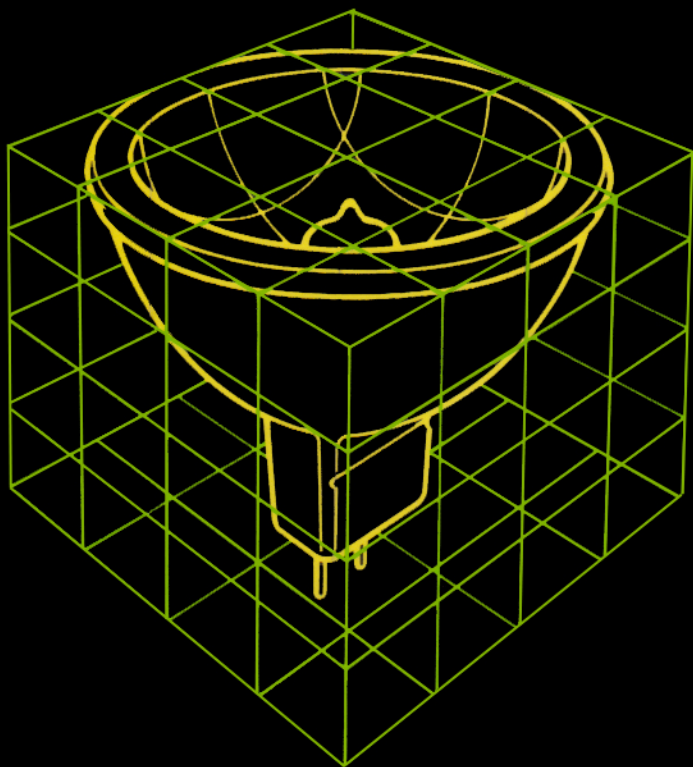


THE
COMPREHENSIVE
CATALOGUE
1987/8



THORN EMI Lighting

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CLASSIFICATION OF LUMINAIRES

CLASSIFICATION OF LUMINAIRES - as detailed in BS 4533 Part 101
Section 101-2

INTERNATIONAL PROTECTION (IP) CODE

Protection of persons against contact with live or moving parts inside the enclosure and protection of equipment against ingress of solid foreign bodies. Protection against contact with moving parts inside the enclosure that might cause danger to persons.

FIRST CHARACTERISTIC NUMERAL	DEGREE OF PROTECTION
------------------------------------	----------------------

- | | |
|----|---|
| 0. | No protection of persons against contact with live or moving parts inside the enclosure. No protection of equipment against ingress of solid foreign bodies. |
| 1. | Protection against accidental or inadvertent contact with live or moving parts inside the enclosure by a large surface of the human body, eg. a hand, but not protection against deliberate access to such parts. Protection against ingress of large solid foreign bodies. |
| 2. | Protection against contact with live or moving parts inside the enclosure by fingers. Protection against ingress of medium size solid foreign bodies. |
| 3. | Protection against contact with live or moving parts inside the enclosure by tools, wires or such objects of thickness greater than 2-5mm. Protection against ingress of small solid foreign bodies. |
| 4. | Protection against contact with live or moving parts inside the enclosure by tools, wires or such objects of thickness greater than 1mm. Protection against ingress of small solid foreign bodies. |
| 5. | Complete protection against contact with live or moving parts inside the enclosure. Protection against harmful deposits of dust. The ingress of dust is not totally prevented, but dust cannot enter in an amount sufficient to interfere with satisfactory operation of the equipment enclosed. (Dustproof). |
| 6. | Complete protection against contact with live or moving parts inside the enclosure. Protection against ingress of dust. (Dust-tight). |

IMPORTANT

Luminaires must pass an extremely rigorous sequence of tests in order to obtain independent approval by either BSI or BASEEFA. This gives the user added assurance that luminaires bearing an approval mark such as the Safety Mark, have passed the specification tests laid down in the British Standard (see also page 5 Safety and Quality). BS4533 Part 101- General Requirements and Tests covers general requirements for the classification and marking of luminaires and for their mechanical and electrical construction and photometric performance, together with related tests. This part of the standard is also for use in conjunction with individual specifications of Part 102 as indicated in those parts or sections. Shown below are some of the more onerous tests detailed in Part 102 which illustrates the standard of quality required.

Section 101-12. Operating temperatures and thermal endurance. A thermal endurance test of 5 days operating at +10% overload supply voltage in an ambient temperature of 10°C above rated ambient for the luminaire. The luminaire is switched off for 3 hours during each 24-hour period thus creating thermal cycling conditions. Immediately following the endurance test a voltage flash test is performed between body and all live parts as follows: Class I (with earth conductor) 1-5kV. Class II (double insulation — no earth) 4-0kV.

PROTECTION OF EQUIPMENT AGAINST INGRESS OF LIQUID

SECOND CHARACTERISTIC NUMERAL	DEGREE OF PROTECTION
-------------------------------------	----------------------

- | | |
|----|---|
| 0. | No protection |
| 1. | Protection against drops of condensed water. Drops of condensed water falling on the enclosure shall have no harmful effect. |
| 2. | Protection against drops of liquid. (Drip-proof). Drops of falling liquid shall have no harmful effect when the enclosure is tilted at any angle up to 15° from the vertical. |
| 3. | Protection against rain. (Rain-proof). Water falling in rain at an angle equal to or smaller than 60° with respect to the vertical shall have no harmful effect. |
| 4. | Protection against splashing. (Splash-proof). Liquid splashed from any direction shall have no harmful effect. |
| 5. | Protection against water jets. (Jet-proof). Water projected by a nozzle from any direction under stated conditions shall have no harmful effect. |
| 6. | Protection against conditions on ships' decks (deck watertight equipment). Water from heavy seas shall not enter the enclosures under prescribed conditions. |
| 7. | Protection against immersion in water. It shall not be possible for water to enter the enclosure under stated conditions of pressure and time. |
| 8. | Protection against indefinite immersion in water under specified pressure. It shall not be possible for water to enter the enclosure. |

SECTION 101-4 CONSTRUCTION

Mechanical impact test of 0-35 Nm using hammer on all accessible surfaces covering live parts.

SECTION 101-9 RESISTANCE TO THE INGRESS OF MOISTURE AND DUST. IP CLASSIFICATION CODE See table above (follows impact test).

SECTION 101-10 INSULATION RESISTANCE AND ELECTRIC STRENGTH.

Tests conducted to ensure adequate resistance of insulation (follows humidity test 9-3 of Section 101-9).

For details of BASEEFA certification/approvals for certain types of luminaires used in hazardous/explosive atmospheres see page 98.

NOTE: In the new BS 4533 Part 101 1981 drip proof classification has been changed to IP21.

SAFETY & QUALITY WITH THORN EMI LIGHTING

On 19th February 1973 the European Communities Council issued a directive no. 73/23/EEC, which has subsequently become known as the 'The Low Volt Directive'. In effect, Article 2 of this directive calls upon member states to ensure that all electrical appliances placed on the market are safe. Other articles call for the establishment of common safety standards throughout EEC member states so that free movement of goods within the Community shall not be impeded for reasons of safety.

HM Government have implemented this directive in the United Kingdom via the Factories Inspectorate and the Department of Prices and Consumer Protection. The Health and Safety at Work Act (1974) covers the industrial and commercial sectors. In the domestic sector, the Secretary of State has issued Regulations under the Electrical Equipment (Safety) Regulations 1975, to be enforced by local weights and measures inspectors.

Under this legislation it is now unlawful to make, or to hold in stock, or to offer for sale, any electrical appliance which is unsafe. This applies at all points of sale, from manufacturer through to retail outlet.

As it affects lighting equipment, British Standard no. BS 4533 is accepted by HM Government as a 'safety' specification and the BSI Safety Mark gives an independent guarantee to all concerned that a luminaire has been designed and made in accordance with good engineering practice, that it has been type tested and complies with BS 4533 and that its manufacturing quality is monitored regularly by inspectors of the Quality Assurance Department of the British Standards Institution. THORN EMI Lighting policy is to co-operate fully in the BSI Safety Mark scheme in order to give the best possible guarantees of safety and quality to all our customers.

BSI LICENCES AND BS 5750 (QUALITY SYSTEMS)

THORN EMI Lighting Ltd. holds many BSI Safety Mark and Kitemark Licences for its various factories manufacturing lamps, starters, ballasts, lampholders and luminaires. In addition to indicating compliance with the relevant BSI Product Standard e.g. BS 1853, BS 3772, BS 2818, BS 4533, etc., these BSI Licences give an assurance of on-going quality of the product by requiring the factory quality system to comply with BS 5750.

OTHER TEST HOUSE APPROVALS

As well as the BSI Safety Mark, a number of THORN EMI Lighting products are available with test house approvals of many other countries.

SYMBOL

This symbol indicates that a luminaire with built-in ballasts or transformers meets the requirements for direct mounting on normally flammable surfaces.

HEALTH AND SAFETY AT WORK

Essential guidance for safe installation, maintenance and disposal of THORN EMI lamps and lighting equipment is provided with the product. More detailed information is given in 'The THORN EMI Lighting Safety Guide' available free on request from any THORN EMI Lighting Branch Office.

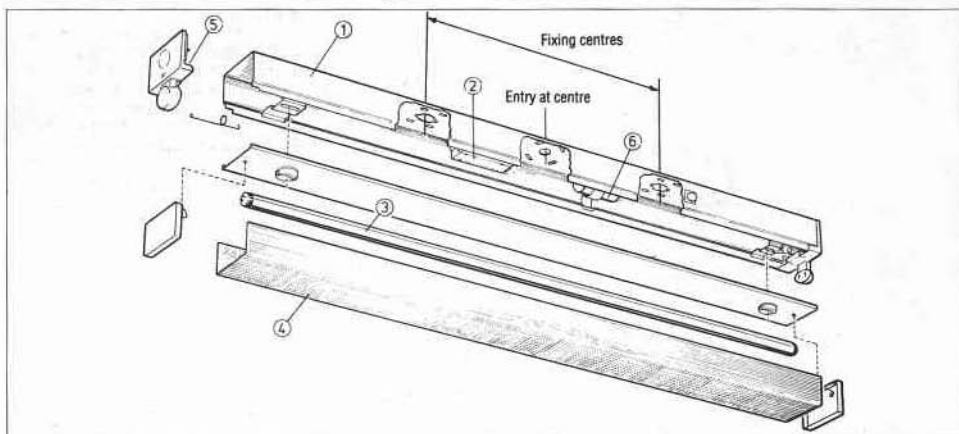


BSI Safety Mark

INDUSTRIAL, COMMERCIAL & DOMESTIC FLUORESCENT LUMINAIRES

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POPULAR PACK



FEATURES

1. Range of 2400mm, 1800mm, 1500mm, 1200mm and 600mm single and twin lamp fluorescent luminaires finished in white stoved enamel. For use in ordinary indoor atmospheres where ambient temperature does not exceed 25°C.

2. All luminaires wired with high quality, slim switchstart control gear. All except 600mm version also available with starterless control gear. 1200mm, 1500mm and 1800mm single and twin versions with electronic ballasts are available to special order.

Note: Because of the length of the electronic ballast within the luminaire spine, the centre besa box mains entry will be covered. It will therefore be necessary to bring the mains cable through the besa entry at the fixing points, or alternatively end entry via the lampholder knock-outs.

3. Complete with high efficiency White PLUSLUX 3500 lamps.

4. Diffusers and prismatic controllers in light-stabilised polystyrene with spring-mounted end plates, metal reflector attachments with keyhole slot fixings are available and three low glare louvers. Wire guards are available for the metal trough reflectors.

5. Spring-mounted lampholders with knock-outs for end entry.

6. All luminaires power factor corrected except 600mm single.

Single 2400mm switchstart only luminaires have leading power factor gear, whilst twin luminaires have lead/lag gear, with near unity power factor.

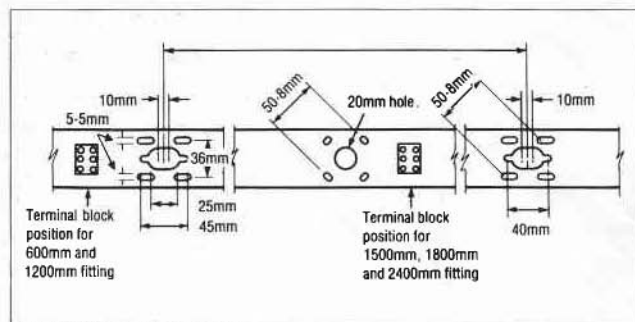
STANDARDS

Luminaires comply with BS 4533.102-1:1981 (IP20).

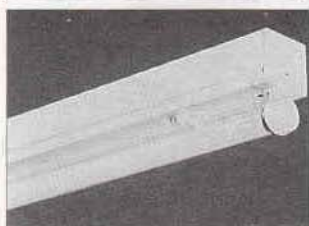
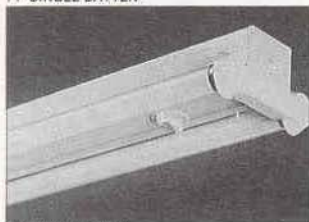
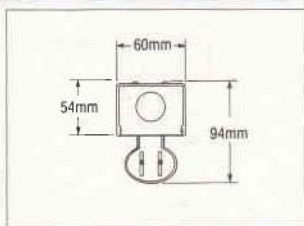
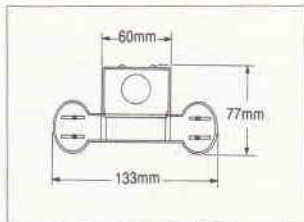
SUPPLY VOLTAGE

Standard luminaires 230/240V 50Hz. The following luminaires can be supplied to order at the voltage shown at no extra charge:

20W 600mm	} -220V 50Hz
40W 1200mm	
65W 1500mm	



POPULAR PACK FIXING CENTRES


PP SINGLE BATTEN

PP TWIN BATTEN

PP BATTENS

Single and twin-lamp battens complete with lamp(s). The starter switch is readily accessible through the side of the luminaire. Bracket (Catalogue number PP 4620) is available to secure conduit into the end of the luminaire. For continuous mounting a space of 12mm between battens and trough reflectors, and 50mm between diffusers is essential for correct maintenance.

