

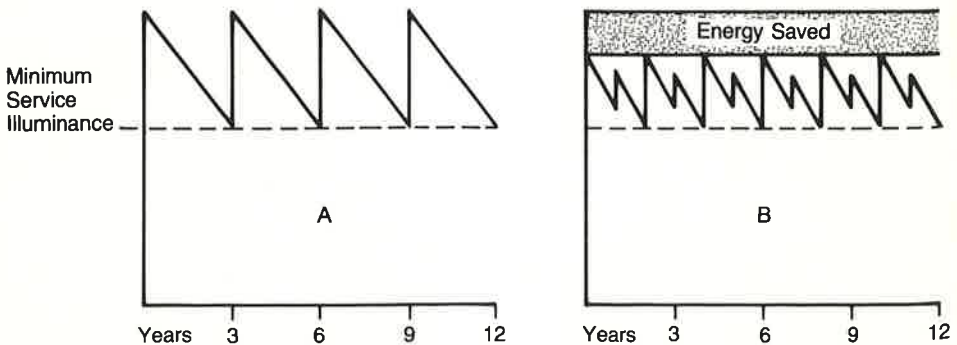


Fig. 7.3b 'A' is typical of an installation in which luminaires are cleaned and lamps changed every 3 years. In 'B' the luminaires are cleaned annually and lamps changed every 2 years allowing a saving in energy consumption of some 15% due to the need for less installed lighting equipment.

ing on the lamp type concerned. Economic considerations generally dictate that the best results are achieved when lamps are replaced as a group, thus minimising the labour costs involved in the physical task of lamp changing especially when combined with cleaning of the luminaire. Equally, it must be remembered that despite the fall in light output, the electrical energy consumption of the lamp remains virtually constant. Consequently, from this point of view, the time is reached when it is cheaper to change the lamp than waste electricity. (See also Section 4.4).

In total, planned maintenance provides the best overall efficiency and with it real economies can be gained. Few would argue against the regular planned maintenance of motor cars to ensure energy/cost effectiveness in terms of miles per gallon. The importance of planned maintenance of lighting installations should be similarly recognised.

Rule 4 – Use well designed energy effective lighting schemes

Certain aspects of this rule, which may be likened to 'bespoke tailoring', are dependent upon, or indeed may influence, decisions made with respect to the other rules. For example the energy effectiveness as well as the capital and operating costs of a lighting installation is dependent upon the scheduling and implementation of a suitable cleaning and lamp replacement programme.

A lighting installation should be 'tailored' to incorporate any available natural daylight within the design; so allowing luminaires within certain zones to be switched off when the natural daylight component is sufficient.

Designs should also allow for variations in occupancy and visual tasks within each area – this applies particularly to open-plan offices and retail premises such as department stores, supermarkets, etc. . . .

This is best achieved by using multi-lamp luminaires (3, 4 or 5 lamps) and switching individual lamp ways within each luminaire according to the illuminance required.

The uses, and therefore the illuminances required, of areas within commercial and industrial premises, often change, e.g. a drawing office to a general office or a machine shop to a storage area. If such changes are likely then it is desirable to use a flexible system such as a pre-wired

plug-in lighting trunking system which simplifies and avoids the need for costly alterations to ensure energy effectiveness.

Rule 5 – Control the switching operation and usage of the lighting installation

Controlled switching of the lighting installation offers a number of possibilities for effecting energy saving by adjusting the numbers of luminaires, or lamps within multi-lamp luminaires, according to the amount of natural daylight available or occupancy.

The linking of artificial lighting installations to natural daylight may be accomplished by simple photocell controlled switching or by the more refined method of electronic controllers to vary automatically the amount of artificial lighting added to the natural daylight component.

Where zones within an area, such as an open plan office, are unmanned for periods of the normal working day the lighting should be so designed that it can be selectively reduced to not less than one-third of the normally required illuminance within the unoccupied zones. This is best achieved by using multi-lamp luminaires with locally positioned switches in each zone to control two-thirds or one-half of the lamps in each luminaire.

Rule 6 – Consider the effect of surrounding decor

It should be remembered that the surrounding decor will have a marked effect upon the lighting levels achieved. The lighter the surface decor, the higher the reflection factor and, conversely, the darker the surface, the greater the amount of electrical energy which will be required to provide the required lighting levels. It is frequently overlooked that the colours/finishes, and therefore the reflection factors of furniture and equipment to be installed within the interior will also affect the final result.

7.4 Energy utilisation appraisal of lighting installations

The Energy Effective Lighting (EEL) ratio method

A need exists for a simple method of measuring the overall efficiency of a lighting installation in terms of the lighting result provided against the electrical energy used to achieve this result. This measurement must be made against a target or objective performance which sets a clear standard of lighting result with MINIMUM ELECTRICAL ENERGY USAGE.

Specifications for lighting schemes or installations will vary widely depending on the application in terms of required illuminance (illumination level) and colour rendering performance, etc.

Irrespective of the specification it is necessary to appraise the installation in terms of electrical energy usage in achieving the desired lighting result against the possible performance that can be obtained. Such an appraisal may be made by the use of:

- (a) A measure of actual performance achieved (or planned for a new installation) measured in terms of electrical load required to provide each 100 Lux of illuminance over each m² of area. (W/m²/100 lux).
- (b) A target performance in the same terms of electrical load to provide each 100 lux of illuminance over each m² of area (W/m²/100 lux). The target performance would represent approximately the best result possible (i.e. the designed lighting result with minimum energy consumption) for the location and installation type. This optimum performance obviously takes into account

the individual contributing components of energy effective lighting e.g. efficient light sources/efficient luminaires, both optical and electrical, proper maintenance, good lighting scheme geometry, and surrounding decor.

The measure of the energy effectiveness for a lighting installation can then be derived from the Energy Effective Lighting Ratio (EELR) which is the ratio between (a) and (b).

$$EELR = \frac{\text{Target Performance W/m}^2/100 \text{ lux}}{\text{Actual Performance W/m}^2/100 \text{ lux}}$$

On this basis the objective for any installation must be the achievement of an EEL Ratio which approaches 1.0.

This objective is common for all general lighting situations irrespective of level of lighting or quality specified. The EEL Ratio is purely a measure of how efficiently we use electrical energy to achieve the lighting result we require in relation to the efficiency that could be achieved to obtain the same lighting result with proper scheme planning.

Tables of target performance figures in W/m²/100 lux are provided for various lighting installation types and situations in Table 7.4a.

Fig 7.4a INTERIOR LIGHTING Target Performances - Watts/m²/100 lux

Type of Installation	Room Index	Standard and Good Colour Rendering CRI: 50-85	Non Critical* Colour Rendering	Cleanliness
Commercial Lighting e.g. Offices, Retail Premises	5.0+	2.32		Clean
	4.0-5.0	2.37		
	3.0-4.0	2.46		
	5.0+	2.46		Average
	4.0-5.0	2.52		
	3.0-4.0	2.61		
Industrial Lighting	5.0+	2.62		Below Average
	4.0-5.0	2.69		
	3.0-4.0	2.78		
	5.0+	2.34	1.28	Clean
	4.0-5.0	2.40	1.30	
	3.0-4.0	2.49	1.34	
	5.0+	2.67	1.46	Below Average
	4.0-5.0	2.74	1.49	
	3.0-4.0	2.85	1.53	
	5.0+	3.12	1.70	Dirty
	4.0-5.0	3.20	1.74	
	3.0-4.0	3.32	1.78	

*Where mounting heights permit the use of SON/Hermes 2 equipment.

Table 7.4b EEL Ratio assessment

EELR	ASSESSMENT
0.75 or over	Good
0.51 - 0.74	Review Suggested
0.5 or below	URGENT ACTION NEEDED

The target figures provided in the Table are based on the use of the most efficient light sources suitable, the most advanced luminaire designs and modern scheme planning techniques to provide the most economic lighting result.

As more efficient lighting equipment becomes available it will become easier to provide a given illumination at a lower energy consumption, and the target figures will be continuously reviewed to reflect such advances as they become commercially available.

EELR Assessment

The EEL Ratio derived from the procedure outlined above may be assessed by referring to Table 7.4b and it will be seen that an installation having an EEL Ratio of 0.75 or over is a satisfactory situation. Schemes having ratios of 0.51-0.74 certainly merit investigation to see whether energy savings (and therefore monetary savings) can be made. In situations where the EEL Ratio is 0.5 or below, urgent action is necessary. Almost certainly the lighting result achieved in relation to the energy expenditures is unsatisfactory. Examination of the installation will almost certainly reveal areas where substantial savings could be made both in terms of energy and money.

In general it will be appreciated that it becomes more difficult to apply the EEL Ratio assessment in installations where a high decorative lighting content is used or for department stores, etc. using significant quantities of display lighting. Nevertheless, for the general lighting situation, the system is a very valid measure of energy performance.

In commenting on energy effective lighting performances it is to be understood that the installation is assessed in terms of the desired result as expressed in the illuminance

achieved. This does not take sole preference over the other lighting scheme quality parameters and reference should be made to the relevant data in the 1977 CIBS (IES) Lighting Code for Interiors, or to Phillips Energy Advisory Group for specialist advice.

Calculation of energy wastage

It will be apparent that having derived the EEL Ratio for an existing installation then the difference between the actual EEL Ratio and the best possible EEL Ratio (approx. 1.0) for the installation, provides guidance on the energy wastage.

Then for a given installation,
 $(1.0 - \text{EELR}) \times \text{Total Load (kW)} \times \text{annual operating hours}$

= ANNUAL ENERGY WASTAGE

e.g. An installation is evaluated and has an EEL Ratio of 0.5

Total installed load: 500 kW
 Operating Hours: 3,000 hrs p.a.
 then $(1.0 - 0.5) \times 500 \times 3,000 = 750,000 \text{ kWh.}$
 p.a. WASTE

Then at an electricity cost of £0.03/unit £22,500 is being unnecessarily spent every year on electricity charges for lighting.

If a more efficient lighting installation could be provided giving the same lighting result but having an EEL Ratio of 1.0 then the energy savings of the above order will be realised. An immediate guide is therefore provided for the justifiable financial investment in more efficient lighting equipment to save energy and money without loss of light.

A change to a new lighting scheme may alter some of the basic annual component costs of lighting (e.g. maintenance costs may slightly increase) but a breakdown of annual lighting costs will show that the major factor is always energy cost and a cost reduction in this sector should be the major objective.

7.5 Finance

Financial appraisal

As shown in Section 7.2, the largest single cost element in the provision of artificial lighting is the cost of electrical energy consumed. Therefore, in the vast majority of cases, the most energy effective lighting installation will also be the most cost effective.

Consider the cost elements of the Commercial Office lighting installation in Fig 7.5a. If a more efficient lamp type, i.e. Colour 84 is used, in Zonalux WideSpread luminaires, the cost elements expressed as a percentage of the total annual cost of Fig 7.5a will be as shown in Fig 7.5b.

Comparing the cost elements of alternative solutions in this manner illustrates the differences in annual lighting costs, for the same lighting result, which can occur and provides guidance when designing new, or reviewing existing, lighting installations.

The more cost effective designs for new lighting installations may require slightly higher capital investment; many conversions of inefficient lighting installations to utilise more economical equipment etc. will require some capital investment and such additional investment should be evaluated with reference to the savings in annual operating costs.