RANGE

Nominal Length mm	Rating	Circuit	Batten Cat. no.	Fixing centres mm	Length mm	Weight inc. tubes kg
600	1 x 18W	SS	PP 20	500	615	1.8
600	2 x 18W	SS	PP 220	500	615	2.16
1200	1 x 36W	SS	PP 40	600	1224	2.6
1200	1 x 36W	VS	PPV 40	600	1224	2.77
1200	1 x 36W	EB	PPZ 40	600	1224	1.9
1200	2 x 36W	SS	PP 240	600	1224	4.1
1200	2 x 36W	VS	PPV 240	600	1224	4.27
1200	2 x 36W	EB	PPZ 240	600	1224	3.4
1500	1 x 58W	SS	PP 65	600	1525	3.4
1500	1 x 58W	VS	PPV 65	600	1525	3.57
1500	1 x 58W	EB	PPZ 65	600	1525	1.92
1500	2 x 58W	SS	PP 265	600	1525	5.45
1500	2 x 58W	VS	PPV 265	600	1525	5.72
1500	2 x 58W	EB	PPZ 265	600	1525	4.07
1800	1 x 70W	SS	PP 675	600	1788	3.7
1800	1 x 70W	VS	PPV 675	600	1788	3.7
1800	1 x 70W	EB	PPZ 70	600	1788	2.32
1800	2 x 70W	SS	PP 2675	600	1788	6.12
1800	2 x 70W	VS	PPV 2675	600	1788	6.12
1800	2 x 70W	EB	PPZ 2675	600	1788	4.74
2400	1 x 100W	SS	PP 100	1200	2398	5.23
2400	1 x 100W	VS	PPV 100	1200	2398	5.4
2400	2 x 100W	SS	PP 2100	1200	2398	7.95
2400	2 x 100W	VS	PPV 2100	1200	2398	8.3

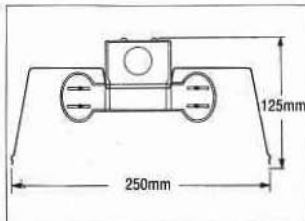
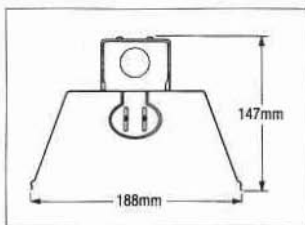
POPULAR PACK



PPR METAL REFLECTOR SINGLE



PPR METAL REFLECTOR TWIN



PPR METAL REFLECTORS

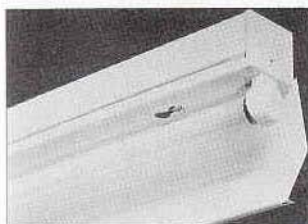
Open-ended slotted metal trough reflectors in white stoved enamel. Attached to the batten by screws fitted into slidable spring nuts fitted to the batten bridge pieces. Screws and nuts are supplied with the reflector. Screws engage into keyhole slots in the reflector.

WIRE GUARD FOR USE WITH PPR REFLECTORS

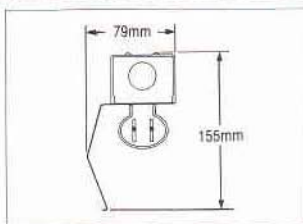
Cat. no.	To fit
PPG 4	PPR 4
PPG 24	PPR 24
PPG 5	PPR 5
PPG 25	PPR 25
PPG 6	PPR 6
PPG 26	PPR 26
PPG 8	PPR 8
PPG 28	PPR 28

RANGE

Nominal Length mm	Rating	Circuit	Luminaire Cat. no.	Batten Cat. no.	Reflector Cat. no.	Length mm	Weight inc. tubes kg
1200	1 x 36W	SS	PPR/40	PP 40	PPR 4	1224	4.8
1200	1 x 36W	VS	PPR/V40	PPV 40	PPR 4	1224	4.97
1200	1 x 36W	EB	PPR/Z40	PPZ 40	PPR 4	1224	4.1
1200	2 x 36W	SS	PPR/240	PP 240	PPR 24	1224	6.8
1200	2 x 36W	VS	PPR/V240	PPV 240	PPR 24	1224	6.97
1200	2 x 36W	EB	PPR/Z240	PPZ 240	PPR 24	1224	6.1
1500	1 x 58W	SS	PPR/65	PP 65	PPR 5	1525	6.3
1500	1 x 58W	VS	PPR/V65	PPV 65	PPR 5	1525	6.47
1500	1 x 58W	EB	PPR/265	PPZ 65	PPR 5	1525	4.92
1500	2 x 58W	SS	PPR/265	PP 265	PPR 25	1525	8.3
1500	2 x 58W	VS	PPR/V265	PPV 265	PPR 25	1525	8.47
1500	2 x 58W	EB	PPR/Z265	PPZ 265	PPR 25	1525	6.92
1800	1 x 70W	SS	PPR/675	PP 675	PPR 6	1788	6.9
1800	1 x 70W	VS	PPR/V675	PPV 675	PPR 6	1788	7.5
1800	1 x 70W	EB	PPR/Z70	PPZ 675	PPR 6	1788	5.52
1800	2 x 70W	SS	PPR/2675	PP 2675	PPR 26	1788	9.6
1800	2 x 70W	VS	PPR/V2675	PPV 2675	PPR 26	1788	10.2
1800	2 x 70W	EB	PPR/Z2675	PPZ 2675	PPR 26	1788	8.22
2400	1 x 100W	SS	PPR/100	PP 100	PPR 8	2398	9.2
2400	1 x 100W	VS	PPR/V100	PPV 100	PPR 8	2398	9.38
2400	2 x 100W	SS	PPR/2100	PP 2100	PPR 28	2398	14.0
2400	2 x 100W	VS	PPR/V2100	PPV 2100	PPR 28	2398	14.35



PPA ANGLE REFLECTOR

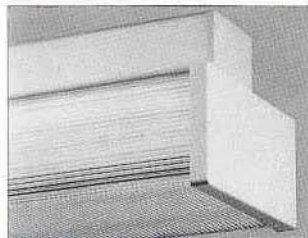


PPA ANGLE REFLECTOR

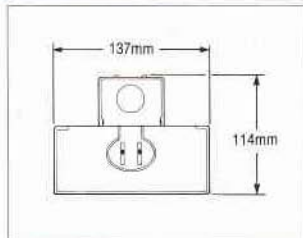
Asymmetric metal reflector attached to the batten by screws fitted into slidable spring nuts fitted to the batten bridge pieces. Screw and nuts are supplied with the reflector. Screws engage into keyhole slots in the reflector.

RANGE

Nominal Length mm	Rating	Circuit	Luminaire Cat. no.	Batten Cat. no.	Reflector Cat. no.	Length mm	Weight inc. tubes kg
1200	1 x 36W	SS	PPA/40	PP 40	PPA 4	1224	3.97
1200	1 x 36W	VS	PPA/V40	PPV 40	PPA 4	1224	4.14
1200	1 x 36W	EB	PPA/Z40	PPZ 40	PPA 4	1224	4.09
1500	1 x 58W	SS	PPA/65	PP 65	PPA 5	1525	5.27
1500	1 x 58W	VS	PPA/V65	PPV 65	PPA 5	1525	5.27
1500	1 x 58W	EB	PPA/Z65	PPZ 65	PPA 5	1525	4.88
1800	1 x 70W	SS	PPA/675	PP 675	PPA 6	1788	5.4
1800	1 x 70W	VS	PPA/V675	PPV 675	PPA 6	1788	6.0
1800	1 x 70W	EB	PPA/Z70	PPZ 70	PPA 6	1788	5.61
2400	1 x 100W	SS	PPA/100	PP 100	PPA 8	2398	7.85
2400	1 x 100W	VS	PPA/V100	PPV 100	PPA 8	2398	8.0



PPL PRISMATIC CONTROLLER

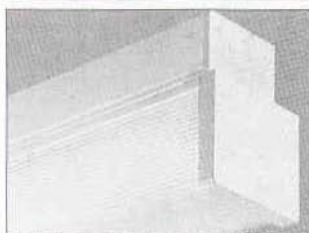


PPL PRISMATIC CONTROLLER

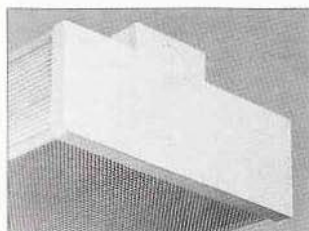
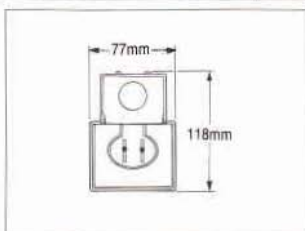
A larger version of the single PPC type, providing lower brightness lighting in situations where special glare control is required. Increased size makes possible a high degree of light control.

RANGE

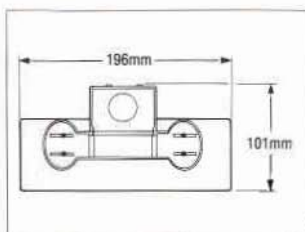
Nominal length mm	Rating	Circuit	Luminaire Cat. no.	Batten Cat. no.	Diffuser Cat. no.	Length mm	Weight inc. tubes kg
1200	1 x 36W	SS	PPL/40	PP 40	PPL 4	1248	3.6
1200	1 x 36W	VS	PPL/V40	PPV 40	PPL 4	1248	3.77
1200	1 x 36W	EB	PPL/Z40	PPZ 40	PPL 4	1248	3.72
1500	1 x 58W	SS	PPL/65	PP 65	PPL 5	1550	4.7
1500	1 x 58W	VS	PPL/V65	PPV 65	PPL 5	1550	4.87
1500	1 x 58W	EB	PPL/Z65	PPZ 65	PPL 5	1550	4.48
1800	1 x 70W	SS	PPL/675	PP 675	PPL 6	1818	5.2
1800	1 x 70W	VS	PPL/V675	PPV 675	PPL 6	1818	5.4
1800	1 x 70W	EB	PPL/Z675	PPZ 675	PPL 6	1818	5.01
2400	1 x 100W	SS	PPL/100	PP 100	PPL 8	2428	7.0
2400	1 x 100W	VS	PPL/V100	PPV 100	PPL 8	2428	7.2



PPC PRISMATIC CONTROLLER SINGLE TUBE



PPC PRISMATIC CONTROLLER TWIN TUBE

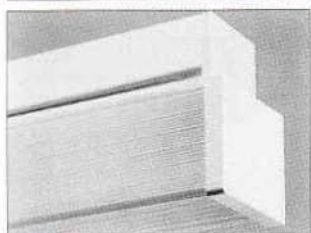


PPC PRISMATIC CONTROLLERS

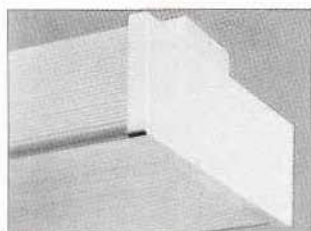
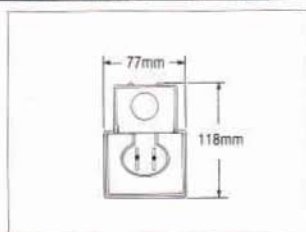
Attachments of transparent extruded plastic with side prisms, the base embossed with a fine prismatic pattern. Quickly attached or detached from the batten by the clip-on action of the spring-fixed end caps.

RANGE

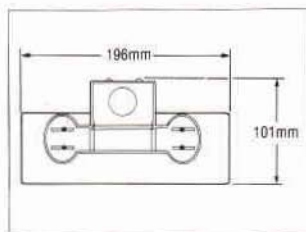
Nominal Length mm	Rating	Circuit	Luminaire Cat. no.	Batten Cat. no.	Diffuser Cat. no.	Length mm	Weight inc. tubes kg
600	1 x 18W	SS	PPC/20	PP 20	PPC 2	638	2-1
600	2 x 18W	SS	PPC/220	PP 220	PPC 22	638	2-84
1200	1 x 36W	SS	PPC/40	PP 40	PPC 4	1248	3-2
1200	1 x 36W	VS	PPC/V40	PPV 40	PPC 4	1248	3-37
1200	1 x 36W	EB	PPC/Z40	PPZ 40	PPC 4	1248	2-5
1200	2 x 36W	SS	PPC/240	PP 240	PPC 24	1248	5-23
1200	2 x 36W	VS	PPC/V240	PPV 240	PPC 24	1248	5-4
1200	2 x 36W	EB	PPC/Z240	PPZ 240	PPC 24	1248	4-53
1500	1 x 58W	SS	PPC/65	PP 65	PPC 5	1550	4-2
1500	1 x 58W	VS	PPC/V65	PPV 65	PPC 5	1550	4-37
1500	1 x 58W	EB	PPC/Z65	PPZ 65	PPC 5	1550	2-82
1500	2 x 58W	SS	PPC/265	PP 265	PPC 25	1550	6-2
1500	2 x 58W	VS	PPC/V265	PPV 265	PPC 25	1550	6-37
1500	2 x 58W	EB	PPC/Z265	PPZ 265	PPC 25	1550	4-82
1800	1 x 70W	SS	PPC/675	PP 675	PPC 6	1818	3-9
1800	1 x 70W	VS	PPC/V675	PPV 675	PPC 6	1818	4-15
1800	1 x 70W	EB	PPC/Z675	PPZ 675	PPC 6	1818	2-53
1800	2 x 70W	SS	PPC/2675	PP 2675	PPC 26	1818	5-9
1800	2 x 70W	VS	PPC/V2675	PPV 2675	PPC 26	1818	6-15
1800	2 x 70W	EB	PPC/Z2675	PPZ 2675	PPC 26	1818	4-53
2400	1 x 100W	SS	PPC/100	PP 100	PPC 8	2428	6-53
2400	1 x 100W	VS	PPC/V100	PPV 100	PPC 8	2428	6-7
2400	2 x 100W	SS	PPC/2100	PP 2100	PPC 28	2428	9-8
2400	2 x 100W	VS	PPC/V2100	PPV 2100	PPC 28	2428	10-15



PPD PLASTIC DIFFUSER SINGLE



PPD PLASTIC DIFFUSER TWIN

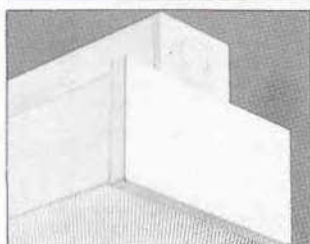
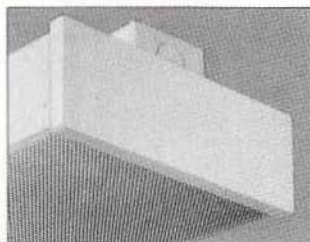
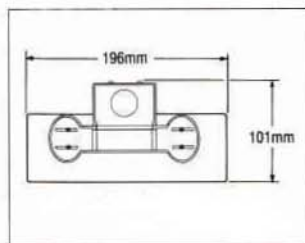
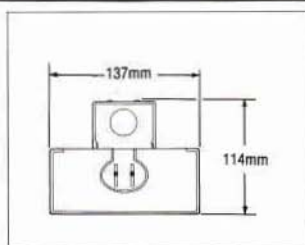


PPD PLASTIC DIFFUSERS

White opal diffuser in extruded plastic with external reeding. The white plastic end plates are fitted to the batten by spring clips to enable quick installation of the diffuser.

RANGE

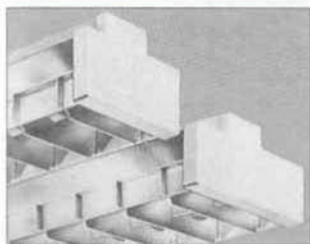
Nominal Length mm	Rating	Circuit	Luminaire Cat. no.	Batten Cat. no.	Diffuser Cat. no.	Length mm	Weight inc. tubes kg
600	1 x 18W	SS	PPD/20	PP 20	PPD 2	638	2-0
600	2 x 18W	SS	PPD/220	PP 220	PPD 22	638	2-6
1200	1 x 36W	SS	PPD/40	PP 40	PPD 4	1248	3-0
1200	1 x 36W	VS	PPD/V40	PPV 40	PPD 4	1248	3-17
1200	1 x 36W	EB	PPD/Z40	PPZ 40	PPD 4	1248	2-3
1200	2 x 36W	SS	PPD/240	PP 240	PPD 24	1248	5-0
1200	2 x 36W	VS	PPD/V240	PPV 240	PPD 24	1248	5-17
1200	2 x 36W	EB	PPD/Z240	PPZ 240	PPD 24	1248	4-3
1500	1 x 58W	SS	PPD/65	PP 65	PPD 5	1550	4-0
1500	1 x 58W	VS	PPD/V65	PPV 65	PPD 5	1550	4-17
1500	1 x 58W	EB	PPD/Z65	PPZ 65	PPD 5	1550	2-62
1500	2 x 58W	SS	PPD/265	PP 265	PPD 25	1550	6-6
1500	2 x 58W	VS	PPD/V265	PPV 265	PPD 25	1550	6-77
1500	2 x 58W	EB	PPD/Z265	PPZ 265	PPD 25	1550	5-22
1800	1 x 70W	SS	PPD/675	PP 675	PPD 6	1818	4-3
1800	1 x 70W	VS	PPD/V675	PPV 675	PPD 6	1818	4-9
1800	1 x 70W	EB	PPD/Z675	PPZ 675	PPD 6	1818	2-92
1800	2 x 70W	SS	PPD/2675	PP 2675	PPD 26	1818	7-2
1800	2 x 70W	VS	PPD/V2675	PPV 2675	PPD 26	1818	7-8
1800	2 x 70W	EB	PPD/Z2675	PPZ 2675	PPD 26	1818	5-82
2400	1 x 100W	SS	PPD/100	PP 100	PPD 8	2428	5-9
2400	1 x 100W	VS	PPD/V100	PPV 100	PPD 8	2428	6-1
2400	2 x 100W	SS	PPD/2100	PP 2100	PPD 28	2428	9-6
2400	2 x 100W	VS	PPD/V2100	PPV 2100	PPD 28	2428	9-95


PPE SINGLE

PPE TWIN

PPE OPAL SIDED PRISMATIC CONTROLLERS

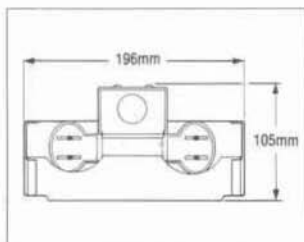
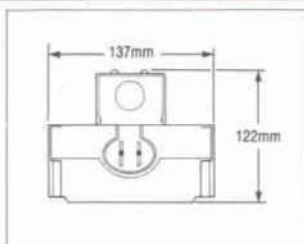
Attachments with opal finish sides and fine prismatic pattern embossed bases. Quickly attached to the batten by the clip-on action of the end caps.

RANGE

Nominal length mm	Rating	Circuit	Luminaire Cat. no.	Batten Cat. no.	Diffuser Cat. no.	Length mm	Weight inc. tubes kg
1200	1 x 36W	SS	PPE/40	PP 40	PPE 4	1248	3.4
1200	1 x 36W	VS	PPE/V40	PPV 40	PPE 4	1248	3.57
1200	1 x 36W	EB	PPE/Z40	PPZ 40	PPE 4	1248	2.7
1200	2 x 36W	SS	PPE/240	PP 240	PPE 24	1248	5.23
1200	2 x 36W	VS	PPE/V240	PPV 240	PPE 24	1248	5.40
1200	2 x 36W	EB	PPE/Z240	PPZ 240	PPE 24	1248	4.53
1500	1 x 58W	SS	PPE/65	PP 65	PPE 5	1550	4.42
1500	1 x 58W	VS	PPE/V65	PPV 65	PPE 5	1550	4.70
1500	1 x 58W	EB	PPE/Z65	PPZ 65	PPE 5	1550	3.15
1500	2 x 58W	SS	PPE/265	PP 265	PPE 25	1550	6.2
1500	2 x 58W	VS	PPE/V265	PPV 265	PPE 25	1550	6.37
1500	2 x 58W	EB	PPE/Z265	PPZ 265	PPE 25	1550	4.82
1800	1 x 70W	SS	PPE/675	PP 675	PPE 6	1818	5.0
1800	1 x 70W	VS	PPE/V675	PPV 675	PPE 6	1818	5.67
1800	1 x 70W	EB	PPE/Z675	PPZ 675	PPE 6	1818	4.37
1800	2 x 70W	SS	PPE/2675	PPV 2675	PPE 26	1818	6.9
1800	2 x 70W	VS	PPE/V2675	PPV 2675	PPE 26	1818	7.5
1800	2 x 70W	EB	PPE/Z275	PPZ 275	PPE 26	1818	6.2
2400	1 x 100W	SS	PPE/100	PP 100	PPE 8	2428	6.8
2400	1 x 100W	VS	PPE/V100	PPV 100	PPE 8	2428	7.0
2400	2 x 100W	SS	PPE/2100	PPV 2100	PPE 28	2428	9.8
2400	2 x 100W	VS	PPE/V2100	PPV 2100	PPE 28	2428	10.15



PPK LOW GLARE LOUVRE



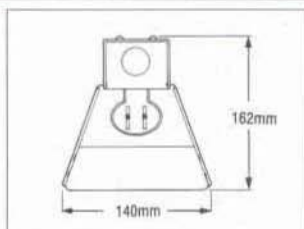
PPK GENERAL PURPOSE LOW GLARE LOUVRE

A general purpose low glare louvre. An attractive attachment with excellent lighting control. Distribution will suit some VDU stations but use PPX series for control in VDU offices.

Louvre Cat. no.	To fit
PPK 4	PP 40/PPV 40/PPZ 40
PPK 5	PP 65/PPV 65/PPZ 65
PPK 6	PP 675/PPV 675/PPZ 675
PPK 24	PP 240/PPV 240/PPZ 240
PPK 25	PP 265/PPV 265/PPZ 265
PPK 26	PP 2675/PPV 2675/PPZ 2675

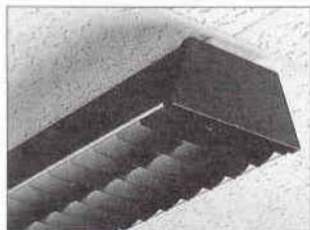


PPX LOUVRE SINGLE

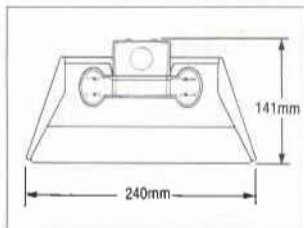


PPX LOUVRES DESIGNED SPECIFICALLY FOR VDU AREAS.

Louvre Cat. no.	To fit
PPX 4	PP 40/PPV 40/PPZ 40
PPX 24	PP 240/PPV 240/PPZ 240
PPX 5	PP 65/PPV 65/PPZ 65
PPX 25	PP 265/PPV 265/PPZ 265
PPX 6	PP 675/PPV 675/PPZ 675
PPX 26	PP 2675/PPV 2675/PPZ 2675



PPX LOUVRE TWIN



REPLACEMENT CONTROL GEAR

These items are selected from the extensive range of control gear for UK Regional stocking to give ready availability. The reference numbers quoted may be different from those marked on the control gear in the luminaire, but the units are equally applicable for replacement purposes.

SUPPLY VOLTAGE

Standard gear 230/240V 50Hz.
Alternative gear for the following luminaires to work on a 220V 50Hz supply can be ordered at no extra charge.

18W	600mm
36W	1200mm
58W	1500mm

REPLACEMENT CONTROL GEAR

Luminaire Cat. no.	Rating	Circuit	Choke	Capacitor	Starter switch/Vivatron	Circuit diag.
PP20	1 x 18/20W	SS (LPF)	1 x GCS18/20	—	1 x 155/500	3
PP220	2 x 18/20W	SS (HPF)	1 x GCS36/40	1 x GC2428	2 x 155/200	7
PP40	1 x 36/40W	SS (HPF)	1 x GCS36/40	1 x GC2417	1 x 155/500	1
PP240	2 x 36/40W	SS (HPF)	2 x GCS36/40	1 x GC2419	2 x 155/500	2 x 1
PPV40	1 x 36/40W	VS (HPF)	1 x GCS36/40	1 x GC2417	1 x G69577	19
PP240	1 x 36/40W	EB (HPF)	1 x G81014	NR	NR	—
PPV240	2 x 36/40W	VS (HPF)	2 x GCS36/40	1 x GC2430	2 x G69577	2 x 19
PP2240	2 x 36/40W	EB (HPF)	1 x G81004	NR	NR	*
PP65	1 x 58/65W	SS (HPF)	1 x GCS58/65	1 x GC2435	1 x 155/500	1
PP265	2 x 58/65W	SS (HPF)	2 x GCS58/65	1 x GC2274	2 x 155/500	2 x 1
PPV65	1 x 58/65W	VS (HPF)	1 x GCS58/65	1 x GC2435	1 x G69577	19
PPZ65	1 x 58/65W	EB (HPF)	1 x G81015	NR	NR	—
PPV265	2 x 58/65W	VS (HPF)	2 x GCS58/65	1 x GC2409	2 x G69577	2 x 19
PPZ265	2 x 58/65W	EB (HPF)	1 x G81005	NR	NR	*
PP675	1 x 70/75W	SS (HPF)	1 x GCU70/75	1 x GC2435	1 x 155/800	1
PP2675	2 x 70/75W	SS (Lead Lag)	1 x GCU70 — 1 x GCU70/75	1 x GC2226	2 x 155/800	4
PPV675	1 x 70/75W	VS (HPF)	1 x GCS70/75	1 x GC2435	1 x G69577	19
PPZ675	1 x 70/75W	EB (HPF)	1 x G81016	NR	NR	—
PPV2675	2 x 70/75W	VS (HPF)	2 x GCS70/75	1 x GC2409	2 x G69577	2 x 19
PPZ275	2 x 70/75W	EB (HPF)	1 x G81006	NR	NR	*
PP100	1 x 100W	SS (HPF)	1 x GCU100	1 x GC2419	1 x 155/800	1
PP2100	2 x 100W	SS (Lead Lag)	1 x GCU100/125 — 1 x GCU100	1 x GC2173	2 x 155/800	4
PPV100	1 x 100W	VS (HPF)	1 x GCU100/125	1 x GC2419	1 x G69517-4	15
PPV2100	2 x 100W	VS (Lead Lag)	1 x GCU100/125 — 1 x GCU100	1 x GC2173	2 x G69517-4	13 — 16

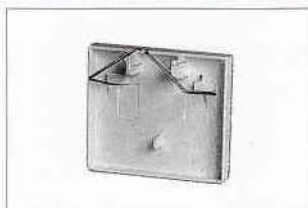
SS—Switch start

VS—Vivatron start.

For circuit diagrams see *Fluorescent tube Control Gear and Accessories* section

* see page 222

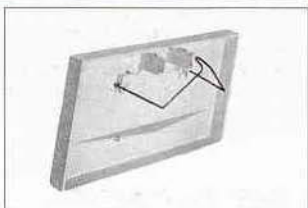
POPULAR PACK ACCESSORIES



PP 4612
End cap for single tube PPC and PPD diffusers. Complete with fixing spring.



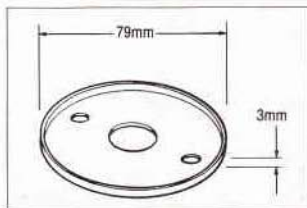
PP 4613
End cap for twin tube PPC and PPD diffusers. Complete with fixing spring.



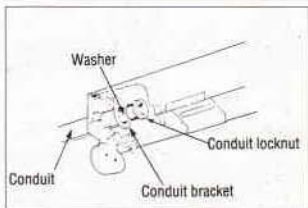
PP 4617
End cap for single tube PPE and PPL diffusers. Complete with fixing spring.



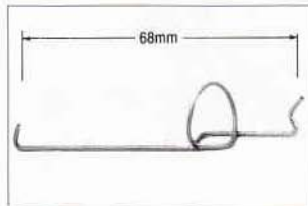
PP 4616
Clip-in fused terminal block assembly with 3A fuse and protective terminal cover. Primary use for Popular Pack luminaire when used on Master Track and Trackline installations. Encroaches on centre entry on 600mm 20W twin only. Standard quantity 5 per pack.



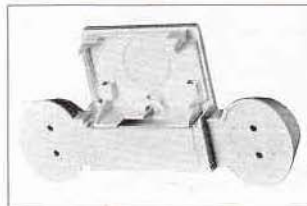
PP 4619
Patress block cover can be used to shield a conduit box or to cover marks left on the ceiling by original luminaire or ceiling plate; 26 swg mild steel, white stoved enamel.



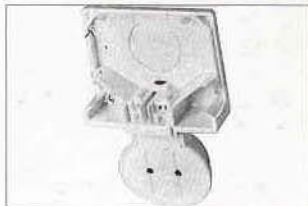
PP 4620
End conduit bracket: used when single or wide twin luminaires are installed on surface conduit systems or where conduit is required to enter at the end of the luminaire. This component is not needed for slim twin luminaires.



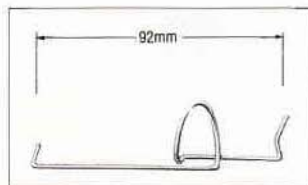
PP 4600
Lampholder spring used on early single and wide twin luminaires.



GB 1666
Wide twin bi-pin white plastic grip-pin lampholder. Complete with spring.



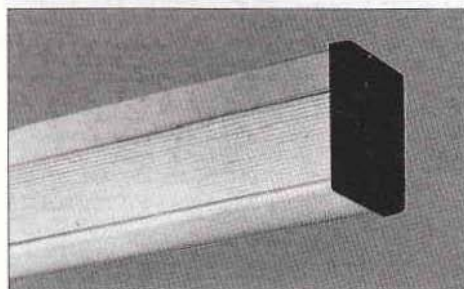
GB 1665
Single bi-pin white plastic grip-pin lampholder. Complete with spring.



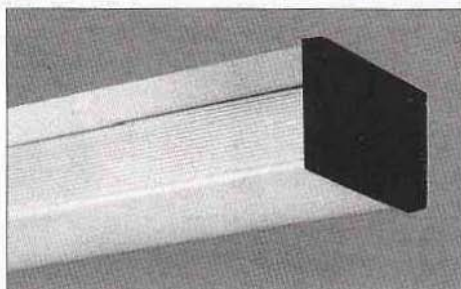
PP 4625
Lampholder tension spring used on current single and twin luminaires.

Also available (GB 1665/G single and GB 1666/G twin) in light grey polyester material for use in industrial atmospheres containing oil.