Methods of Evaluation

- (a) The Discounted Cash Flow (DCF) method is appropriate for most organisations as it allows all Taxation and Financing factors to be included and takes into account the rates of interest required and the depreciating value of money.
- (b) Other methods which may be used, possibly in conjunction with a DCF analysis or a simple cash flow statement, are:
 - (i) Pay back period
 - (ii) Return on investment.

Financing Methods

- (a) Outright Cash Purchases – dependent upon current cash flow situation.
- (b) Loan – depends upon availability of money; interest charges to be paid.
- (c) Hire Purchase – interest charges to be paid and will delay receipt of any capital allowances.
- (d) Leasing – also results in interest charges but all payments are of a revenue nature and automatically tax allowable.

Taxation

The following questions need to be considered:

- (a) Will HM Inspector of Taxes regard the investment for a conversion (renewal) on a replacement basis and allow the total cost as a revenue charge?
- (b) How much of the total investment can be considered 'Plant and Machinery' or 'Fixtures and Fittings' and eligible for 100% capital allowance in the first year?
- (c) Will any of the investment be considered to be part of the fabric of the building and, if so, be subject to an industrial buildings allowance claim (where the building is so defined)?

7.6 Management objectives

The general objectives of any energy management programmes are:

- (a) Energy Waste Avoidance
- (b) Cost Avoidance.

The actual task of formulation and implementation of energy saving programmes is frequently regarded as the responsibility of the engineering staff. Effective energy management in fact requires the assistance and co-operation of many other sectors of the energy-using organisation.

When we consider the requirement for energy management in lighting there are only three basic sectors requiring attention (see Fig 7.6a).

These sectors are:

- A review of Lighting Levels and Quality.
- The Efficiency in obtaining the required lighting result.
- Good Housekeeping applied to the installation.

The best result in each of these sectors will only be derived from the proper co-ordination of the activities of not only the engineering function but Finance, Purchasing, Company Secretariat and operational staff at all levels (Fig 7.6b).

Review of lighting level and quality

It is right that lighting levels in use should be reviewed. In practical terms it may frequently be found that following a review a clear need is established for an increase rather than a decrease in actual lighting levels required. An appraisal of all related factors such as productivity, working environment, etc., will generally show that the current recommended illumination levels indicated in the 1977 CIBS (IES) Lighting Code for Interiors are very valid even in today's energy situation.

Commercial Office : Typical Cost Elements (of total annual lighting cost).

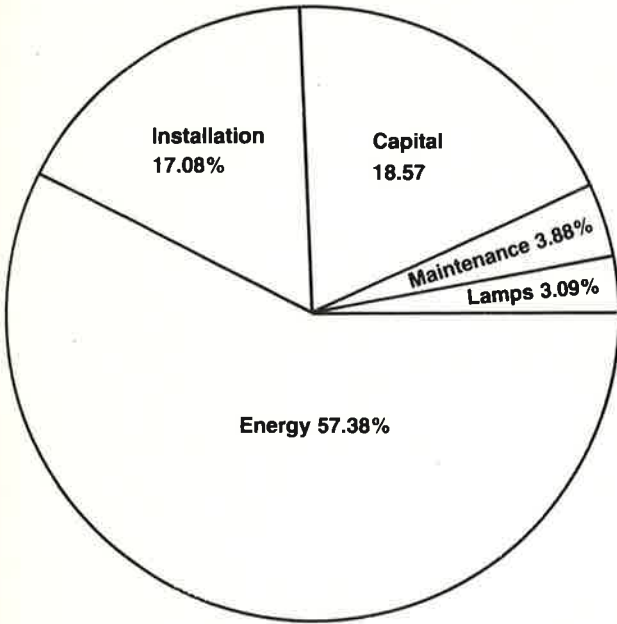


Fig. 7.5a 500 lux, with good colour rendering using Natural25 fluorescent lamps in 2 x 1500mm 65W battens with prismatic controllers.

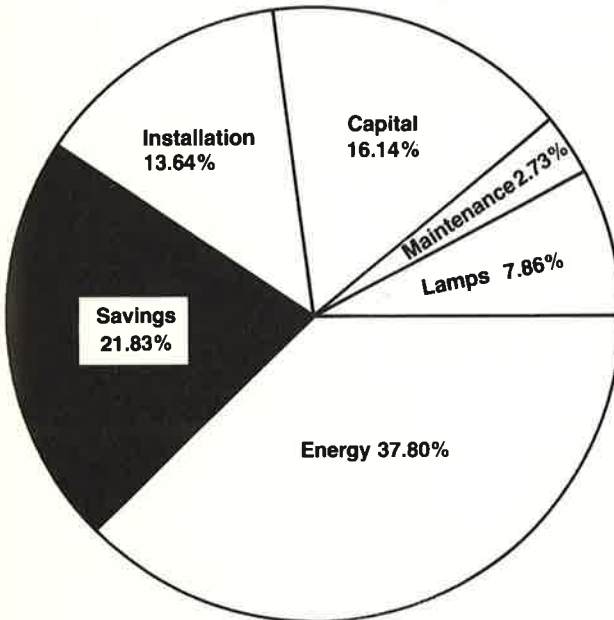


Fig. 7.5b 500 lux, with good colour rendering using colour 84 fluorescent lamps in 2 x 1500mm 65W Zonalux WideSpread luminaires.

Fig. 7.6a

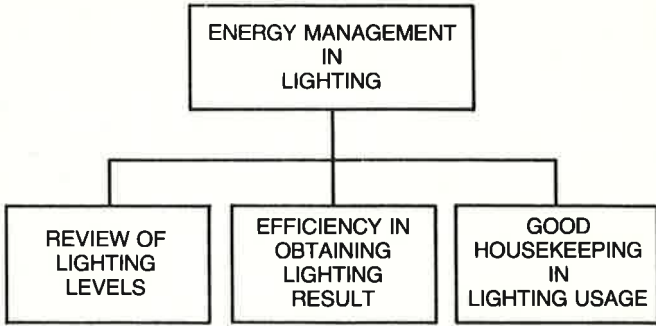
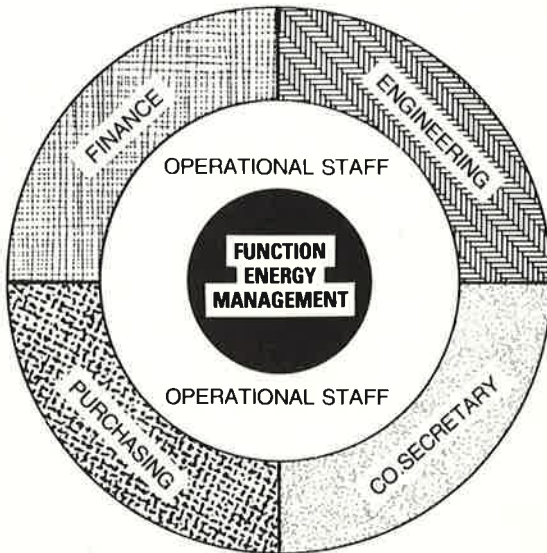


Fig. 7.6b Energy Management



Efficiency in obtaining the required lighting result

Here we are concerned with the electrical energy used to achieve a given lighting result. Clearly this measurement must be compared with the minimum electrical energy that can be used to achieve the same lighting result. It is helpful at this stage to have detailed knowledge of the current electricity usage for lighting and the charges being incurred.

A general appraisal of the efficiency with which electrical energy is used for lighting may be made by the use of the Energy Effective Lighting Ratio technique, which is described in section 7.4. This energy ratio measurement provides a means of assessing the annual energy wastage for any given lighting installation and the annual financial wastage resulting from such energy wastage may be evaluated.

Where the results of an appraisal using the EEL Ratio technique indicate significant scope for effecting economies both in energy usage and financial terms, then a more detailed engineering analysis of the lighting equipment used and the practices employed will be necessary. Details of the essential rules that must be observed in achieving energy effective lighting are given in section 7.3.

Good Housekeeping in lighting

It is probably true to say that much poor housekeeping exists because no individual or group of individuals is responsible for good housekeeping in using lighting. The good housekeeping element requires that light is 'ON' when it is required and 'OFF' when it is not required.

This necessitates that certain operational staff are responsible for seeing that undue wastage is avoided. It is also necessary that operational staff made responsible for good housekeeping are given the opportunity to discuss any installation shortcomings with the engineer responsible.

Frequently one sees examples of installations where economies are not practicable because large banks of lighting are controlled from one switch position. The possibility of wiring alteration to enable good housekeeping practices to be effected should not be ignored. The installation of time switches provides a relatively inexpensive method of ensuring some degree of control. In major installations the use of Automatic Daylight Linked lighting systems can yield substantial economies.

STOP PRESS

Page

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Camera Spot QGN110K, QRN114	PL1826	507
Plant Lighting Set PLS160	PL1891	509

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SECTION 6

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SECTION 15

Studio and Theatre Lamps Biplane Types	PL1897	527
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Products offered for sale may differ from those described or illustrated in the **STOP PRESS** section due to later production changes in specifications, components or place of manufacture. The contents of this section are therefore not to be treated as representations as to the current availability of products as described, or as to products actually offered for sale.

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STOP PRESS



CI/SIB
(63.2)

UDC
696.6:628.976

CAMERA SPOT

QGN 110 QRN 114

Pencil-beam spotlight fittings with integral transformer and 6V 35W tungsten halogen lamp.

Attractive spotlight fitting, available in a free-standing version as a KombiPak complete with cable, switch and 6V 35W 2 x 3° pencil-beam halogen lamp, and in a track-mounted version with adaptor for use with Philips RCS 655 two-circuit lighting track. Lamps have integral reflectors, and are also available with beam angles of 2 x 5° and 2 x 7°.

RANGE

QGN 110: Free-standing "camera" spotlight fitting, supplied as a KombiPak complete with switch, cable and 6V 35W 2 x 3° pencil-beam halogen lamp.

QRN 114: "Camera" spotlight fitting, complete with adaptor for use with Philips RCS 655 two-circuit lighting track.

APPLICATIONS

For use in long-throw display work, or wherever a pencil-beam light source is required, in situations such as—

- Display lighting (shops, shop windows, museums and exhibitions)
- Accent lighting (restaurants, bars, discotheques and night clubs)
- Work surface lighting (opticians, watchmakers, jewellers and laboratories)

Handbook Ref.

1.1.20

To reorder this data sheet quote

PL1826

Replaces

NEW

FEATURES

- Pencil beam of light (17,000 cd with 2 x 3°) for special display or long throw work.
- Unique styling – hence its name “camera spot”.
- Low-voltage lamp permits precise filament optics; integral aluminium reflector has extremely high reflection factor and ensures perfect focus throughout the life of the lamp.
- Tungsten halogen lamp maintains full light output and constant high colour temperature throughout its 2,000 hours’ average life.
- Continuously-rated integral transformer for operation from normal mains supplies.
- Choice of three replacement lamp types: 2 x 3° angle, 2 x 5° angle and 2 x 7° angle. QGN 110 KombiPak is supplied complete with 2 x 3° pencil beam lamp.
- Integral lamp, reflector and glass cover provide a sealed assembly with small bayonet cap; quartz lamp is protected from damage and accidental handling.

MATERIALS & FINISH

Body: Glass-filled Phenolic, metallic bronze finish.