DIFFUSER PACK

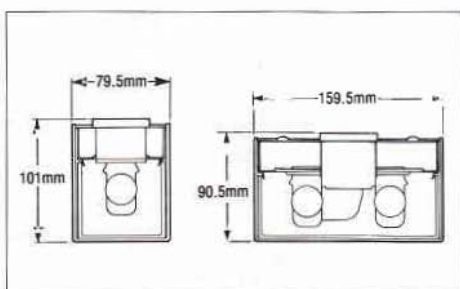


FPP 136



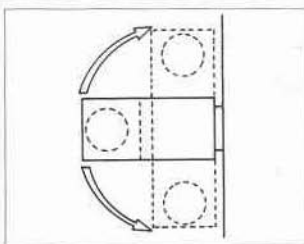
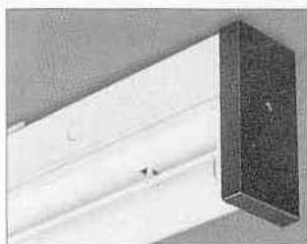
FPP 236

A power saving range of surface fluorescent luminaires in an extremely slim white body with black end caps. Packed complete with Pluslux 3500 white tubes with prismatic controllers.



RANGE (Packed complete with Pluslux 3500 White tubes)

Cat. no.	Description	Overall length mm	Circuit
FPP 136	1200mm 36W Single batten and prismatic controller	1258	SS
FPP 236	1200mm 36W Twin batten and prismatic controller	1258	SS
FPP 158	1500mm 58W Single batten and prismatic controller	1559	SS
FPP 258	1500mm 58W Twin batten and prismatic controller	1559	SS
FPP 170	1800mm 70W Single batten and prismatic controller	1823	SS
FPPV 170	1800mm 70W Single batten and prismatic controller	1823	VS
FPP 270	1800mm 70W Twin batten and prismatic controller	1823	SS
FPPV 270	1800mm 70W Twin batten and prismatic controller	1823	VS

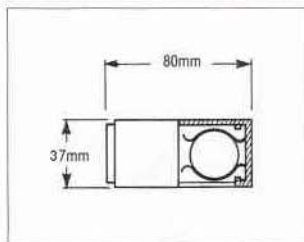
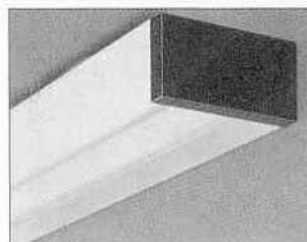


AS BATTENS

Single batten luminaire with three position twist lampholder in 450mm 15W; 600mm 18W; 900mm 30W; 1050mm 40W; 1200mm 36W and 1500mm 58W sizes. The 450mm 15W, 900mm 30W and 1050mm 40W are packed with a 26mm diameter Warm White tube and the remainder with 26mm diameter Pluslux 3000 tubes. All gear is switchstart.

RANGE

Nominal Length mm	Rating	Circuit	Luminaire Cat. no.	Fixing centres mm	Length mm
450	1 x 15W	SS	AS 15	382	456
600	1 x 18W	SS	AS 18	400	608
900	1 x 30W	SS	AS 30	600	914
1050	1 x 40W	SS	AS 40	600	1066
1200	1 x 36W	SS	AS 36	600	1218
1500	1 x 58W	SS	AS 58	600	1519
1200	1 x 36W	SS	AS 36/PF	600	1218
1500	1 x 58W	SS	AS 58/PF	600	1519



ASD DIFFUSER

Opal acrylic 'L' extrusion diffuser fixed to the basic luminaire by engagement with the lampholders.

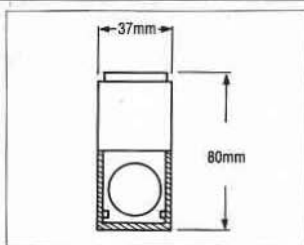
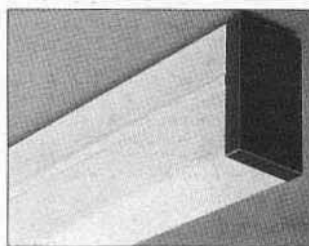
RANGE

Nominal Length mm	Rating	Circuit	Luminaire Cat. no.	Batten Cat. no.	Diffuser Cat. no.	Length mm
450	1 x 15W	SS	ASD/15	AS 15	ASD 1	456
600	1 x 18W	SS	ASD/18	AS 18	ASD 2	608
900	1 x 30W	SS	ASD/30	AS 30	ASD 3	914
1050	1 x 40W	SS	ASD/40	AS 40	ASD 4	1066
1200	1 x 36W	SS	ASD/36	AS 36	ASD 36	1218
1500	1 x 58W	SS	ASD/58	AS 58	ASD 5	1519
1200	1 x 36W	SS	ASD/36 PF	AS 36/PF	ASD 36	1218
1500	1 x 58W	SS	ASD/58 PF	AS 58/PF	ASD 5	1519

Luminaires comply with BS 4533:102.1.1981 (IP20)

SUPPLY VOLTAGE

Standard luminaires 230/240V 50Hz. Details of luminaires for other supplies available on application. Circuits are not PFC. Add the suffix PF to catalogue no. for Power Factor correction (not AS 15). However 36W and 58W are stocked in both LPF and HPF versions.

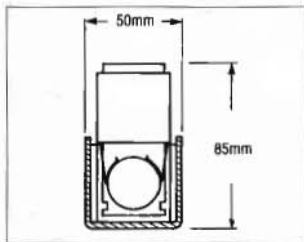
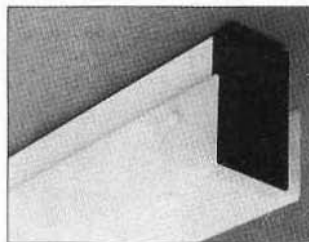


ASU DIFFUSER

An acrylic 'U' extrusion diffuser generally fixed to the basic luminaire by engagement with the lampholders. For all single battens up to and including 1200mm (4 ft).

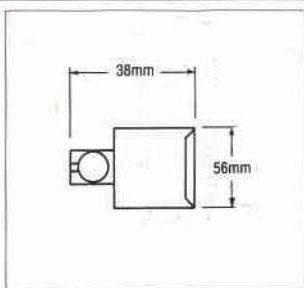
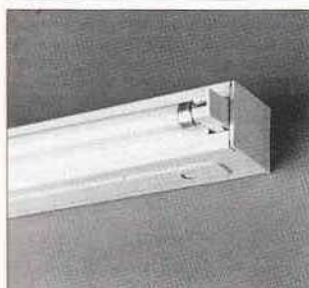
RANGE

Nominal Length mm	Rating	Circuit	Luminaire Cat. no.	Batten Cat. no.	Attachment Cat. no.	Length mm
450	1 x 15W	SS	ASU/15	AS 15	ASU 1	456
600	1 x 18W	SS	ASU/18	AS 18	ASU 2	608
900	1 x 30W	SS	ASU/30	AS 30	ASU 3	914
1050	1 x 40W	SS	ASU/40	AS 40	ASU 4	1066
1200	1 x 36W	SS	ASU/36	AS 36	ASU 36	1218
1500	1 x 58W	SS	ASU/58	AS 58	ASU 5	1519
1200	1 x 36W	SS	ASU/36 PF	AS 36/ PF	ASU 36	1218
1500	1 x 58W	SS	ASU/58 PF	AS 58/ PF	ASU 5	1518



ASU ATTACHMENT

An acrylic 'U' extrusion for the 1500mm (5ft) batten only. Held by spring clips.



FLJ SERIES MINIPACK LUMINAIRES

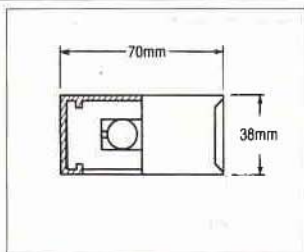
The smallest fluorescent luminaires offered for everyday use. Packed complete with Warm White tube. The cover can be removed for installation and access to control gear. A pull switch (Catalogue number FMP 4600) is available. For use in ordinary indoor atmospheres where the ambient temperature does not exceed 25°C. Luminaires comply with BS 4533:102.1 (IP20).

SUPPLY VOLTAGE

Standard luminaire 230/240V 50Hz. Details of luminaires for other supplies are available on application.

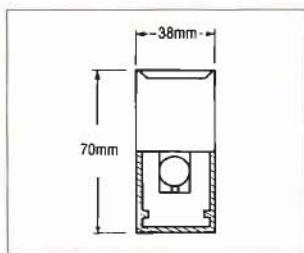
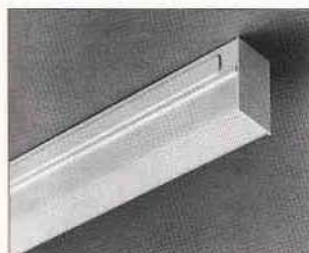
RANGE

Nominal Length mm	Rating	Circuit	Luminaire Cat. no.	Fixing centres mm	Length mm	Weight inc. tube kg
300	1 x 8W	SS	FLJ 1008.4	270	313	0.87
525	1 x 13W	SS	FLJ 1013.4	500	542	1.12



FLJD OPAL ACRYLIC ANGLE AND FLJU OPAL ACRYLIC ENCLOSED DIFFUSER ATTACHMENTS

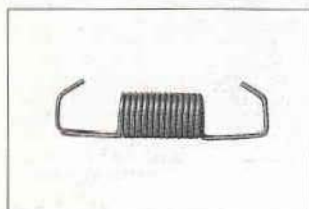
These diffusers are supplied with white plastic end plates which simply replace those supplied with the bare batten assembly. Full instructions are supplied.



RANGE

Cat. no.	Description	• To fit batten
FLJD		
FLJD 112	Opal Acrylic 'L' shape diffuser for 8W batten	FLJ 1008-4
FLJD 121	Opal Acrylic 'L' shape diffuser for 13W batten	FLJ 1013-4
FLJU		
FLJU 112	Opal Acrylic 'U' shape diffuser for 8W batten	FLJ 1000-4
FLJU 121	Opal Acrylic 'U' shape diffuser for 13W batten	FLJ 1013-4

ARROWSLIM and MINIPACK accessories



AS 4611

Arrowslim lampholder tension spring.



AS 4601

Arrowslim push switch for wall mounted luminaires.



LJ4600

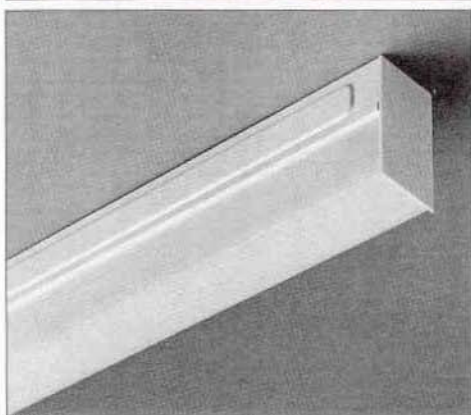
Pull switch for wall mounted Minipack luminaires, of LJS series, use Cat. No. FMP 4600 for FLJ series.

REPLACEMENT CONTROL GEAR FOR 240V 50HZ SUPPLY

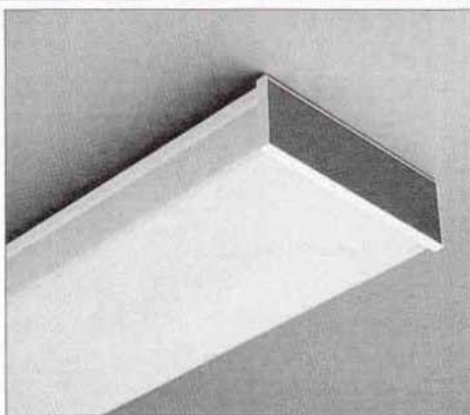
Tube size	Luminaire	Choke	Capacitor	Starter switch	Circuit Dia. no.
8W 300mm	Minipack	1 x GCJ 8	—	1 x 155/500	1
13W 525mm	Minipack	1 x GCJ 13	—	1 x 155/500	1
15W 450mm	Arrowslim AS 15	1 x GCJ 15	—		
18W 600mm	Arrowslim AS 18	1 x GCJ 18	—		
30W 900mm	Arrowslim AS 30	1 x GCJ 30	—	1 x 155/500	1
40W 1050mm	Arrowslim AS 40	1 x GCJ 36/40	—	1 x 155/500	1
50W 1500mm	Arrowslim AS 58	1 x GCJ 58	—	1 x 155/500	1

For circuit diagrams see control gear and accessories section.

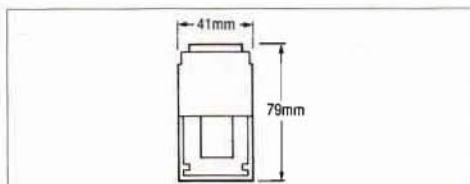
MINI HOMELITE AND COMPACT HOMELITE



FHLD 13



FHUD 40



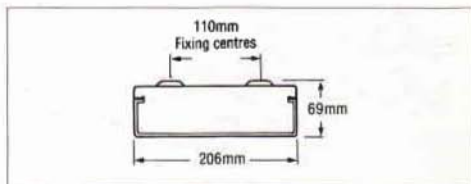
FHLD 13 MINI HOMELITE

An easily installed slim luminaire for many domestic situations such as behind pelmets, within alcoves, inside display cabinets, under shelving, above mirrors or as a bedhead reading light.

The smooth opal diffuser is held by white plastic end caps to a white painted spine. A pull switch is available as an optional extra for wall mounted luminaires (Catalogue number LJ4600).

For use in normal indoor atmospheres.

Luminaire complies with BS4533:1981:Section 102-1 (IP20).



FHUD 40 COMPACT HOMELITE

The ideal luminaire for halls, kitchens, bathrooms, playrooms and workshops. The Compact Homelite may be fitted to walls or ceilings. The use of a U tube enables extra lighting capacity to be packed into a small attractive shape.

The reeded opal diffuser is held by white plastic end caps. Stick-on copper coloured end cap trims are supplied for optional application where required.

For use in normal indoor atmospheres.

Luminaire complies with BS4533:1981:Section 102-1 (IP20).

SUPPLY VOLTAGE

230/240V 50Hz. Details of luminaires for other supplies available on application. These luminaires are not power factor corrected.

PACKAGING

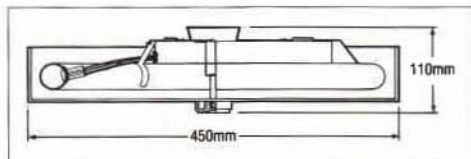
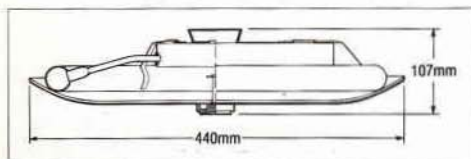
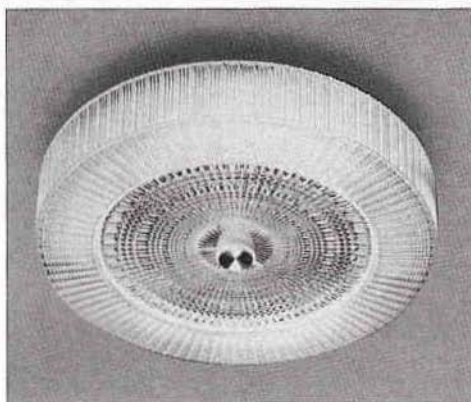
Supplied in decorative window pack showing luminaire and suitable for off the shelf retail selling.

SPARE PARTS

FLJU 121	Diffuser c/w end caps for FHLD 13
FHUD 4	Diffuser extrusion only for FHUD 40
155/500	Starter switch for FHLD 13 and FHUD 40
GA 5136	Switch socket for FHLD 13
GB 1641	Lampholder for FHUD 40
GB 1598/3S	Lampholder for FHLD 13
GCJ 13	Choke for FHLD 13
GCS 36/40	Choke for FHUD 40

RANGE (Packed complete with Warm White tube)

Cat. no.	Description	Lamp rating	Luminaire length mm	Fixing centres mm	Weight kg
FHLD 13	Mini Homelite c/w diffuser	13W	542	500	1.25
FHUD 40	Compact Homelite c/w diffuser	40W	570	400	2.5



CFLSG 60

This bowl diffuser is moulded in clear glass with a smooth upper and a patterned lower surface. A radial pattern is silk-screened in white on the upper surface. The glass is attached to the luminaire by a white plastic knob.

A triangular gear tray with 60W switchstart control gear is hidden from view by the diffuser.

Supplied complete with a Warm White tube.

For use in normal indoor atmospheres.

Luminaires comply with BS 4533:1981:Section 102.1(IP20)

SUPPLY VOLTAGE

230/240V 50Hz. Details of luminaires for other supplies available on application.

FHCP 60

This luminaire has a prismatic controller in clear acrylic with a smooth upper and a patterned lower surface. The bowl is attached to the luminaire by a white plastic knob.

A triangular gear tray with 60W switchstart control gear is hidden from view by the diffuser.

Supplied complete with a Warm White tube.

For use in normal indoor atmospheres.

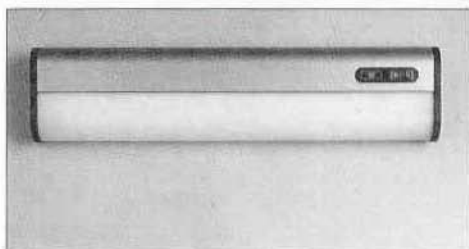
Luminaires comply with BS 4533:1981:Section 102.1(IP20)

RANGE (Packed complete with Warm White tube)

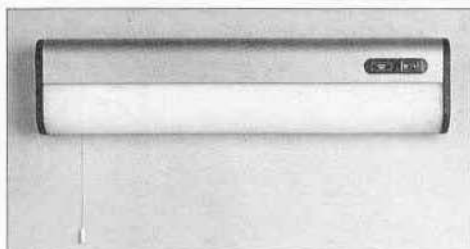
Cat. no.	Description	Lamp Rating	Weight kg	Circuit
CFLSG 60	Large sparkle glass luminaire	1 x 60W	4.1	Switchstart
FHCP 60	Prismatic controller luminaire	1 x 60W	4.0	Switchstart

SPARE PARTS

CFLSG	Replacement glass for CFLSG 60
FHCPA	Replacement controller for FHCP 60
CF 4606	Fixing knob for FHCP 60 controller
CF 4607	Fixing knob for CFLSG 60 glass
155/500	Starter switch for FHCP 60 and CFLSG 60
GA 5089	Starter socket for FHCP 60 and CFLSG 60
GB 1623	Lampholder for FHCP 60 and CFLSG 60
GCU 58/65	Choke for FHCP 60 and CFLSG 60



FLS13



FLST13

Viewpoint 2 fittings consist of an extruded aluminium alloy cover plate, painted silver grey, with an opal acrylic diffuser retained by black plastic end caps all mounted on a white painted steel gear tray/reflector. The reflector completely encloses the lamp for maximum light output. Both fittings are supplied complete with a 13W Warm White fluorescent tube.

Viewpoint 2 fittings accept British, American and European shaver plugs. Shaver sockets are protected by PTCR automatic resetting cut-outs.

Both fittings comply with BS4533:1981:Section 102.1.

SUPPLY VOLTAGE

230/240V 50Hz. Details of fittings for other supply voltages available on application.

FLS 13 GENERAL PURPOSE MODEL

This version features a mains voltage shuttered shaver socket and is for use in all rooms except bathrooms.

The light and shaver socket are both controlled by an ON/OFF rocker switch.

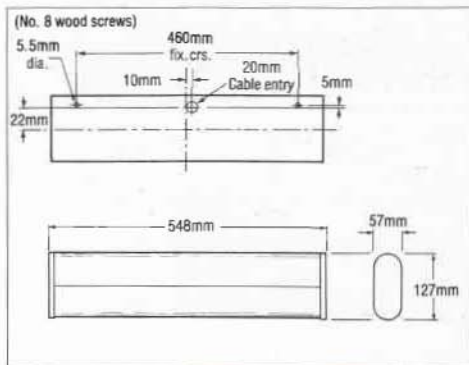
The rocker switch and the shaver socket are in a contrasting red colour.

FLST 13 BATHROOM MODEL

The bathroom version has a dual voltage shuttered shaver socket (115/230V) controlled by a rocker switch. The supply to the socket is via a double wound transformer and the fitting complies with BS3052 'Electric Shaver Supply Units' for use in bathrooms in accordance with the IEE Wiring Regulations.

The light and the shaver socket are both controlled by an ON/OFF pull switch.

The rocker switch and the shaver socket are in a contrasting red colour.



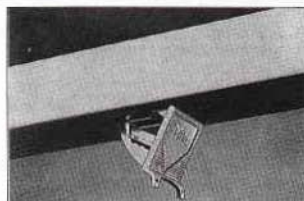
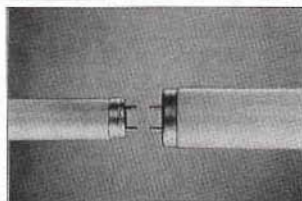
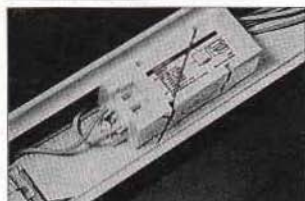
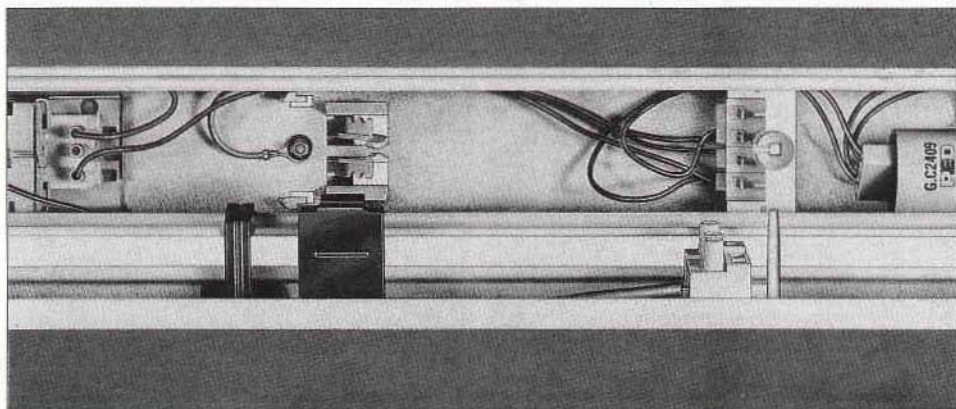
RANGE (Packed complete with Warm White tube)

Cat. no.	Description	Lamp rating	Weight kg	Circuit
FLS 13	General purpose model	1 x 13W	1.5	Switchstart
FLST 13	Bathroom model	1 x 13W	1.8	Switchstart

SPARE PARTS

FLS4600	Diffuser for FLS13 and FLST13
GS5139	Pull switch for FLST13
GS5154	Rocker switch for FLS13
GS5162	Rocker switch for FLST13
GM6162/B	Overload cut-out for FLS13 and FLST13
155/500	Starter switch for FLS13 and FLST13
GA5132	Starter socket for FLS13 and FLST13
GB1598	Lampholder for FLS13 and FLST13
GCJ13	Choke for FLS13 and FLST13

CLIPPER 2



CLIPPER 2 RANGE

Clipper provides one of the most economical lighting systems available. Tube sizes are 1200mm 36W, 1500mm 58W, 1800mm 70W and 2400mm 100W in single and twin-tube versions and a triple-tube 1800mm 70W spine. A full range of attachments is available.

Clipper is quick and easy to install. The only component to be fixed to the ceiling before making the electrical connection is a lightweight metal ceiling plate. This is easily screwed into position by one man. The spine simply hooks on the ceiling plate, plugs into the terminal block socket and clips up into place.

The terminal block has been increased in size to accept 2 x 4-0mm² cables per way and is now a 4 way block, the entry L 1 offering a convenient circuit looping position. The same ceiling plate is suitable for any spines of the same length. Maintenance is simple and a replacement can be installed without disturbing the rest of the lighting.

STANDARDS

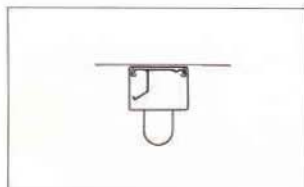
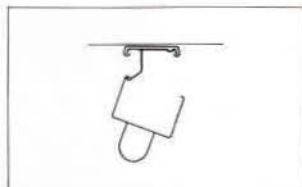
Luminaires comply with BS4533:102.1 (IP20) and carry the 'F' mark.

SUPPLY VOLTAGE

Standard luminaires for 230/240V 50Hz. Details of other voltages and circuits on application.

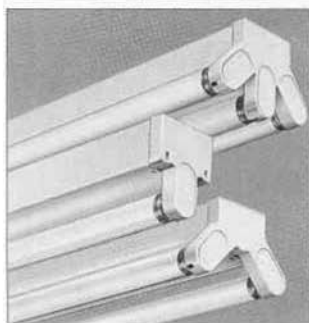
FEATURES

1. Centre-twist rotary contact lampholders for easy lamp insertion. Enables end-to-end mounting of batten and reflectors.
2. Location of lampholder assembly carried out on the bench before the spine is installed.
3. Plastic end plate with knock-out for conduit entry.
4. Finger latch positively locks spine and ceiling plate together.
5. Slim section starterless control gear. With Vivatronic electronic starting. Electronic ballast circuit versions also available.
6. Terminal block and socket provide automatic mains connection.



TRUNKING

Clipper 2 fixes to all the Liteline trunking systems.

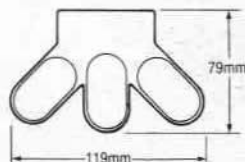
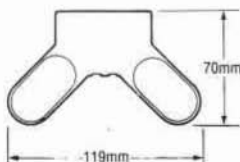
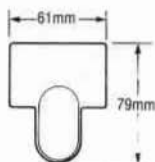


FCLV BATTEN LUMINAIRES

The basic batten consists of:

1. Ceiling plate for single, twin, and 1800mm 3-tube spines. The metal channel contains a central terminal block and socket.

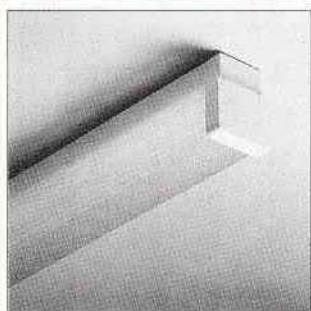
2. The spine, which is a metal channel carrying control gear and lampholders. There is an automatic plug connection to the socket in the ceiling plate, and finger latches locate and fix the spine to the ceiling plate.



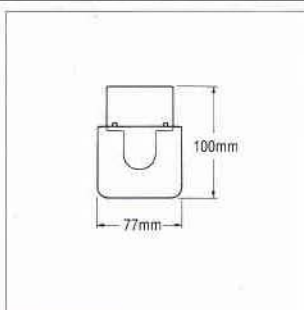
RANGE

Nominal Length mm	Rating	Circuit	Batten Cat. no.	Fixing Centres	Length mm	Weight kg
1200	1 x 36W	VS	FCLV 36	595/615	1228	2.1
1200	2 x 36W	VS	FCLV 236	595/615	1228	2.9
1200	1 x 36W	EB	FCLZ 36	595/615	1228	1.4
1200	2 x 36W	EB	FCLZ 236	595/615	1228	2.2
1500	1 x 58W	VS	FCLV 58	595/615	1528	2.8
1500	2 x 58W	VS	FCLV 258	595/615	1528	3.9
1500	1 x 58W	EB	FCLZ 58	595/615	1528	1.42
1500	2 x 58W	EB	FCLZ 258	595/615	1528	2.52
1800	1 x 70W	VS	FCLV 70	595/615	1792	3.8
1800	2 x 70W	VS	FCLV 270	595/615	1792	4.9
1800	1 x 70W	EB	FCLZ 70	595/615	1792	2.41
1800	2 x 70W	EB	FCLZ 270	595/615	1792	3.52
1800	3 x 70W	VS	FCLV 370	595/615	1792	6.0
2400	1 x 100W	VS	FCLV 100	1200/1220	2403	5.1
2400	2 x 100W	VS	FCLV 2100	1200/1220	2403	6.4

CLIPPER 2



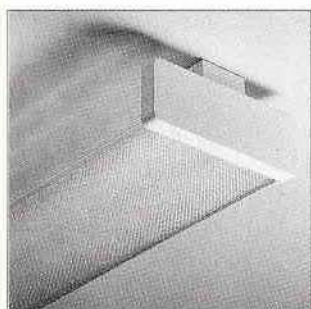
FCLC SINGLE



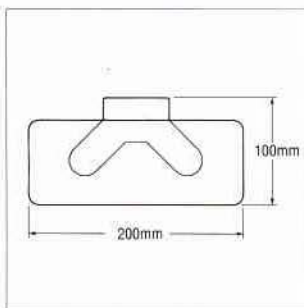
FCLC PRISMATIC CONTROLLERS

Clear acrylic prismatic controllers for single and twin battens, held by spring-loaded end caps. 75mm must be left between adjacent ceiling plates to allow freedom of operation of the end plates.