Diaphragm: Polycarbonate.

SPECIFICATION

- Type compliance with BS 4533
- Class II electrical protection (double insulated)

TO SPECIFY STATE:

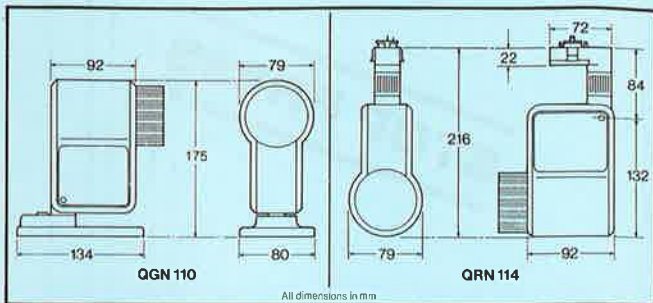
Pencil-beam spotlight with integral continuously-rated transformer, for 6V 35W tungsten halogen lamps with integral reflector and protective glass (Philips Halogen Spot). Philips Camera Spot QGN 110 or QRN 114.

RANGE OF OPERATION

For use on normal 240V 50Hz supplies

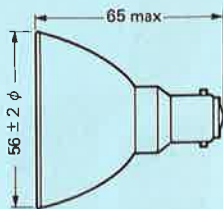
For indoor use only.

DIMENSIONS



BEAM ANGLE DATA for R18 Halogen spots

METRES	BEAM ANGLE 2 x 3°
1	17000
2	4250
3	1900 LUX
4	1060



R18 Halogen Spot

METRES	BEAM ANGLE 2 x 5°
1	6500
2	1625
3	720 LUX
4	400

METRES	BEAM ANGLE 2 x 7°
1	3000
2	750
3	325 LUX
4	185

ORDERING DATA

Catalogue No.	Description	Packing Qty.
QGN 110	Camera Spot KombiPak supplied complete with 2 x 3° halogen spot lamp	1
QRN 114	Track mounted camera spot	1

Replacement lamps

2 x 3° (R18)	6V 35W halogen spot	10
2 x 5° (R18)	6V 35W halogen spot	10
2 x 7° (R18)	6V 35W halogen spot	10

Please order in multiples of packing quantity.

Note: Lamp must be ordered separately for QRN 114 track-mounting version.

COUNTRY OF ORIGIN—Made in Holland

STOP PRESS



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(63.2)

UDC
696.6:628.976

PLS 160 KOMBIPAK

Plant lighting set

Pendant fitting for 160W MLR mercury blended reflector lamp, for the display of indoor growing plants.

The Plant Lighting Set provides an elegant pendant light source which produces high light emission while effectively controlling glare from the bright light source. It uses the 160W MLR lamp to produce a balanced spectral distribution which highlights in a dramatic way the green tints common to all indoor plants, and assists healthy growth.

RANGE

PLS 160B – Dark brown fitting complete with 160W MLR lamp

PLS 160W – Soft white fitting complete with 160W MLR lamp

APPLICATIONS

Plant displays in situations such as:

- Offices
- Exhibitions
- Public buildings
- Hotel reception areas
- Leisure centres
- Shops
- Bars, public houses and clubs
- Domestic situations

Handbook Ref.

1.1.21

To reorder this data sheet quote

11/79 PL1891

Replaces

NEW

FEATURES

- Provides a glare-free illuminance of 700 Lux at about 1m height – ample for the healthy growth of virtually all indoor plants.
- Mercury blended reflector lamp requires no control gear; combines the high luminous efficacy of mercury fluorescent lamps with the favourable colour properties of tungsten filament lamps.
- Installation and maintenance costs are low – the absence of control gear makes the fitting easy to install, and the rated average lamp life is 6000 hours.
- The reflective internal coating of the lamp has excellent directional properties for accent lighting and concentration of the light where it is required.
- Supplied as a KombiPak ready for installation, complete with lamp, pre-assembled lampholder, 3 metres of cable, cable hanger, suspension hook and ceiling cone.
- Attractive, easy-clean design with dark brown or soft white finish to complement most decors.
- Lamp is mounted high in the luminaire to give excellent glare control.

MATERIALS & FINISH

- Body:** Spun aluminium, satin brown or white external finish, matt black internal finish.
- Lampholder:** Heat-resisting phenolic.

SPECIFICATION

- Type compliance with BS 4533.
- Class II electrical insulation (double insulated).

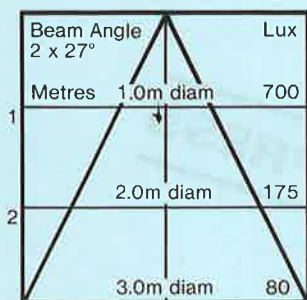
To specify state:

Pendant light fitting with spectral distribution suitable for plant display; to take Philips 160W MLR lamp. Philips PLS 160 Plant Lighting Set or equivalent.

RANGE OF OPERATION

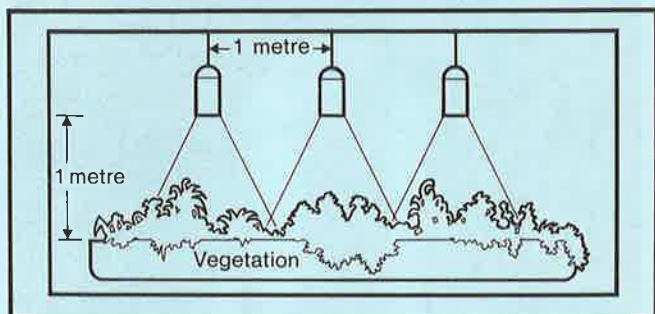
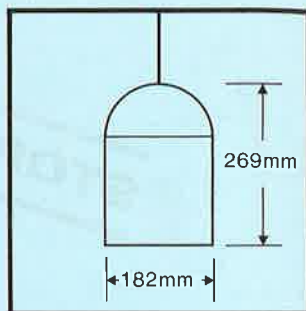
240V 50Hz supplies.
Normal indoor operation.

Lamp: Made in Holland.
Fitting: Made in England



*Nominal beam angle measured between 50% intensity values.

Dimensions



Mounting: The fitting should be mounted so that the distance between the bottom of the fitting and the average height of the plants is approximately 1 metre.

ORDERING DATA

Catalogue No.	Description	Box Quantity
PLS 160B	Brown plant lighting set with lamp	1
PLS 160W	White plant lighting set with lamp	1

Replacement lamp

Catalogue No.	Description	Voltage	Watts	Cap	Control gear
MLR 160W	Mercury blended reflector lamp	240/250	160	ES	None required

STOP PRESS

CI/SIB
(63.1)

UDC¹
696.628.972

POWERSLIMMER KOMBIPAK PSM 258

Surface luminaire with prismatic controller, and Powerslimmer TLD lamps

An easily-installed, low-cost surface-mounted luminaire for indoor installations. The luminaire utilises the energy-saving advantages of Philips new TLD krypton-filled 26mm dia. high efficacy lamps, and is supplied as a KombiPak complete with acrylic controller, of two TLD 58W/35 lamps and all fixing accessories.

APPLICATIONS

For most indoor installations, such as:

- General offices
- Individual offices
- Banking halls
- Shops and department stores

RANGE

PSM 258 KombiPak comprising:
twin-lamp luminaire complete with controller and control gear.
2 x TLD 58W/35 1500mm (5ft) lamps
2 x Slipfix fixing plates
2 x Woodscrews and wall plugs.



Handbook Ref.

1.2.3/4

To reorder this data sheet quote 10.79 PL 1849

Replaces

NEW

FEATURES

- Uses Philips new Powerslimmer 58W krypton-filled high-efficacy lamps.
- Total energy saving is around 8 per cent compared with equivalent conventional lamps.
- Lamp light output is approximately the same as from a conventional argon-filled 38mm 65W lamp.
- LOR is high compared with a conventional close-ceiling luminaire.
- Controller is acrylic, for long service and negligible yellowing.
- Shallow depth (85mm) permits use with modern, low ceiling and provides an alternative to a recessed luminaire.
- Smart, modern appearance for new schemes and refurbishing schemes.
- Easy to install and maintain.
- Replacement lamps can be TLD 58W/84. Colour 84 lamps combine highest efficacy with de Luxe colour rendering.

SPECIFICATION

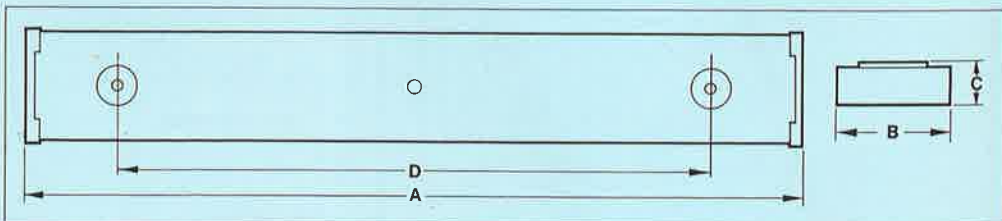
- Type compliance with BS 4533 2.2 Ordinary Indoor Class I (Earth required).
 - Marked with ∇ symbol (suitable for mounting direct to wooden surfaces).
- To specify state:**
Twin-lamp surface-mounting luminaire with acrylic prismatic controller, for Philips TLD krypton-filled high-efficacy lamps. To be supplied as a kit complete with lamps and fixing accessories. Similar to Philips PSM 258 Kombi-Pak.

RANGE OF OPERATION

240V 50Hz.
Normal indoor conditions.

MATERIALS & FINISH

- Body:** Sheet steel, white lacquer finish, with white medium-impact polystyrene end trims.
- Control gear:** Low-loss ballasts with PF capacitor and starters. Terminal block with capacity for 2.5mm² cable in each way.
- Controller:** Clear acrylic extrusion with internal linear prisms on the sides and external pyramid prisms on the base.
- Lampholders:** Standard bi-pin rotor type, white urea mouldings.



DIMENSIONS, & WEIGHTS

Length A (mm/in)	Width B (mm/in)	Depth C (mm/in)	Fixing centres D (mm/in)	Weight c/w lamps (kg/lb)
1570/61-81	226/8-90	85/3-35	1200/47-24	7.72/17

ELECTRICAL DATA

Rating	Ballast Cat. No.	Starter Cat. No.	Capacitor	Circuit Current (A)	Total Circuit Watts	Minimum Power Factor
2 x 58W 1500mm (5ft)	2 x BTP 65 25	2 x S10	12mfd	0.68	140	0.85

ORDERING DATA

Catalogue No.	Details
PSM 258	KombiPak complete with luminaire, 2 x TLD 58W/35 lamps, control gear and fixing accessories

Please order in the form given in the following example:
50 Philips KombiPaks PSM 258.
All KombiPaks are supplied packed individually.