NOTE: There is a metal over cover FCLC where upward light is not required.
(Available to special order)

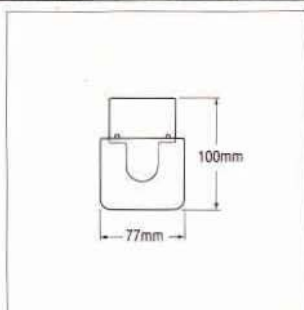


FCLC TWIN



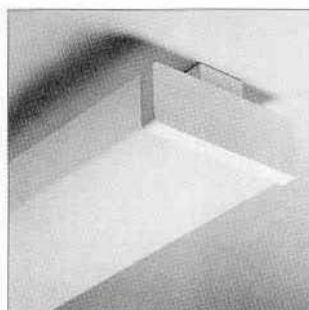
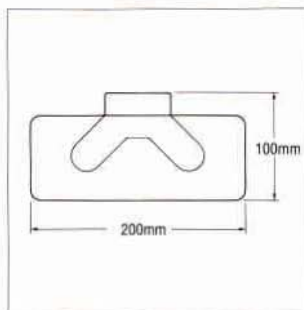
RANGE

Nominal Length mm	Rating	Batten Cat. no.	Controller Cat. no.	Length mm	Weight kg
1200	1 x 36W	FCLV 36	FCLC 4	1238	2.73
1200	1 x 36W	FCLZ 36	FCLC 4	1238	0.83
1200	2 x 36W	FCLV 236	FCLC 24	1238	4.26
1200	2 x 36W	FCLZ 236	FCLC 24	1238	2.36
1500	1 x 58W	FCLV 58	FCLC 5	1538	3.58
1500	1 x 58W	FCLZ 58	FCLC 5	1538	2.26
1500	2 x 58W	FCLV 258	FCLC 25	1538	5.57
1500	2 x 58W	FCLZ 258	FCLC 25	1538	4.25
1800	1 x 70W	FCLV 70	FCLC 6	1802	4.73
1800	1 x 70W	FCLZ 70	FCLC 6	1802	3.41
1800	2 x 70W	FCLV 270	FCLC 26	1802	6.90
1800	2 x 70W	FCLZ 270	FCLC 26	1802	5.58
2400	1 x 100W	FCLV 100	FCLC 8	2413	6.33
2400	2 x 100W	FCLV 2100	FCLC 28	2413	9.02


FCLD SINGLE

FCLD DIFFUSERS

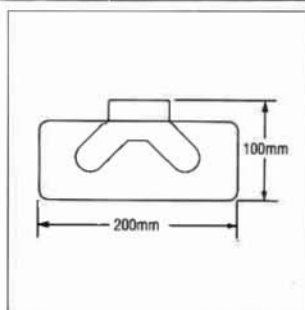
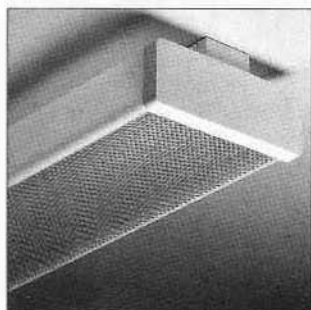
Plain opal acrylic diffusers for single and twin battens, held by spring-loaded end caps. 75mm must be left between adjacent ceiling plates to allow freedom of operation of the end caps.

NOTE: There is a metal over cover FCLD where upward light is not required. (Available to special order)


FCLD TWIN

RANGE

Nominal Length mm	Rating	Batten Cat. no.	Diffuser Cat. no.	Length mm	Weight kg
1200	1 x 36W	FCLV 36	FCLD 4	1238	2.61
1200	1 x 36W	FCLZ 36	FCLD 4	1238	1.91
1200	2 x 36W	FCLV 236	FCLD 24	1238	4.02
1200	2 x 36W	FCLZ 236	FCLD 24	1238	3.32
1500	1 x 58W	FCLV 58	FCLD 5	1538	3.43
1500	1 x 58W	FCLZ 58	FCLD 5	1538	2.11
1500	2 x 58W	FCLV 258	FCLD 25	1538	5.27
1500	2 x 58W	FCLZ 258	FCLD 25	1538	3.95
1800	1 x 70W	FCLV 70	FCLD 6	1802	4.55
1800	1 x 70W	FCLZ 70	FCLD 6	1802	3.23
1800	2 x 70W	FCLV 270	FCLD 26	1802	6.53
1800	2 x 70W	FCLZ 270	FCLD 26	1802	5.21
2400	1 x 100W	FCLV 100	FCLD 8	2413	6.10
2400	2 x 100W	FCLV 2100	FCLD 28	2413	7.54

CLIPPER 2

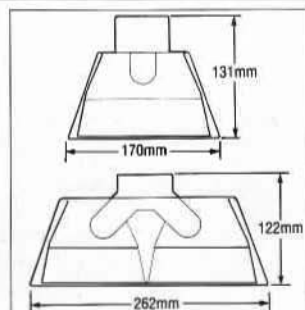
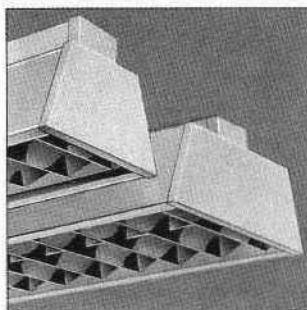


FCLE DIFFUSER

FCLE a clear prismatic base with opal sides for situations where direct glare control is paramount. Extruded from acrylic there is one cross section which is suitable for use on twin spines.

RANGE

Nominal length mm	Rating	Batten Cat. no.	Diffuser Cat. no.	Length mm	Weight kg
1200	2 x 36W	FCLV 236	FCLE 24	1238	4.04
1200	2 x 36W	FCLZ 236	FCLE 24	1238	3.34
1500	2 x 58W	FCLV 258	FCLE 25	1538	5.3
1500	2 x 58W	FCLZ 258	FCLE 25	1538	3.92
1800	2 x 70W	FCLV 270	FCLE 26	1802	6.56
1800	2 x 70W	FCLZ 270	FCLE 26	1802	5.18
2400	2 x 100W	FCLV 2100	FCLE 28	2413	8.6



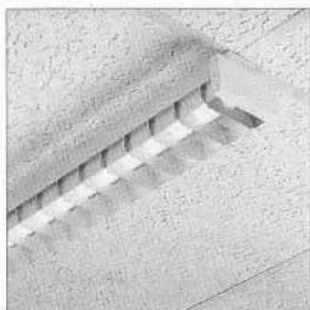
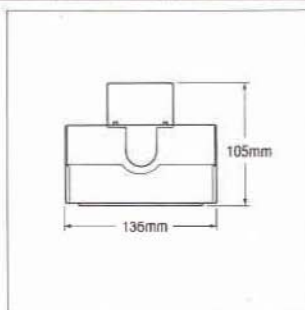
FCLH VDU LOUVRES

To minimise reflected glare in VDU screens it is necessary to provide a shield that will prevent a direct or reflected view of the fluorescent tubes. With normal ceiling heights this will require a louvre that achieves a 50° cut-off angle, and is constructed of material giving a low-brightness appearance. The FCLH louvre meets these requirements and is available in single and twin lamp versions for 1200, 1500 and 1800mm luminaires.

When mounting the FCLH versions end to end a space of 75mm between ceiling plates must be left to allow for attaching the batten and louvre.

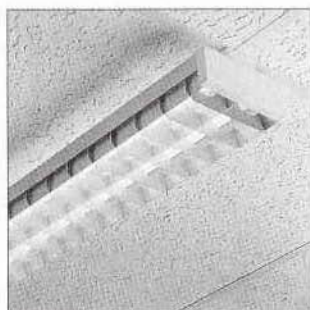
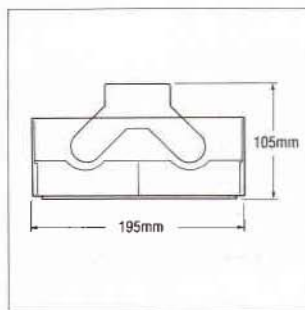
RANGE

Nominal length mm	Rating	Batten Cat. no.	Reflector Cat. no.	Length mm	Weight inc. batten kg
1200	1 x 36W	FCLV 36	FCLH 4	1255	5.82
1200	1 x 36W	FCLZ 36	FCLH 4	1255	5.12
1200	2 x 36W	FCLV 236	FCLH 24	1255	7.8
1200	2 x 36W	FCLZ 236	FCLH 24	1255	7.1
1500	1 x 58W	FCLV 58	FCLH 5	1556	7.45
1500	1 x 58W	FCLZ 58	FCLH 5	1556	6.07
1500	2 x 58W	FCLV 258	FCLH 25	1556	10.02
1500	2 x 58W	FCLZ 258	FCLH 25	1556	8.64
1800	1 x 70W	FCLV 70	FCLH 6	1820	9.38
1800	1 x 70W	FCLZ 70	FCLH 6	1820	8.0
1800	2 x 70W	FCLV 270	FCLH 26	1820	12.25
1800	2 x 70W	FCLZ 270	FCLH 26	1820	10.87


FCLK SINGLE

FCLK LOUVRE ATTACHMENTS

As an alternative to the more conventional diffusers and controllers, the FCLK louvre attachment gives an unobtrusive low brightness appearance. It can be used to reduce the strong linear effect that conventional lines of fluorescent lighting produce in large open areas. Available in single or twin lamp versions, 1200, 1500 and 1800mm lengths.

When mounting the FCLK version end-to-end a space of 75mm between ceiling plates must be left to allow for attaching the batten and louvre.

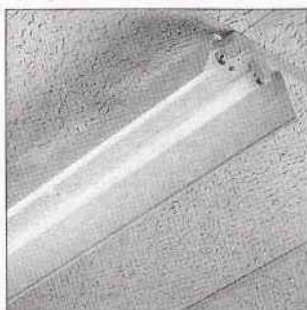

FCLK TWIN

RANGE

Nominal length mm	Rating	Batten Cat. no.	Reflector Cat. no.	Length mm	Weight inc. batten kg
1200	1 x 36W	FCLV 36	FCLK 4	1255	2.65
1200	1 x 36W	FCLZ 36	FCLK 4	1255	1.95
1200	2 x 36W	FCLV 236	FCLK 24	1255	3.7
1200	2 x 36W	FCLZ 236	FCLK 24	1255	3.0
1500	1 x 58W	FCLV 58	FCLK 5	1556	3.48
1500	1 x 58W	FCLZ 58	FCLK 5	1556	2.1
1500	2 x 58W	FCLV 258	FCLK 25	1556	4.9
1500	2 x 58W	FCLZ 258	FCLK 25	1556	3.52
1800	1 x 70W	FCLV 70	FCLK 6	1820	4.62
1800	1 x 70W	FCLZ 70	FCLK 6	1820	3.24
1800	2 x 70W	FCLV 270	FCLK 26	1820	6.1
1800	2 x 70W	FCLZ 270	FCLK 26	1820	4.72

CLIPPER 2



FCLY



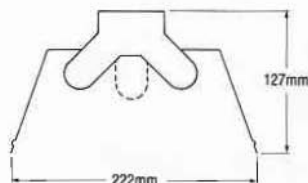
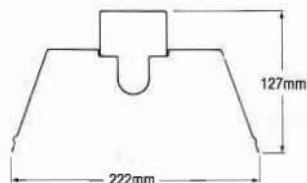
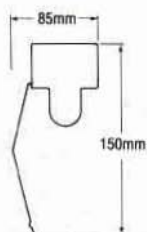
FCLR TWIN

FCLY ANGLE AND FCLR DISPERSIVE METAL REFLECTORS

Sheet steel angle and open-ended-slotted trough reflectors finished with high reflectivity white acrylic enamel. For single, twin, and 3-tube (dispersive only) spines. Simply fixed with screws which engage cage nuts positioned in the knock-outs provided in the spine. Reflector has keyhole slots for easy removal.

NOTE:FCMR 8 is suitable.

WIRE GUARDS CAN BE SUPPLIED TO ORDER.



RANGE

Nominal length mm	Rating	Batten cat. no.	Diffuser	Length mm	Weight kg
1200	1 x 36	FCLV 36	FCLY 4	1228	3.64
1500	1 x 58	FCLV 58	FCLY 5	1528	4.72
1800	1 x 70	FCLV 70	FCLY 6	1792	6.11
2400	1 x 100	FCLV 100	FCLY 8	2403	8.18

RANGE

Nominal length mm	Rating	Batten cat. no.	Reflector cat. no.	Length mm	Weight kg
1200	1 x 36W	FCLV 36	FCLR 4	1228	4.66
1200	2 x 36W	FCLV 236	FCLR 4	1229	5.46
1200	1 x 36W	FCLZ 36	FCLR 4	1228	4.61
1200	2 x 36W	FCLZ 236	FCLR 4	1229	4.66
1500	1 x 58W	FCLV 58	FCLR 5	1528	6.00
1500	2 x 58W	FCLV 258	FCLR 5	1529	7.10
1500	1 x 58W	FCLZ 58	FCLR 5	1528	5.61
1500	2 x 58W	FCLZ 258	FCLR 5	1529	5.72
1800	1 x 70W	FCLV 70	FCLR 6	1792	7.64
1800	2 x 70W	FCLV 270	FCLR 6	1793	8.74
1800	3 x 70W	FCLV 370	FCLR 6	1793	9.84
1800	1 x 70W	FCLZ 70	FCLR 6	1792	7.25
1800	2 x 70W	FCLZ 270	FCLR 6	1793	7.36
2400	1 x 100W	FCLV 100	FCLR 8	2403	10.22
2400	2 x 100W	FCLV 2100	FCLR 8	2403	11.52

ELECTRICAL DATA FOR 240V 50HZ SINGLE TUBE CIRCUITS AND TWIN 36/58/70/100W CIRCUITS

Average performance tested at 25°C to BS 2818 and BS 1853.

Nominal tube length	1200mm	1200mm	1500mm	1500mm	1800mm	1800mm	2400mm	2400mm
Nominal tube watts	36	2 x 36	58	2 x 58	70	2 x 70	100	2 x 100
Circuit type	VS	EB	VS	EB	VS	EB	Lag VS	Lead/Lag VS
Total circuit watts	47	74	71	108	80	132	112	229
Mains current amps	0.22	0.32	0.34	0.47	0.38	0.57	0.50	0.98
Total volt/amps	52	77	82	113	92	137	120	235
Lagging power factor	0.90	0.95	0.87	0.96	0.87	0.96	0.93	0.98
Minimum starting temperature	-5°C	-10°C	-5°C	-10°C	-5°C	-10°C	0°C	0°C
% harmonics/phase	19	22	19	24	19	26	17	11


VS = Vivatronic start. EB = Electronic ballast circuit.

CONTROL GEAR COMPONENTS

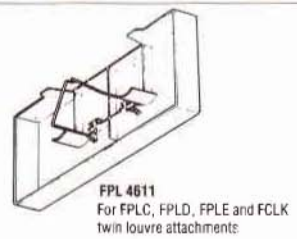
Nominal length mm	Rating	Ballast	Capacitor	Vivatronic starter	Circuit diagram
1200	1 x 36	GCS 36/40	GC 2417	G 69577-4	19
1200	1 x 36	1 x G 81014	NR	NR	—
1200	2 x 36	2 x GCS 36/40	GC 2419	2 x G 69577-4	2 x 19
1200	2 x 36	1 x G 81004	NR	NR	*
1500	1 x 58	GCS 58/65	GC 2435	G 69577-4	19
1500	1 x 58	1 x G 81015	NR	NR	—
1500	2 x 58	2 x GCS 58/65	GC 2409	2 x G 69577-4	2 x 19
1500	2 x 58	1 x G 81005	NR	NR	*
1800	1 x 70	GCS 70	GC 2435	G 69577-4	19
1800	1 x 70	1 x G 81016	NR	NR	—
1800	2 x 70	2 x GCS 70	GC 2409	2 x G 69577-4	2 x 19
1800	2 x 70	1 x G 81006	NR	NR	*
2400	1 x 100	2 x GCSH 100/125	GC 2419	G 69517.4	17
2400	2 x 100	4 x GCSH 100/125	GC 2173	2 x G 69517.4	17 + 14

* see page 222


CLIPPER 2 ACCESSORIES



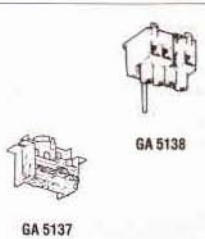
FCL 4610
For FCLC and FCLD single opal and prismatic diffusers



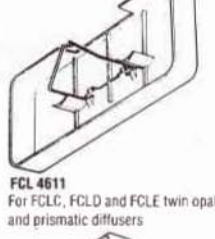
FPL 4611
For FPLC, FPLD, FPLE and FCLK twin louvre attachments




GB 1683
Triple lampholder




GA 5137




FCL 4611
For FCLC, FCLD and FCLE twin opal and prismatic diffusers




GB 1681
Single lampholder




GT 1387
In line fuse holder



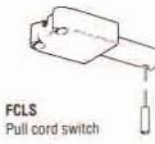
FCCB
Conduit fixing bracket




FPL 4610
For FPLE and FCLK single louvre attachments



GB 1682
Twin lampholder

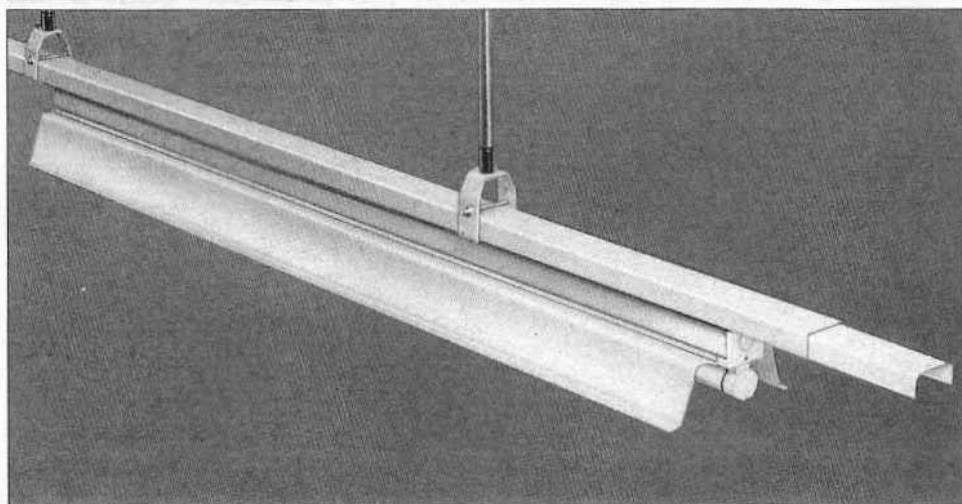


FCLS
Pull cord switch



FCL 4615
Latch

LITELINE TRUNKING



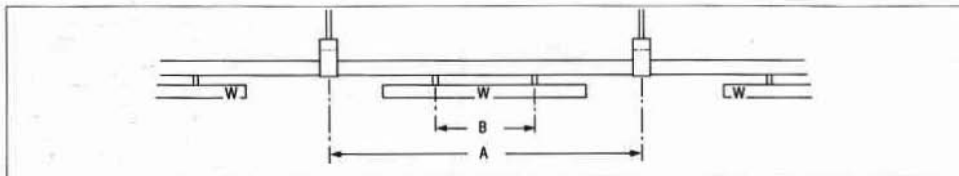
LITELINE STANDARD TRUNKING

Liteline trunking can be suspended, fixed flush or recessed. Supplied in 4.5mm lengths of galvanised cold rolled steel, or painted white. Joining is by slide-in straight coupling piece secured by eight screws for earth continuity.

'Clip-over' suspension stirrup suitable for conduit and clip-on PVC cover fillets. Universal girder clamps for RSJ mounting. Allows continuous unobstructed runways for the cables.

Maximum recommended suspension centres 3-35m.

Luminaires with conduit hole fixing can be suspended anywhere by a special 'T' bolt assembly.



DEFLECTIONS FOR LITELINE TRUNKING

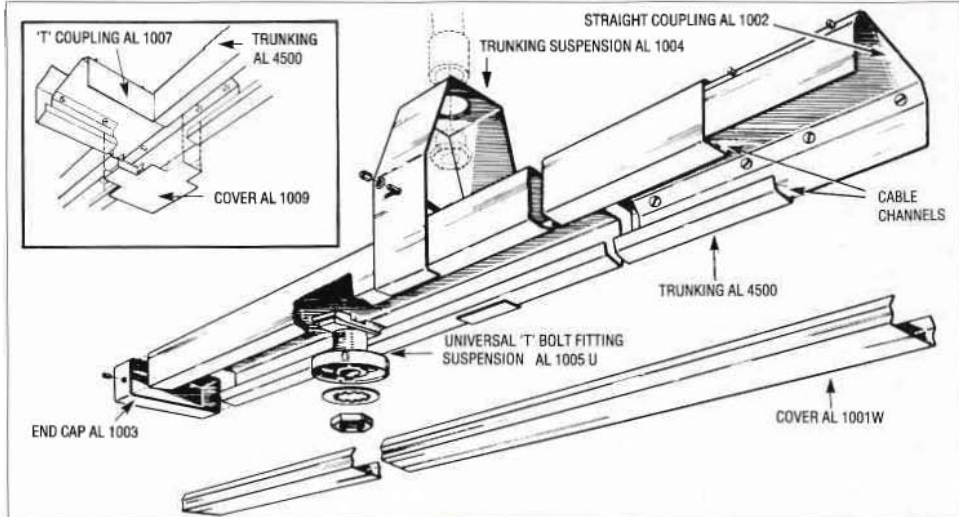
A	B	Weight W	Deflection
3-35m	0-61m	18 kg	6-35mm
3-35m	1-22m	25 kg	5-1mm

The above deflections are for Liteline carrying multi-tube luminaires and assume that all loads are counter-balanced and that the final trunking span is adequately supported at the terminal point. It is important when designing trunking

installations to ensure that the deflection between spans does not exceed 1/360th of the total span. For example, an installation requires trunking to be suspended at 3-35m spans, therefore maximum deflection = $3350/360 = 9.3\text{mm}$.

CABLE CAPACITY

The cable channels provide a unit system factor of 86 allowing the necessary de-rating factors. To check the capacity multiply the quantities of each size of cable by the appropriate factor tabled below and the total should not exceed 86 or 43 for each cable channel.



CATALOGUE NOS.
AL 4500 (galvanised)
AL 4500 P (white painted)
Trunking sections
4.5m length
Weight 6.3kg
66mm x 32mm deep

CATALOGUE NO.
AL 1003
End cap
Weight 0.01kg

CATALOGUE NO.
AL 1006
Horizontal coupling
Weight 0.5kg

CATALOGUE NO.
AL 1009
Cover assembly
Weight 0.06kg

CATALOGUE NO.
AL 4512
Top hat section
4.5m length
Weight 3.5kg
106mm wide x
34mm deep

CATALOGUE NO.
AL 1015A
Vertical-horizontal
coupling (external)
Weight 0.5kg

CATALOGUE NO.
AL 1001W
PVC cover fillet
1.8m length
Weight 0.17kg

CATALOGUE NO.
AL 1004
Trunking
suspension
Weight 0.11kg
38mm wide x 86mm
deep

CATALOGUE NO.
AL 1007
'T' coupling
Weight 0.7kg

CATALOGUE NO.
AL 1010
Girder clamp
assembly
Weight 0.14kg

CATALOGUE NO.
AL 1002
Straight coupling
Weight 0.5kg

CATALOGUE NO.
AL 1005 U
Universal 'T' bolt
luminaire suspension
Weight 0.09kg

CATALOGUE NO.
AL 1008
Four-way coupling
Weight 0.9kg

CATALOGUE NO.
AL 1011
Suspension bracket
Weight 0.03kg
20.5mm dia.

CATALOGUE NO.
AL 1014A
Vertical-horizontal
coupling (internal)
Weight 0.5kg

CATALOGUE NO.
AL 1016
Stop-end junction
Weight 0.5kg

KEY
A - 28.6mm
B - 63mm
C - 184mm
D - 229mm
E - 305mm
F - 35mm
G - 27.8mm
H - 87.3mm
J - 32mm
K - 32.5mm internal
L - 67.4mm internal

LITELINE TRUNKING

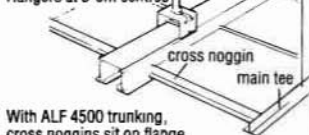
Trunking Mounting

Liteline trunking of all types may be used in almost any type of interior.

Where it is desired to mount the trunking direct to an RSJ (rolled steel joist) girder clamps can be used with the trunking mounted transversely, as in the schematic diagram.

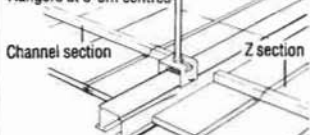
For direct conduit suspension, a steel hanger bracket is available. Two retaining nuts are first fixed to the threaded end of the conduit. The hangers are loosely attached to the trunking, slid into position between the nuts, which are then tightened. The hanger is then locked to the trunking by means of the clamping bolt.

1) Exposed tee
Hangers at 3-6m centres

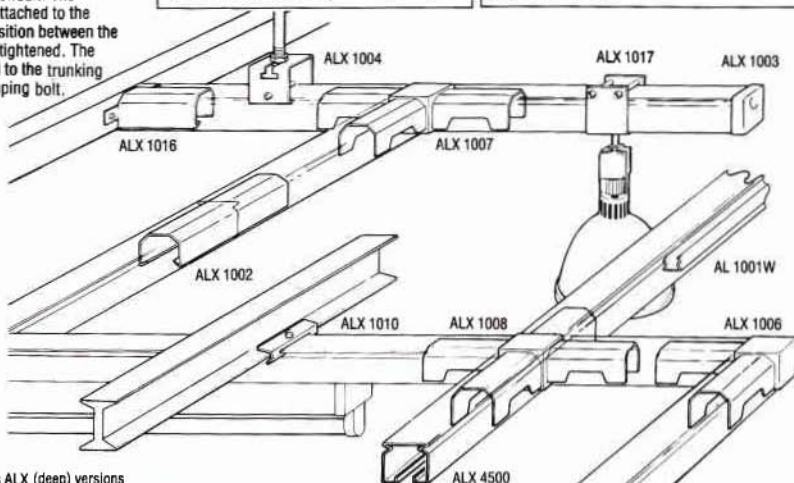


With ALF 4500 trunking, cross noggins sit on flange. With ALFS 4500 the noggins can engage into the trunking (slots at 150mm centres)

2) Concealed fix
Hangers at 3-6m centres



With ALF 4500 trunking concealed fix tiles are cut to sit on the flange.



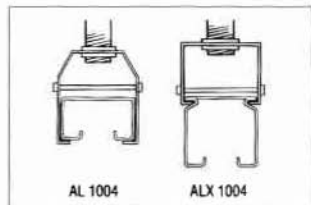
This schematic shows ALX (deep) versions

LITELINE DEEP AND FLANGED TRUNKING

Clipper 2 and the extended Liteline trunking systems have been designed together. Note that the ceiling plate will always be supplied packed with Clipper 2 battens because to comply with the aims of the 15th edition of the IEE wiring regulations, it is necessary that control gear and circuit wiring be shielded from contact with any conducting wires inside the trunking.

The new deep section ALX has greater spanning capabilities and increased cable capacity for large installations. There is a deep version with a projecting flange (ALF) for use with exposed T-grid ceilings commonly found in many installations. Also available in a version (ALFS) pierced for direct fixing of Firststeel, Donn & Flangeklamp cross noggins into the trunking.

The underside of the flanges on ALF and ALFS trunking is finished white for use with exposed T-grid ceilings. Both standard (AL) and deep (ALX) sections are available finished white as a standard option.



CROSS-SECTION AL, ALX, ALF & ALFS TRUNKING AL, ALX, ALF & ALFS

For simple installations where additional features are not required, the standard Liteline AL trunking is ideal.

LITELINE TRUNKING FOR CEILING SYSTEMS

The new flanged Liteline trunking (ALF & ALFS) provides a strong backbone to the surrounding ceiling. This section allows for trunking suspensions to be at 3-6 metre centres which will support both the luminaires and the suspended ceiling. Trunking accessories are provided from the ALX range.

FINISH

The standard finish is hot dipped galvanised on chromate washed steel, which is suitable for use in buildings where the trunking is installed during the construction stage or where humid interior atmospheres exist.

WEIGHTS

The approximate weights of the trunking are:

AL	1.4 kg/metre
ALX	2.5 kg/metre
ALF/ALFS	3.0 kg/metre

The weight of the Clipper 2 luminaires should be added to ascertain the total weight.

SUSPENSION

The maximum recommended trunking suspension centres are:

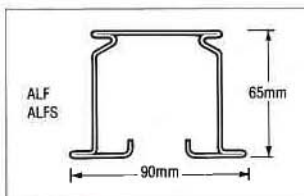
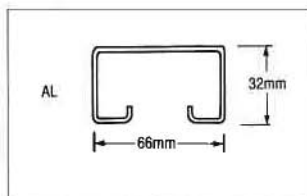
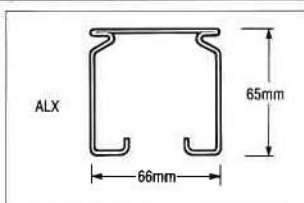
AL	3-35 metres
ALX	4 metres
ALF, ALFS	3-6 metres

This spacing will accept the heaviest arrangement of continuously mounted Clipper 2 luminaires.

LITELINE TRUNKING

CABLE CAPACITIES

Allowing for temperature derating the following is an easy guide to maximum allowable capacity for the trunking, particularly when different sizes of cable are involved. ALX, ALF and ALFS trunking types have common accessories making specification and ordering easier.



CABLE FACTORS

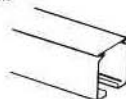
Cable size mm		Factor
1-5	solid	7-1
1-5	stranded	8-1
2-5	solid	10-2
2-5	stranded	11-4
4-0	stranded	15-2
6-0	stranded	22-9
10-0	stranded	36-3

To check trunking capacity, multiply quantities of each size of cable by the appropriate cable factor and the total should not exceed the factor for trunking.

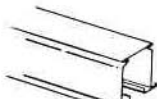
FACTOR FOR TRUNKING

AL	450
ALX, ALF, ALFS	900

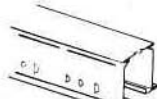
Trunking Sections
4-5m lengths



ALX 4500
Deep



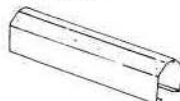
ALF 4500
Flanged.



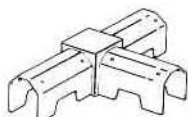
ALFS 4500
Flanged slotted.

Accessories

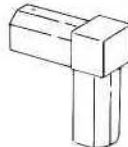
*Not suitable for ALF or ALFS flanged trunking.



ALX 1002
Straight coupler.



*ALX 1007
Three way coupler.



*ALX 1014
Internal coupler.



ALX 1009W
Junction cover (white).



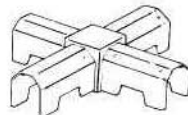
ALX 1003
End cap.



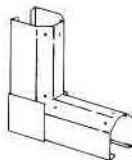
AL 1011
Auxiliary suspension bolt.



ALX 1004
Suspension bracket deep.



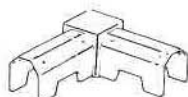
*ALX 1008
Four way coupler.