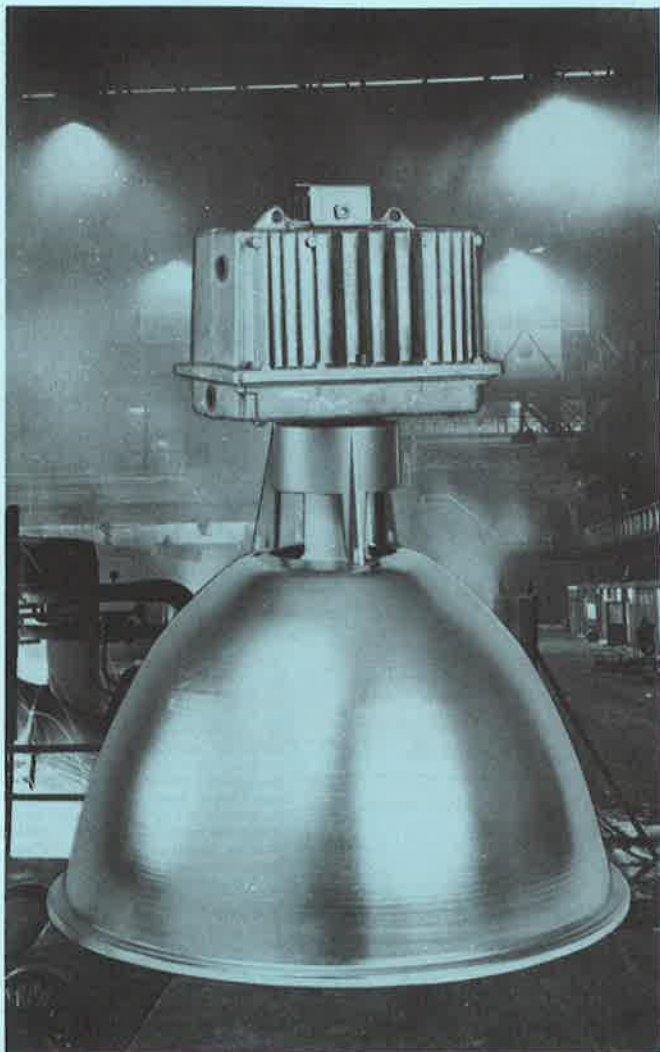
Lamp: Made in Holland.
Fitting: Made in West Germany.

CI/SIB
(63.1)

UDC
696.6:628.972

STOP PRESS

POWERSLIMMER HIGH BAY KOMBIPAKS



High-bay luminaires for 250W and 400W SON discharge lamps

High-bay luminaires supplied as KombiPaks, ready for installation. Each KombiPak contains SON lamp, lampholder, pre-wired gear box, reflector, safety chain, fixing bracket and nuts for conduit mounting.

RANGE

PowerSlimmer High Bay KombiPak 250: luminaire complete with 250W SON lamp, control gear and fixing accessories.

PowerSlimmer High Bay KombiPak 400: luminaire complete with 400W SON lamp, control gear and fixing accessories.

APPLICATIONS

For use wherever SON lighting is appropriate, particularly at mounting heights over 5m, in situations such as—

- Stores and warehouses
- Factory production areas
- Foundries
- Rail and bus termini
- Loading bays
- Indoor sports halls

Handbook Ref.

2.3.4

To reorder this data sheet quote 11/79 PL1858

Replaces

NEW

FEATURES

- Rugged cast-alloy gear box assembly (designed to IP 54) withstands ambient temperatures up to 45°C; the system retains full efficiency at this temperature.
- Simple, speedy installation; all components are positively supported before any wiring has to take place.
- Ventilation is provided at the top of the reflector to allow a through current of air which minimises dirt deposition, this also produces an upward light component to reduce the tunnel effect.
- Gear box can be mounted as an integral part of luminaire assembly, or can be mounted remotely.
- Supplied as a KombiPak ready for installation; lamp and all necessary accessories including safety chain, mounting bracket and nuts for conduit connection are included.
- Simple instructions for designing lighting schemes are incorporated on the packaging; full installation instructions are enclosed.

LAMP COMPARISON TABLE

The PowerSlimmer High Bay KombiPaks are available with control gear to operate 250W and 400W high-pressure sodium (SON) lamps.

warm light with colour rendering properties that are suitable for most industrial applications.

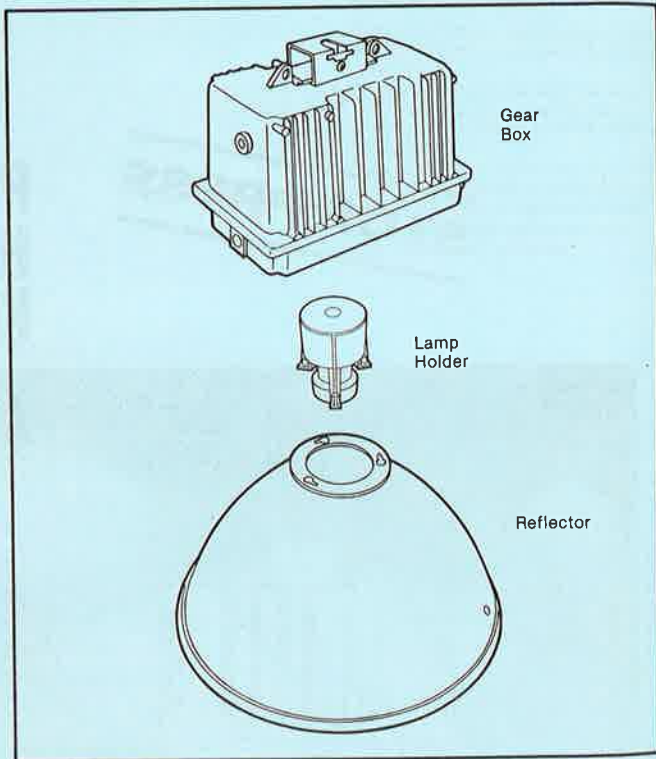
The table below gives the wattage of HPL-N and SON lamps of comparable lumen output, and shows the significant savings in energy consumption that can be gained by changing to high-pressure sodium.

SON		HPL-N	
Lamp Watts.	LDL	Lamp Watts	LDL
250	24,000	400	21,300
400	45,000	700	40,000

Note: Mercury fluorescent lamps UK marking MBF = Philips international marking HPL-N

DIMENSIONS & WEIGHTS

Description	H	Dimensions (mm)		Weight (Kg)
		W	L	
Luminaire assembly complete with gear box	663	544	544	(250W) 9.5 (400W) 10.7
Reflector plus lampholder only	470	544	544	2.0
Gear box only	195	183	269	(250W) 7.5 (400W) 8.7



ELECTRICAL DATA

For operation on 240v 50 Hz supply.

Lamp Watts.	Circuit Watts	Circuit Current (amps)
250	280	1.3
400	440	2.2

SPECIFICATION

Degree of Protection—Gear box designed to IP 54

To Specify State:
Industrial high-bay luminaire for SON lamp, with pre-wired cast aluminium gear box suitable for integral or remote mounting and with the Degree of Protection IP 54. To be supplied as a KombiPak complete with lamp, gear and fixing accessories. Similar to Philips PowerSlimmer Industrial KombiPak.

RANGE OF OPERATION

240V 50Hz supplies
Normal indoor and outdoor applications.

MATERIALS & FINISH

Gear box—Pre-wired with potted ballast, housed in corrosion-resistant aluminium alloy casting with integral cooling fins.

Reflector and lampholder assembly—Aluminium

Lampholder—Porcelain GES

ORDERING DATA

Catalogue No.	Description	Packing Qty.
PSK 250	PowerSlimmer Industrial KombiPak complete with 250W SON lamp, control gear and fixing accessories	Individually packed
PSK 400	PowerSlimmer Industrial KombiPak complete with 400W SON lamp, control gear and fixing accessories	Individually packed
Spare lamps		
250W SON		9
400W SON		6

Please order in the form given in the following example, Spare lamps must be ordered in multiples of the packing quantity.
12 Philips PowerSlimmer Industrial KombiPaks 250



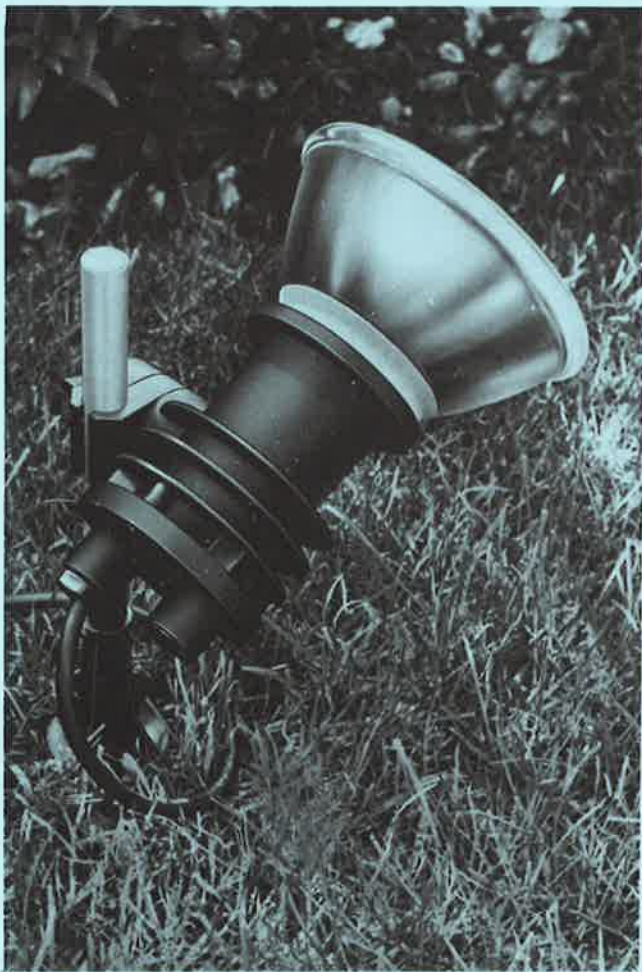
The components of the PowerSlimmer Industrial KombiPak.

COUNTRY OF ORIGIN—

Lamp: Made in Belgium.

Luminaire: Made in U.K.

STOP PRESS



C/S/B (90.6)

UDC 696.6: 628.973

DHF 017/K DHF 017/SK

Outdoor floodlight luminaire KombiPaks for use with 100W PAR 38 flood or spot lamps

DHF KombiPaks are suitable for use in any small floodlighting application where toughness, durability and versatility are important. Each luminaire is supplied as a kit, complete with PAR 38 spot lamp and all necessary fixing accessories.

RANGE

Two KombiPaks, each supplied with lamp and accessories for hard or soft surface mounting:

DHF 017/K—Floodlight body, aluminium stem, baseplate for hard surfaces, 100W PAR 38 spot lamp and gasket.

DHF 017/SK—Floodlight body, aluminium stem, ground spike, 100W PAR 38 spot lamp and gasket.

APPLICATIONS

Applications include:

- Floodlighting bushes and shrubs in gardens
- Floodlighting statues
- Lighting building facades
- Driveways and patios
- Hoardings and notices
- Footpaths, pedestrian crossings and bridges

Handbook Ref.

3.4.6/1

To reorder this data sheet quote 1179

PL8162

Replaces

NEW

FEATURES

- Corrosion-proof black polycarbonate body is tough and resistant to vandals.
- Versatile fixing arrangements permit easy installation in most situations.
- Convenient KombiPak kit contains everything needed for installation, including lamp.
- Suitable for use with white or coloured PAR 38 lamps (max. 100W).
- Light weight ensures easy installation.
- Beam is easily adjusted to point in any direction.
- Class II insulation eliminates the need for earthing; floodlight has the Degree of Protection IP55.
- Twin cable entries permit through-wiring.

MATERIALS & FINISH

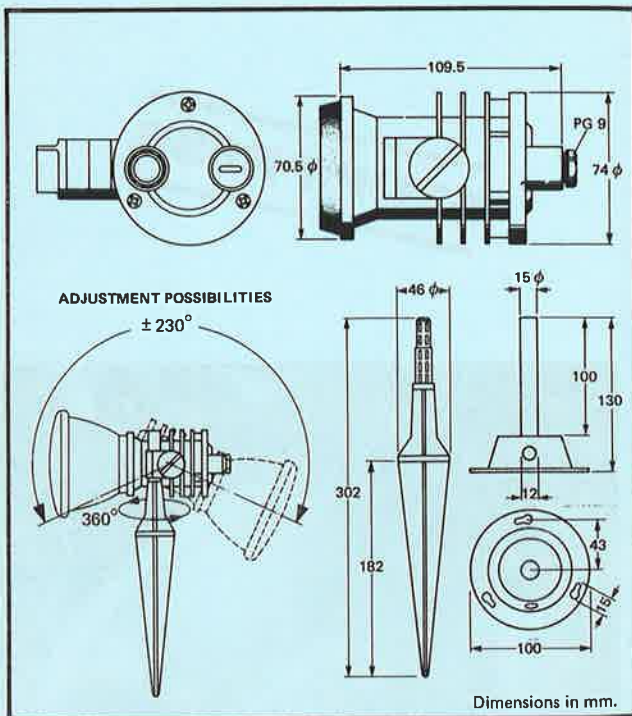
- Body:** Black polycarbonate
Ground spike: Black polycarbonate
Base plate: Black polycarbonate
Stem: Aluminium
Gasket: Silicone rubber

SPECIFICATION

Designed to comply with BS 4533 Pt. 2 Sec. 2.5 Class II electrical protection (double insulated – earth not required). Degree of Protection IP55.

To specify state:

PAR 38 lamp luminaire for outdoor floodlighting, with vandal-resistant polycarbonate body. Supplied as a KombiPak complete with lamp and accessories. Similar to Philips DHF 017.



RANGE OF OPERATION

For use on 240V 50Hz supplies.
 Normal outdoor conditions.

DIMENSIONS & WEIGHTS

Weight:

Floodlight complete with lamp and spike or baseplate: 0.6Kg

Cable entry: PG9 (Suitable for double insulated cable of circular cross section with a diameter between 4.5mm and 7.0mm)

LAMP DATA

Catalogue No.	Watts	Volts	Cap	Finish	Beam angle	Beam Centre Intensity (Candelas)
PAR 38 spot	100	240	ES	Clear	16°	4000

For details of other PAR 38 lamps refer to PL1790

ORDERING DATA

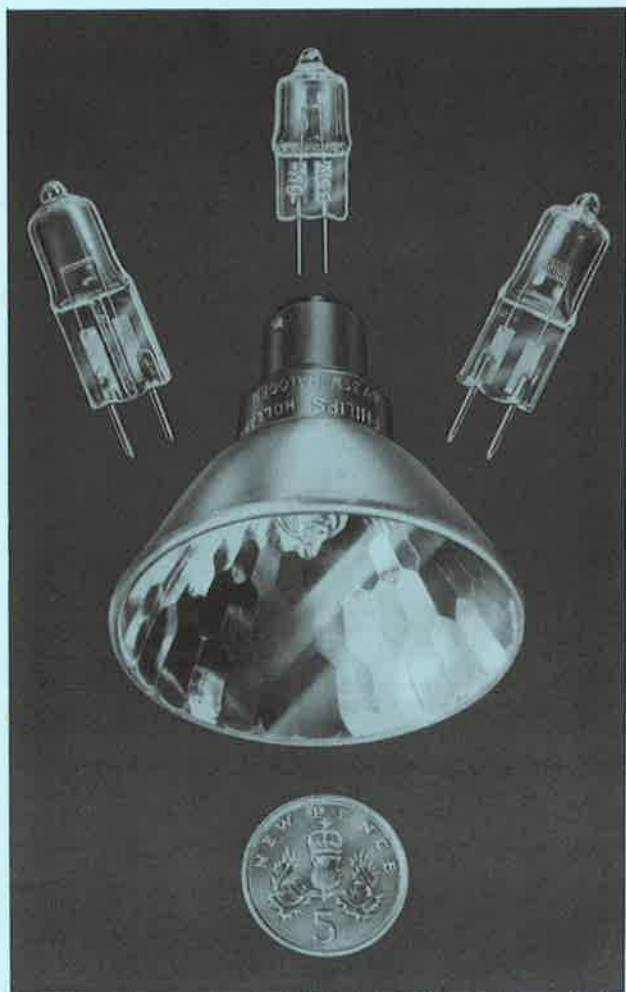
Catalogue No.	Description	Packing Quantity
DHF 017/K	Floodlight KombiPak complete with PAR 38 lamp and baseplate	1
DHF 017/SK	Floodlight KombiPak complete with PAR 38 lamp and ground spike	1

PAR 38 SPOT 100 W

METRES	BEAM ANGLE 2x8°
1	4000
2	1000
3	440 LUX
4	250

Lamp: Made in Holland
Luminaire: Made in West Germany

STOP PRESS



CI/SIB	(63.9)
UDC	696.6 : 628.94

TUNGSTEN HALOGEN LAMPS

Single Ended

A range of Tungsten Halogen lamps for various applications.

RANGE

R18-6V 35w "Halogen Spots" (three beam widths)
M/28—12v 100w
M/32—12v 50w
M/44—6v 35w

APPLICATIONS

Outdoors: Types M/32 and M/28 meet the requirements of BS505, for road traffic signals.

Indoors: New R18 "Halogen Spots" in pencil and narrow beams for display applications and disco effect equipment.

M/28, M/32, M/44 In conjunction with purpose-built fittings for:-

- shops and show windows
- bars
- discotheques
- museums and exhibitions
- precision task lighting

FEATURES

- Excellent colour rendering
- Constant light output throughout long life.
- Precision manufacture for correct beam control.
- R18 "Halogen Spots" have strong bayonet fixing, protective front glass and bright aluminium integral reflectors, (diamond faceted for the narrow beam version), for lasting bright performance in fittings.
- M/32 and M/28 have platinum plated pins for reliable contact through life, and good resistance to repeated switching.

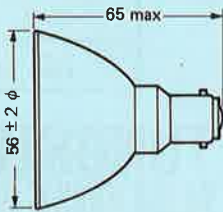
Handbook Ref

5.1.4/1

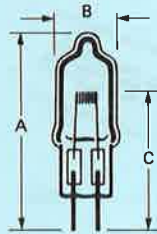
PL1898

Replaces

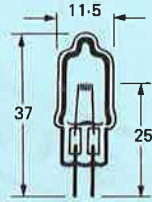
PL1852 and PL1769/1



R18 Halogen Spot



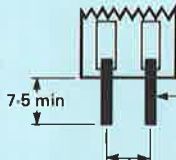
M/28, M/32



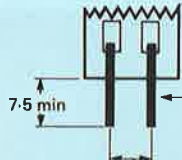
M/44



SBC Base



GY6-35 Base



G4 Base

All dimensions in mm

BEAM ANGLE DATA for R18 Halogen spots

METRES	BEAM ANGLE 2 x 3°
1	17000
2	4250
3	1900
	LUX
4	1060

METRES	BEAM ANGLE 2 x 5°
1	6300
2	1625
3	720
	LUX
4	400

METRES	BEAM ANGLE 2 x 7°
1	3000
2	750
3	325
	LUX
4	185

The beam cones are drawn at the angles where the light intensity is 50% of the centre intensity. For details of other single-ended halogen lamps see data sheet PL1810/1.

Important Notes;

HANDLING: If the quartz bulb has been handled, it should be cleaned with a solvent such as methylated spirit to remove all traces of grease before lighting.

SEAL TEMPERATURE: Precautions must be taken to ensure that the temperature of the quartz-metal seal does not exceed 350°C, though the bulb temperature must be greater than 250°C and less than 900°C.

Life expectancy:

In common with other incandescent lamps, life expectancy is greatly influenced by applied voltage. The characteristic curves given on PL1789/1 General Lighting Service lamps may be used as a guide.

ORDERING AND GENERAL DATA

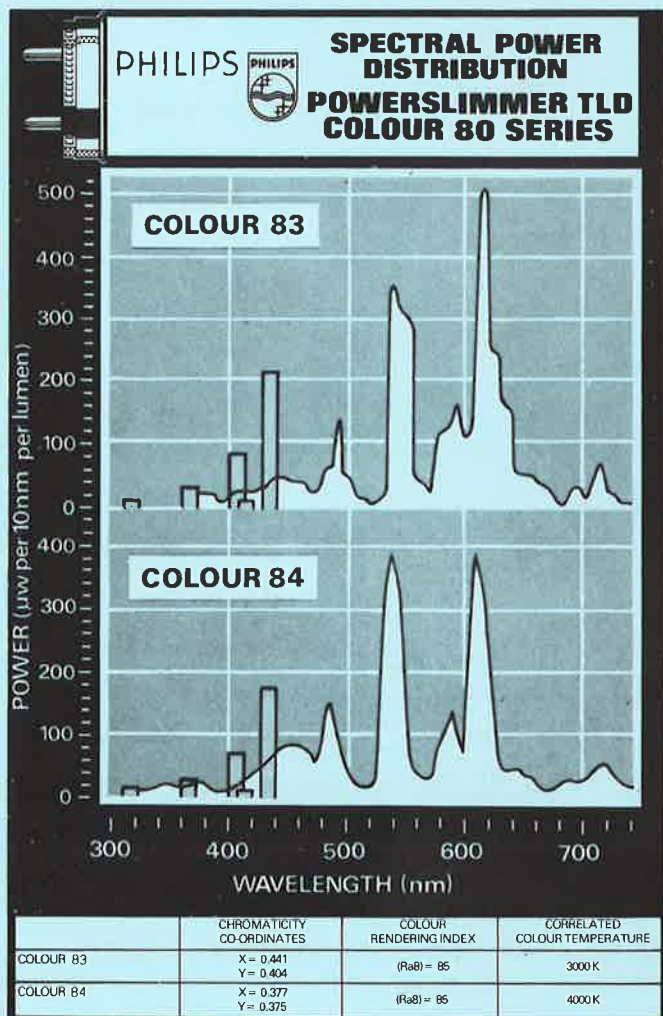
Type	Cat. No.	Watt.	Volt.	Base	Bulb dia max A	Overall length max B	Light Centre length C	Average life (hrs)	Light Output (lumens)	Burning Position	Packing Qty
M/28	7724	100	12	GY6.35	13.5	45	30 ± 0.25	2000	2250	Any	100
M/32	13512	50	12	GY6.35	12	44	30 ± 0.25	2000	900	Any	100
M/44	6609	35	6	G4	11.5	37	25 ± 0.25	2000	600	Any	200
R18	2x3°	35	6	B15d	58	65		2000	17000*	Any	10
R18	2x5°	35	6	B15d	58	65		2000	6500*	Any	10
R18	2x7°	35	6	B15d	58	65		2000	3000*	Any	10

* centre beam intensity (candelas)

Please order lamps in multiples of packing quantity.

STOP PRESS

POWERSLIMMER TLD COLOUR 80 SERIES



26mm dia. fluorescent lamps with Colour 80 Series phosphor coatings combine high efficacy, good colour rendering and good lumen maintenance.

Powerslimmer TLD is a new range of 26mm diameter krypton-filled fluorescent lamps that can be used as direct replacements for equivalent standard 38 mm dia fluorescent lamps in switchstart circuits, reducing power consumption by approximately 8-10 per cent for the same light output.

Colour 80 Series lamps have a three-phosphor coating blended to provide the colour rendering index associated with de Luxe lamps, and the concentration of energy into three narrow wavebands provides an efficacy higher than for conventional 'factory' lamps.

Powerslimmer TLD Colour 80 Series lamps have Colour Rendering Indices of 85 and lamp efficacies of approximately 90 lumens/Watt (Initial).

Powerslimmer 84 lamps have a cool appearance (4000K) and Powerslimmer 83 lamps have a warmer appearance (3000K).

RANGE

TLD 18W/84 (/83) - replaces 20W 600mm (2ft) 38mm lamp.

TLD 36W/84 (/83) - replaces 40W 1200mm (4ft) 38mm lamp.

TLD 58W/84 (/83) - replaces 65W 1500mm (5ft) 38mm lamp.

Note: These TLD krypton-filled lamps are suitable for use in switchstart circuits only. Philips starters should be used for optimum starting.

Handbook Ref.

6.223

To reorder this data sheet quote

10.79 PL 1847

Replaces

NEW

APPLICATIONS

Suitable for use as replacement lamps in switchstart luminaires, or in new lighting installations, to give the energy-saving benefits of high efficacy combined with de Luxe colour rendering.

Colour 84's cool appearance helps to create a crisp business-like atmosphere in situations such as:

- Retail shops
- General and executive offices
- Some factory operations requiring good colour rendering

Colour 83's warmer appearance is more appropriate in situations such as:

- Fresh food areas in department stores and retail shops
- Restaurants and hotels, both bedrooms and public rooms, and social areas in general.

FEATURES

The benefits of krypton-filled TLD (26mm dia.)

- Powerslimmer TLD lamps with krypton filling, compared with equivalent 38mm (1 1/2 in dia.) argon-filled lamps, have approximately the same light output for a circuit power saving of 8-10 per cent.
- Powerslimmer TLD lamps fit directly into equivalent standard switchstart luminaires, and power saving is obtained without circuit modifications.
- The smaller diameter (26mm) saves 40 per cent in transport and storage space.
- The smaller diameter permits the design of smaller, more elegant luminaires.

The benefits of Colour 80 Series

- High light output with colour rendering comparable with de Luxe lamps can enable luminaire installation and maintenance costs to be reduced by 30-40 per cent, with similar savings in energy costs.
- Low-efficacy de Luxe lamps can often be replaced by Colour 80 Series lamps on a 2 for 3 basis, saving 33 per cent in energy costs.
- High colour rendering improves colour clarity, sometimes enabling the light level to be lower than for 'factory' lamps to give an equivalent effect. This makes possible further economies.

MATERIALS & FINISH

Tubing: 26mm nominal diameter glass, standard bi-pin caps

Phosphor: Colour 80 Series rare-earth phosphor coating

SPECIFICATION

To specify state:

High efficacy (approx 90 lm/W Initial, 36 Watt rating) fluorescent TLD lamp (26mm diameter), with krypton filling and with colour rendering index not less than 85. Substantially as Philips Powerslimmer TLD Colour 80 Series.

RANGE OF OPERATION

Standard UK conditions. For use in new installations, or as direct replacements for equivalent 38mm dia lamps in switchstart circuits.

LAMP DATA

	Powerslimmer 84	Powerslimmer 83
Correlated colour temperature:	4000K	3000K
Colour rendering index (Ra8):	85	85
Chromaticity co-ordinates:	x=0.377 y=0.375	x=0.441 y=0.404

All lamps are TLD type (i.e. 25mm dia.), with standard bi-pin caps, for use in switchstart circuits only.

ORDERING DATA

Catalogue No.	Nominal length	Lighting Design Lumens*	Packing Quantity
TLD 18W/84	600mm (2ft)	1200	25
TLD 18W/83	600mm (2ft)	1200	25
TLD 36W/84	1200mm (4ft)	3000	25
TLD 36W/83	1200mm (4ft)	3000	25
TLD 58W/84	1500mm (5ft)	4900	25
TLD 58W/83	1500mm (5ft)	4900	25

*Lighting Design Lumens (LDL), measured at 2000 hours, the value used for lighting design purposes.

Please order lamps in the form given in the following example, in multiples of the packing quantity:

100 Philips fluorescent lamps TLD 36W/84.

Lamp: Made in Holland.

STOP PRESS

CI/SIB (63.9)

UDC 696.6:628.94

GRAPHICA FLUORESCENT LAMP

Graphica 47 has a correlated colour temperature of 5000K and the highest fidelity of colour rendering—CRI of 98 for eight standard test colours (C.I.E. Ra8), and in excess of 90 for all test colours. The lamp complies with BS 950 Part 2.

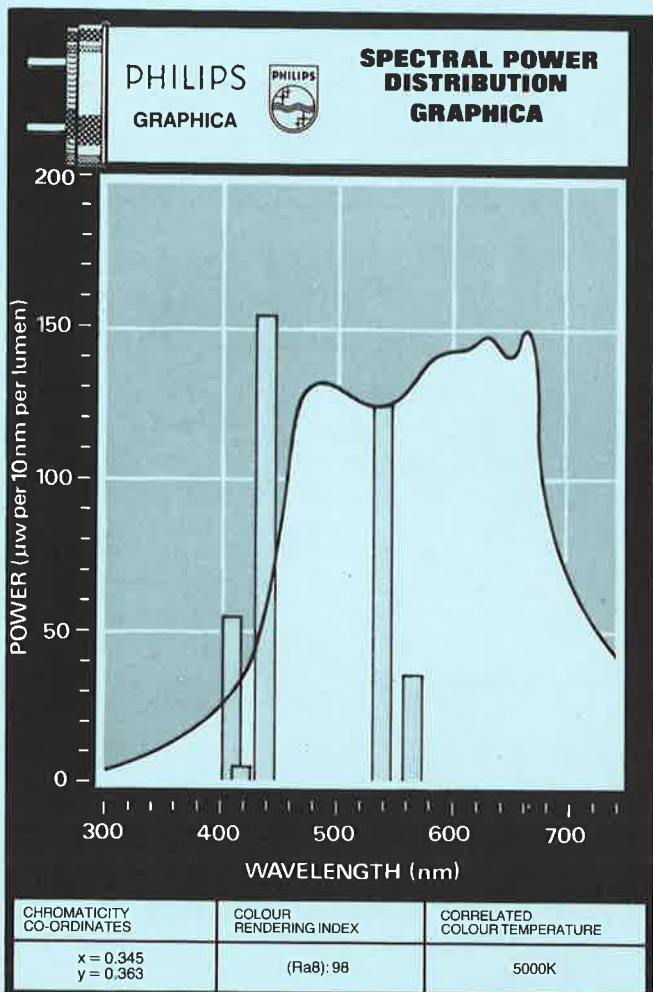
Because of the specialist nature of its application, Graphica 47 is only available from a limited number of suppliers.

RANGE

Made in the following ratings:
MCFE 65/80W/47 1500mm (5ft)
MCFE 40W/47 1200mm (4ft)
MCFE 20W/47 600mm (2ft)
MCFE 15W/47 450mm (18in)

APPLICATIONS

Primarily for use in viewing booths and transparency boxes, to provide consistent colour appraisal under conditions specified nationally and internationally. Also for general lighting in colour appraisal areas to preserve chromatic adaptation. For this application, lamps should be group-replaced, and preferably should be taken from the same box. To maintain standard illuminance, lamps should be group-replaced annually, after not more than 4000 hours operation.



Details of Northlight (Colour Matching) 55 lamps, which comply with BS 950 Part 1, are contained in Data Sheet PL 1773/1.

Handbook Ref.

6.224

To reorder this data sheet quote

11/79 PL1896

Replaces

NEW

FEATURES

■ Single light source complies with Part 2 of BS 950 – no lamp mixing or filters.

■ Enables critical appraisal of colours at all times – even outside daylight hours – and helps to eliminate differences of opinion between supplier and client, and inconsistent results between different branches of an organisation.

COLOUR DATA

Correlated colour temperature: approx. 5000K

General Colour Rendering Index (Ra8): 98

Chromaticity co-ordinates:

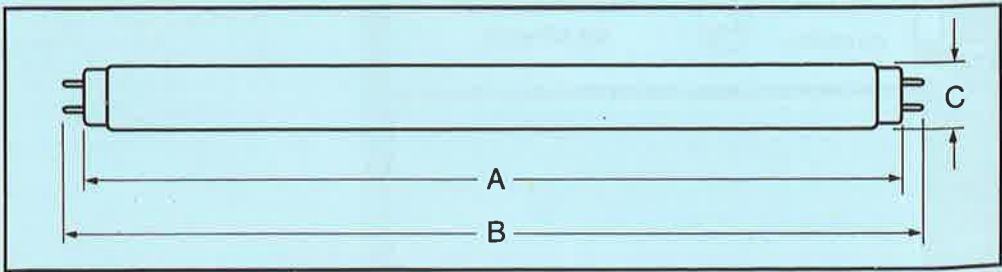
Rating	65W	40W	20W	15W
x	0.345	0.345	0.348	0.344
y	0.363	0.358	0.361	0.360

LUMEN DATA

LDL represents Lighting Design Lumens, the lumen value (at 2000 hours) used for lighting design purposes.

Ordering reference	Nominal dimensions	LDL	Packing Quantity
MCFE 65/80W/47	1500 × 38mm (5ft × 1½in)	2600*	25
MCFE 40W/47	1200 × 38mm (4ft × 1½in)	1800	25
MCFE 20W/47	600 × 38mm (2ft × 1½in)	650	25
MCFE 15W/47	450 × 26mm (18in × 1in)	400	25

*Measured at 65W



LAMP DIMENSIONS & ELECTRICAL DATA

Nominal rating	B.S. lamp power (W)	B.S. lamp volts (V)	B.S. lamp current (l)	Maximum dimensions			Approx. weight g.
				Face-to-Face length (A) mm	Overall length (B) mm	Diameter (C) mm	
65/80W 1500mm (5ft) *	64	110	0.67	1500.0	1514.2	40.5	360
40W 1200mm (4ft)	39.5	103	0.43	1199.4	1213.6	40.5	292
20W 600mm (2ft)	19.3	57	0.37	589.8	604.0	40.5	156
15W 450mm (18in × 1in)	14.9	46	0.36	460.0	474.2	28.0	76

NOTES: The above lamps have bi-pin cap G13.

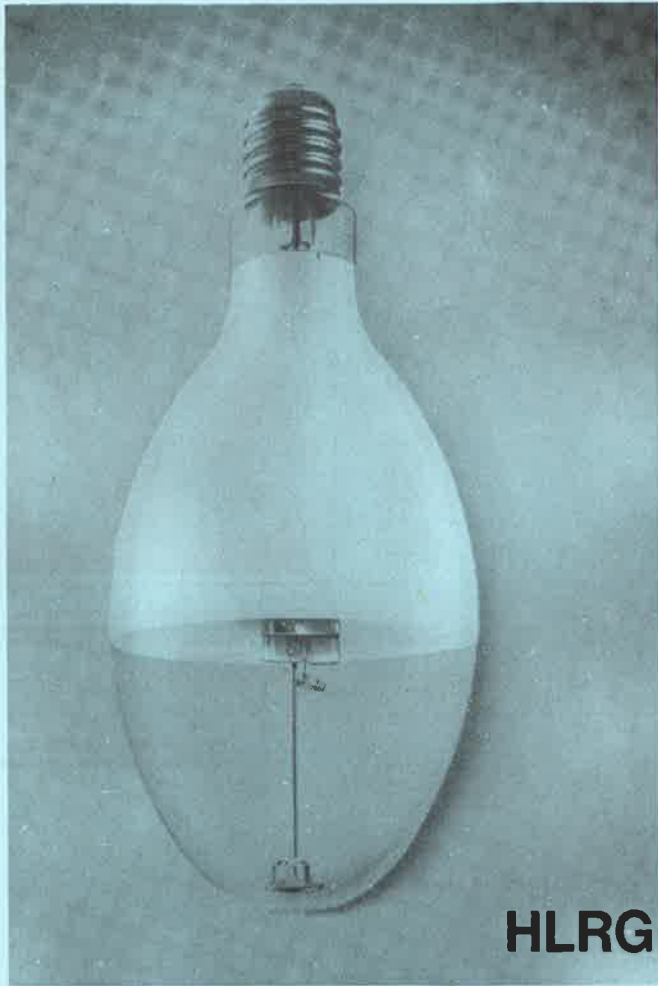
*at 65W.

ORDERING DATA

Please order lamps in the form given in the following example, in multiples of the packing quantity:

100 Philips MCFE 40W/47 fluorescent lamps.

STOP PRESS



HLRG

CI/SIB	(63.9)
UDC	696.6:628.94

HLRG 400W

HORTICULTURAL LAMP...

A mercury fluorescent lamp with internal reflector to concentrate the light on the plants, and spectral characteristics chosen to promote plant growth.

Caution: This lamp emits UV radiation. Precautions must be taken in the design of an installation to avoid harm to personnel.

RANGE

HLRG 400W: Mercury fluorescent horticultural lamp.

APPLICATIONS

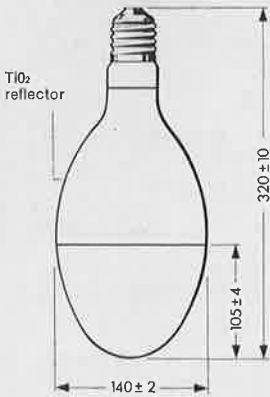
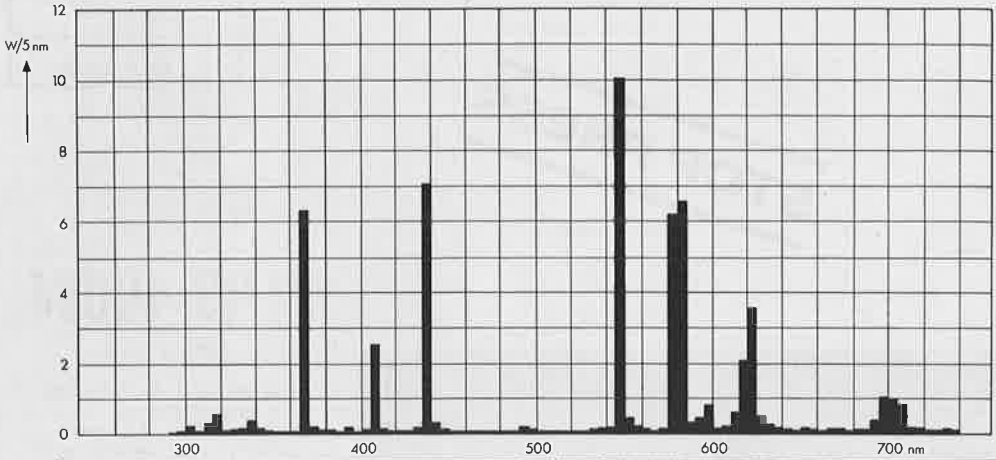
Suitable for use wherever a high-output lamp with good spectral characteristics is required to promote plant growth.

FEATURES

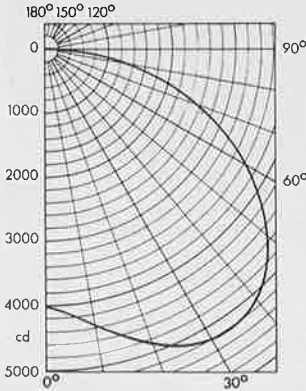
- High output coupled with long life reduces installation and running costs.
- Fluorescent coating increases radiation in the red portion of the spectrum, thus improving plant growth.
- UV radiation is limited to prevent damage to plants.
- Easily installed to standard GES lampholder; runs in conjunction with normal mercury discharge control gear.

Handbook Ref.	7.1.5
PL No	1833
Replaces	New

ABSOLUTE SPECTRAL ENERGY DISTRIBUTION



LIGHT DISTRIBUTION DIAGRAM



LAMP DATA

Catalogue No.	Luminous flux (Lm)* (1)	Lamp Volts	Lamp Current	Cap	Ballast	P.F.C. Capacitor	Packing Quantity	Depreciation (2)
HLRG 400W	20,000	140 ± 10	3.2	GES	L5400	L4020/07	6	15%

Weight:- 380g.

Made in Holland.

(1) After 100 burning hours.
(2) After 5000 burning hours.

ORDERING DATA

Please order lamps in the form given in the following example, in multiples of the packing quantity:-

36 Philips horticultural lamps HLRG 400W.

STOP PRESS

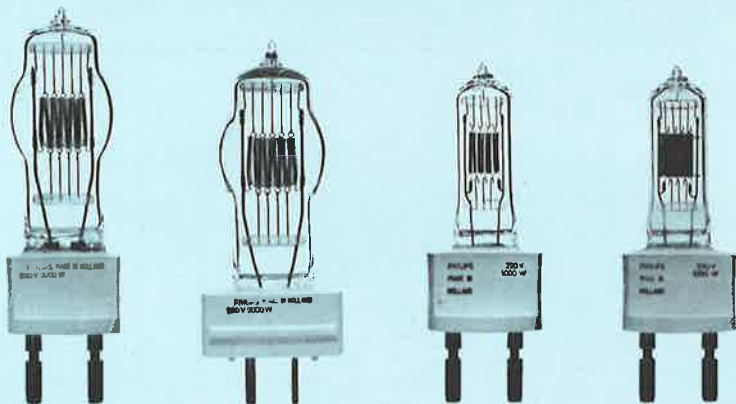
C/S/SB
UDC
628.94

STUDIO & THEATRE LAMPS

Classes CP. & T

Tungsten Halogen Biplane Filament Lamps

NEW PHILIPS QUARTZ HALOGEN STUDIO/THEATRE LAMPS SINGLE-ENDED



BIPLANE FILAMENTS

A recent development employing a compact filament construction, that has the effect of improving the beam intensity up to 25% in most optical systems.

RANGE

CLASS CP: Fourteen versions of the popular 650W, 1Kw and 2Kw ratings, including new proximity mirror types.

CLASS T: Five versions of the popular 500W, 650W and 1Kw ratings.

APPLICATIONS

Suitable for use in place of existing lamps in both old and new studio and theatre lighting equipment, to give improved performance in many instances.

Handbook Reference

9.15/1

To Reorder this data sheet quote

PL1897

Replaces

NEW

FEATURES

- Compact "biplane" filament construction gives improvement of illuminance of up to 25%, depending on the type of fitting.
- Replace both halogen and conventional types (see Replacement Guide).
- Internal proximity reflector types eliminates overheating, adjustment and dust problems associated with external reflectors.
- The design results in a very consistent quality of performance.
- Same life expectancy as our existing halogen 'monoplane' filament types.

AVERAGE PERFORMANCE CHARACTERISTICS

Curves 1/2—Data becomes more inaccurate beyond about 80-120%. Over-volting photolamps can result in immediate failure; undervolting increases life expectancy while reducing colour temperature.

Curve 3—Shows GLS lamp types in comparison with photographic lamps.

Curve 4—Since the resistance of a cold lamp filament is approximately 1/17th of that when the lamp is hot, the inrush surge current at the instant of switching on can reach a theoretical maximum of 24 x rated current. In practice, supply leads, etc., normally constitute sufficient series impedance to limit surge current to 10 x rated current. It is inadvisable to operate lamps from non current-controlled supplies having circuit impedances lower than 0.3 ohms.

USERS' CAUTIONARY NOTES

Fusing—It is important to ensure that halogen lamps are protected by the correct HBC fuse to reduce the risk of shattering due to internal arcing at the instant of filament rupture.

Lamp Watts	500/ 800- 1.5- 5kW
	650 1250 2kW

HBC Fuse (UK)
4A 6A 10A 30A
These fuse ratings are for 240/250V lamps only.

Handling—Avoid touching the quartz bulb of halogen lamps, since finger-marks appear as indelible brown stains when the lamp is operated. Lamps must be cleaned with a solvent such as methylated spirits if they are inadvertently handled.

Avoid jolting or vibrating the lamps while they are operating.

Safety—Halogen lamps are pressure-filled and can shatter in use if over-heated, incorrectly fused, damaged or operated above the rated voltage.

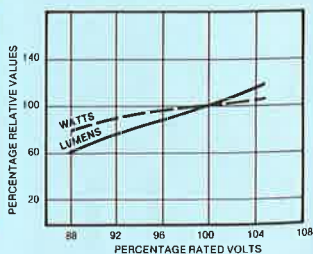
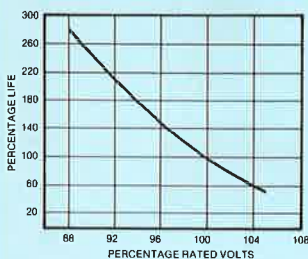
It is advisable to shield these lamps wherever possible for safety reasons.

Burning positions—Life expectancy may be reduced if lamps are operated in attitudes other than the recommended burning positions.

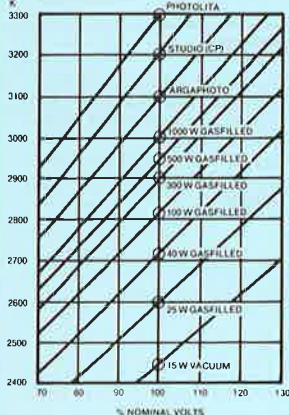
The maximum recommended seal temperature of quartz-halogen studio 'CP' lamps is 400°C, (350°C in humid conditions or outdoors) and 350°C for theatre 'T' lamps. The bulb temperature is to be maintained between 250°C and 900°C.

Lamp contacts or pins may deteriorate at temperatures above 300°C, causing arcing and subsequent lampholder contact problems.

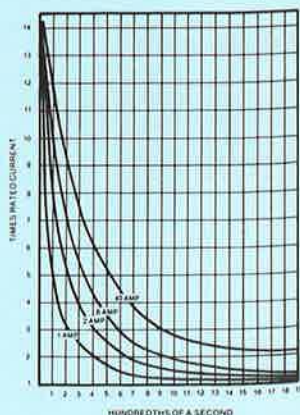
CURVES 1 and 2
VARIATION OF LIFE AND LIGHT CHARACTERISTICS WITH APPLIED VOLTAGE



CURVE 3
APPROXIMATE VARIATION OF COLOUR TEMPERATURE WITH VOLTAGE



CURVE 4
APPROXIMATE INRUSH CURRENT CURVES (ASSUMING NO IMPEDANCE IN CIRCUIT)



LAMP DATA

Studio Lamps Class CP

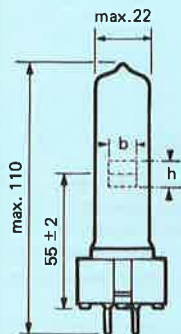
Philips studio lamps are designed for TV and colour photography lighting based on colour sensitised materials balanced for 3200K.

Theatre Lamps Class T

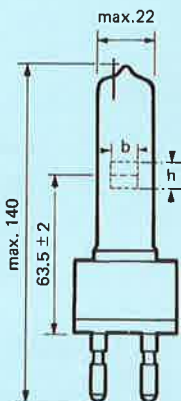
Philips theatre lamps are specifically designed for theatre spotlight fittings where longer life is of greater importance than 3200K colour temperature.

Biplane Range

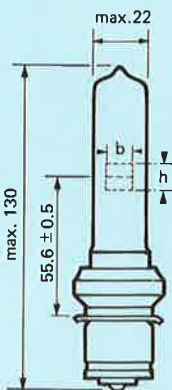
Biplane lamps, illustrated below are compatible with existing halogen and conventional types in respect of light centre, length and overall dimensions to permit direct replacement, (see Replacement Guide).



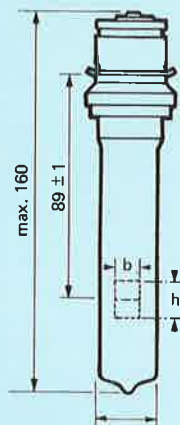
CP/63, CP/65
CP/67, CP/70
T/19, T/21
CAP GX9-5



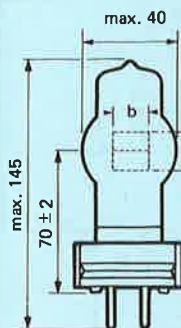
CP/64, CP/66
CP/68, CP/71
CAP G22



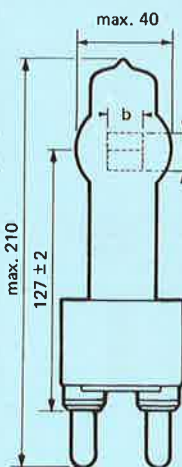
CP/69, T/20
T/22, T/24
CAP P28s



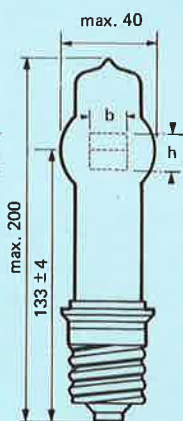
T/23
CAP P28s



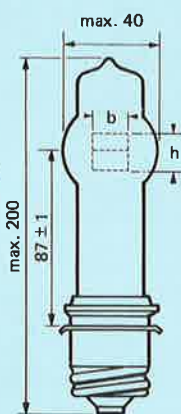
CP/72
CAP GY16



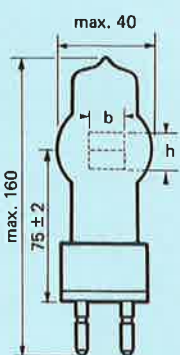
CP/73
CAP G38



CP/76
CAP E40



CP/74
CAP P40s



CP/75
CAP G22

All dimensions in mm.

BIPLANE TUNGSTEN HALOGEN LAMP REPLACEMENT GUIDE

CLASS 'CP' STUDIO LAMPS 3200K

Watts.	Cap.	Biplane Type	Replaces	Biplane Type with Proximity Mirror
650	GX9.5	CP/67	CP/23	CP/65
650	G22	CP/68	CP/39	CP/66
650	P28s	CP/69	CP/51	
1000	GX9.5	CP/70	CP/24	CP/63
1000	G22	CP/71	CP/40	CP/64
2000	GY16	CP/72	CP/43	
2000	G38	CP/73	CP/41	
2000	P40s	CP/74	CP/53	
2000	G22	CP/75	CP/55	
2000	E40	CP/76	CP/59	

CLASS 'T' THEATRE LAMPS

Watts.	Cap.	Biplane Type	Replaces Halogen Type	Replaces Conventional Type
500	P28s	T/24	T/17	T/1
650	P28s	T/22	T/13	
650	GX9.5	T/21	T/12	
1000	P28s	T/23	T/15	T/4
1000	P28s	T/20	T/14	T/6
1000	GX9.5	T/19	T/11	

Burning Positions

VBD — Vertical, base down.

VBU — Vertical, base up.

Burning angles refer only to orientation in a plane which is at right angles to the filament plane.

STUDIO LAMPS. CLASS CP

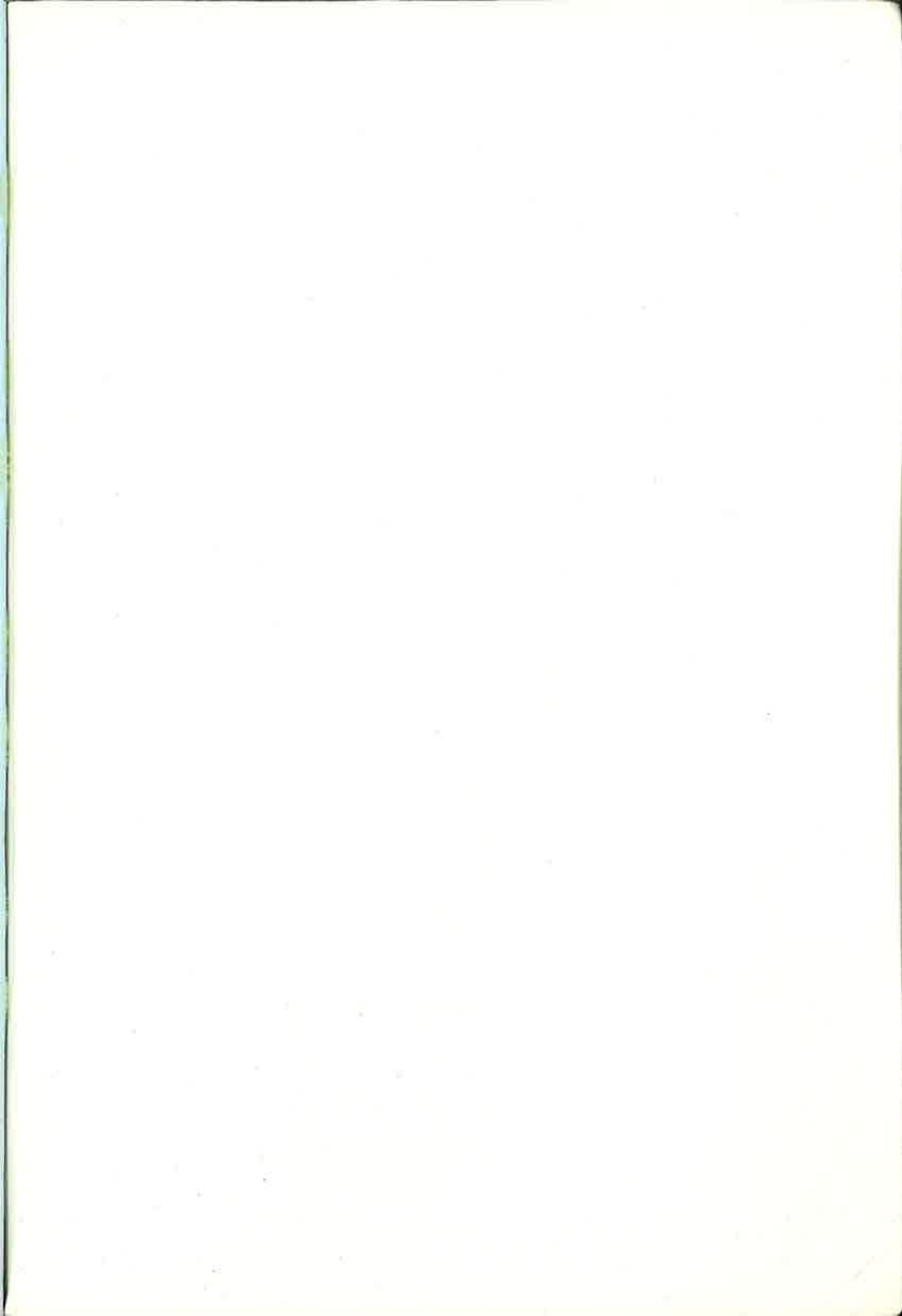
Ref. No.	Phillips Cat. No.	Watts.	Volts	Cap	Filament Area bzh	Nominal* total lumens	Average life (h)	Burning position	Packing qty
CP/63	9684P	1000	240	GX9.5	11x14.5	(proximity)	150	VBD ± 90°	4
CP/64	9684Z	1000	240	G22	11x14.5	(proximity)	150	VBD ± 90°	4
CP/65	6999P	650	240	GX9.5	11x10	(proximity)	80	VBD ± 90°	4
CP/66	6999Z	650	240	G22	11x10	(proximity)	80	VBD ± 90°	4
CP/67	6993P	650	240	GX9.5	11x10	16000	100	VBD ± 90°	4
CP/68	6993Z	650	240	G22	11x10	16000	100	VBD ± 90°	4
CP/69	6993C	650	240	P28s	11x10	16000	100	VBD ± 90°	4
CP/70	6995P	1000	240	GX9.5	11x14.5	25000	200	VBD ± 90°	4
CP/71	6995Z	1000	240	G22	11x14.5	25000	200	VBD ± 90°	4
CP/72	6994P	2000	240	GY16	17x18.5	50000	300	VBD ± 90°	4
CP/73	6994Z	2000	240	G38	17x18.5	50000	300	VBD ± 90°	4
CP/74	6994G	2000	240	P40s	17x18.5	50000	300	VBD ± 90°	4
CP/75	6994C	2000	240	G22	17x18.5	50000	300	VBD ± 90°	4
CP/76	6994Y	2000	240	E40	17x18.5	50000	300	VBD ± 90°	4

THEATRE LAMPS. CLASS 'T'

Ref. No.	Phillips Cat. No.	Watts.	Volts	Cap	Filament Area bzh	Nominal* total lumens	Average life (h)	Burning position	Packing qty
T/19	6996P	1000	240/250	GX9.5	11x15.5	21000	750	VBD ± 90°	4
T/20	6996C	1000	240/250	P28s	11x15.5	21000	750	VBD ± 90°	4
T/21	6998P	650	240/250	GX9.5	11x12	13000	750	VBD ± 90°	4
T/22	6998C	650	240/250	P28s	11x12	13000	750	VBD ± 90°	4
T/23	6997C	1000	240/250	P28s	11x14.5	21000	750	VBU ± 90°	4
T/24	6800C	500	240/250	P28s	11x10	9500	750	VBD ± 90°	4

*The figures stated are for the total lumens given by the lamp and are not representative of the lumens achieved within the spotlight beam.

Please order lamps in multiples of the packing quantity.



PHILIPS LIGHTING

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CROYDON CR9 3QR**

Philips Electronic and Associated Industries Limited