*ALX 1015
External coupler.



ALX 1017
Hibay suspension clamp.



*ALX 1006
Two way coupler.



ALX 1010
Girder clamp.



ALX 1016
Stop end.

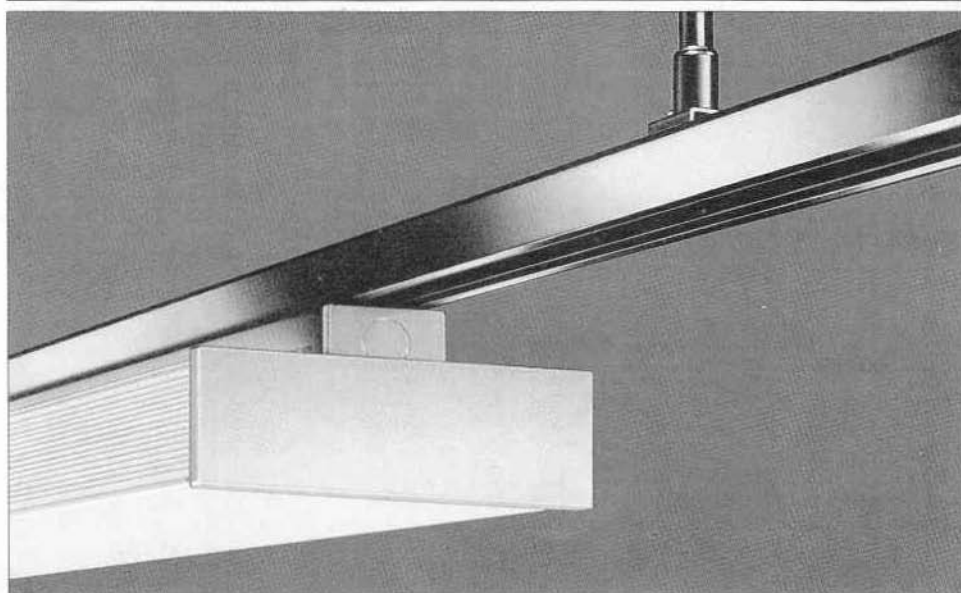


ALX 1001W
White cover fillet (PVC).



ALX 1018
Suspension bolt.

LIGHTWEIGHT TRUNKING

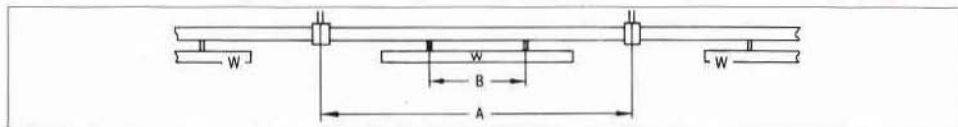


A satin anodised aluminium trunking for commercial interiors. Suitable for surface mounting or conduit suspension, one other profile is available for suspended ceilings (see illustration). Chain suspension is not recommended.

Luminaires suspension assembly gives extreme flexibility of suspension centres for the trunking and spacing of the luminaires along it. Through-wiring cables are retained by fibre support pieces. The trunking should be stored in a dry area.

MAXIMUM RECOMMENDED TRUNKING SUSPENSION CENTRES-2.44M.

NOTE: An expansion gap of at least 6.35mm must be left between trunking lengths.



DEFLECTIONS FOR LIGHTWEIGHT TRUNKING

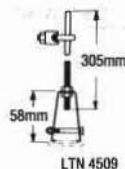
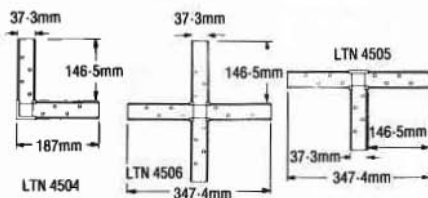
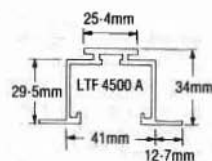
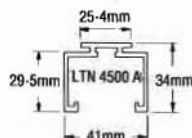
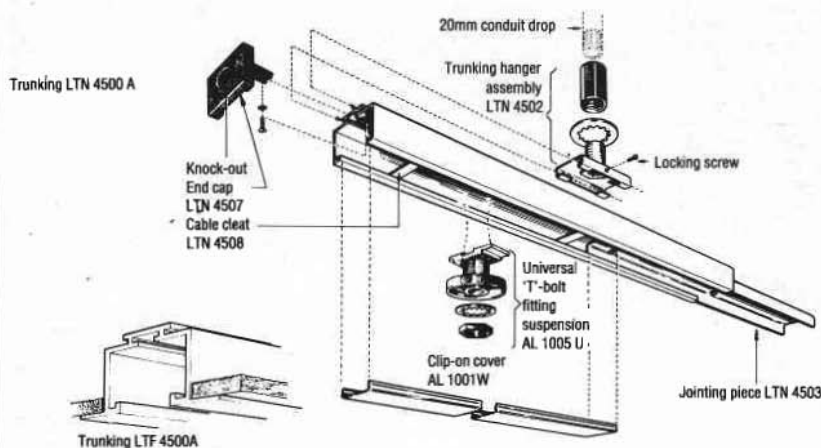
A	B	Weight W	Deflection
2.44m	0.61m	9 kg	5.7mm
2.44m	1.22m	13.6 kg	5.7mm

The above deflections were measured using maximum weight Popular Pack luminaires. These figures assume that all loads are counter-balanced and the final trunking span will be adequately supported at the termination point.

It is important when designing trunking installations to ensure that the deflection between spans does not exceed 1/360th of the total span.

For example, an installation requires trunking to be suspended at 2.44m spans. Therefore maximum deflection = $2440/360 = 6.7\text{mm}$.

LIGHTWEIGHT TRUNKING



COMPONENTS TABLE

Cat. no.	Description	Weight kg
LTN 4500 A	4.5 metre length trunking	3.175
LTF 4500 A	4.5 metre length trunking for recessing	3.63
AL 1005 U	Universal 'T'-bolt fitting suspension (also used with Liteline trunking)	0.09
LTN 4502	Trunking hanger assembly	0.085
LTN 4503	Jointing piece	0.34
LTN 4504	Two-way coupling	0.23
LTN 4505	Three-way coupling	0.28
LTN 4506	Four-way coupling	0.51
LTN 4507	End cap	0.028
LTN 4508	Cable cleats	0.014 (Pack of 10)
LTN 4509	Adjustable trunking hanger assembly	0.17
LTN 1001 W	1.8 metre PVC cover (also used with Liteline trunking)	0.17

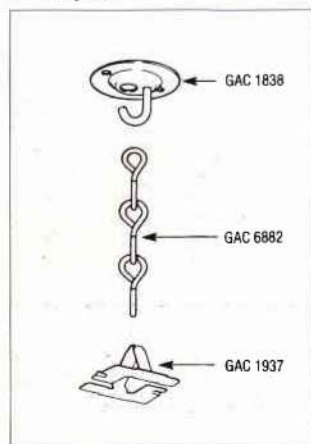
SUSPENSION SETS

Suspension sets are available for most THORN EMI Lighting luminaires. The standard length of chain sets is 1 metre but other lengths in multiples of 1 metre will be supplied on request. The standard length of rod sets is 0.75 metre but other lengths in multiples of 0.15 metre will be supplied on request.

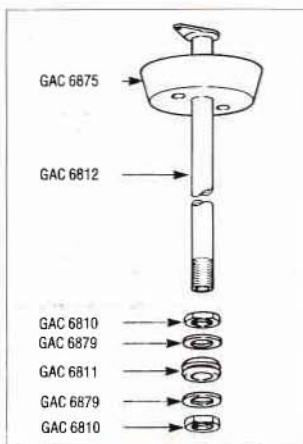
Catalogue numbers and descriptions relate to complete set. Half contents of the suspension sets are illustrated. Catalogue numbers for individual parts of suspension sets are shown on the diagrams.

MAXIMUM LOADING TABLE

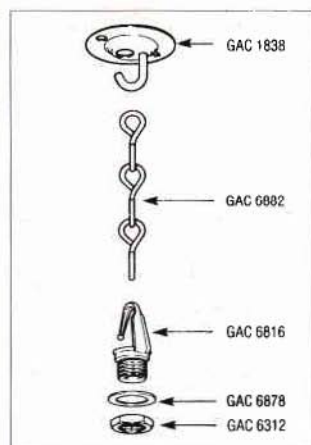
Cat. no.	Component packages	Maximum loading
A 1000	A set + 2 x GAC 6882	19.0 kg
B 750	B set + 2 x GAC 6812	30.9 kg
H 750	H set + 2 x GAC 6815	123.0 kg
K 1000	K set + 2 x GAC 6882	28.1 kg



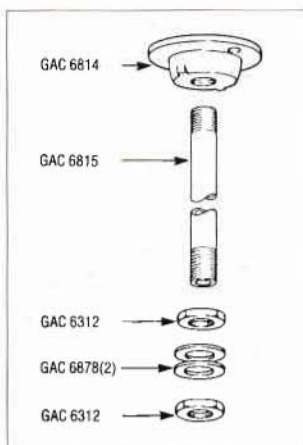
A 1000 SUSPENSION SET (LIGHT DUTY)



B 750 SUSPENSION SET



K 1000 SUSPENSION SET (HEAVY DUTY)



H 750 SUSPENSION SET

A 1000 SUSPENSION SET (LIGHT DUTY)

Two steel hooked ceiling plates, two 1 metre lengths of chain, two spring loops.

B 750 SUSPENSION SET

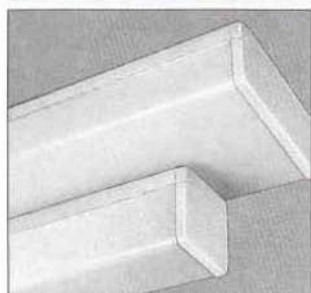
Two pressed ceiling plates, two 16mm x 750mm rods screwed M16 x 1.5, grommets, locknuts, washers. White finish.

K 1000 SUSPENSION SET (HEAVY DUTY)

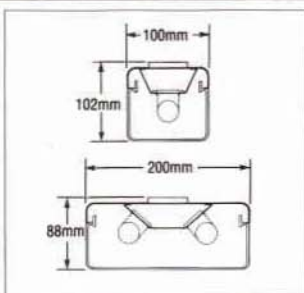
Two steel hooked ceiling plates, two 1 metre lengths of chain, two suspension hooks threaded M20 x 1.5, back nuts and washers.

H 750 SUSPENSION SET

Two 20mm x 750mm rods screwed M20 x 1.5 with ball joint ceiling plates, back nuts and washers. White finish.



F1D0 SINGLE AND TWIN LAMP OPTIONS



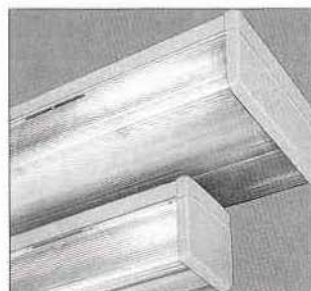
F1D0

Slim section batten with opal diffuser. Finished white with back cable entry. Available in single and twin lamp options in 1200mm, 1500mm and 1800mm nominal body lengths.

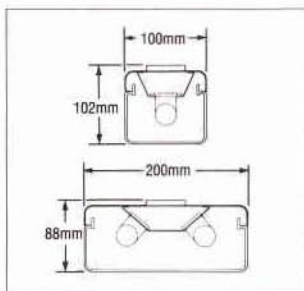
This luminaire may be surface mounted or conduit suspended. Supplied less lamp. Will accept 26mm and 38mm diameter tubes.

RANGE

Nominal Size (mm)	Rating	Circuit	Body cat. no.	Diffuser cat. no.	Length mm
1200	1 x 36W	VS	F1D-136	F1D0-14	1260
1200	2 x 36W	VS	F1D-236	F1D0-24	1260
1500	1 x 58W	VS	F1D-158	F1D0-15	1560
1500	2 x 58W	VS	F1D-258	F1D0-25	1560
1800	1 x 70W	VS	F1D-170	F1D0-16	1824
1800	2 x 70W	VS	F1D-270	F1D0-26	1824



F1DP SINGLE AND TWIN LAMP OPTIONS



F1DP

As the above including vivatronic gear but with Prismatic Controller. Note: diffusers and controllers are ordered and supplied separately.

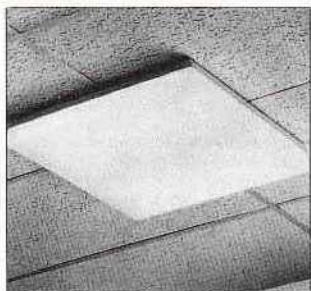
This luminaire may be surface mounted or conduit suspended. Supplied less lamp. Will accept 26mm and 38mm diameter tubes.

RANGE

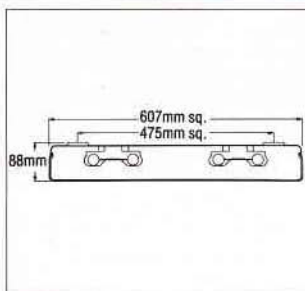
Nominal size (mm)	Rating	Circuit	Body cat. no.	Controller cat. no.	Length mm
1200	1 x 36W	VS	F1D-136	F1DP-14	1260
1200	2 x 36W	VS	F1D-236	F1DP-24	1260
1500	1 x 58W	VS	F1D-158	F1DP-15	1560
1500	2 x 58W	VS	F1D-258	F1DP-25	1560
1800	1 x 70W	VS	F1D-170	F1DP-16	1824
1800	2 x 70W	VS	F1D-270	F1DP-26	1824

FORMULA ONE

FORMULA ONE



F1DO 240U



F1DO 240U

Nominally 600mm square, is supplied complete with 2 x 40W T8 Krypton filled Polyflux 3500 U-tubes and opal diffuser. Surface mount only.

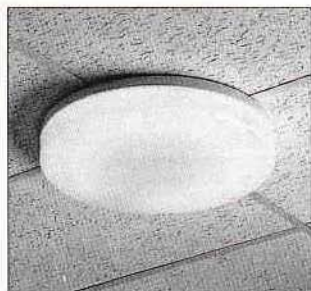
RANGE (Packed complete with Polyflux 3500 U-tubes)

Nominal size (mm)	Rating	Circuit	Luminaire cat. no.	Size mm
600 sq.	2 x 40W 'U'	VS	F1DO-240U	607 sq.

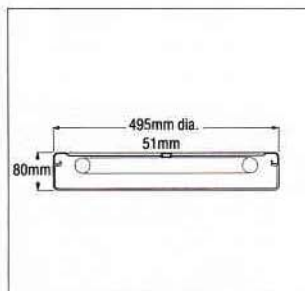
Luminaires include Opal diffuser.

Spare diffuser: F1DO-SQ.

Diffusers in all linear and square types are restrained by wishbone springs.



F1DO 60



F1DO 60

The circular luminaire in the range. Nominally 500mm diameter it is supplied c/w a 60W Warm White Circular tube and opal diffuser. Note that this is a switchstart circuit. The diffuser is retained by clips. Surface mount only.

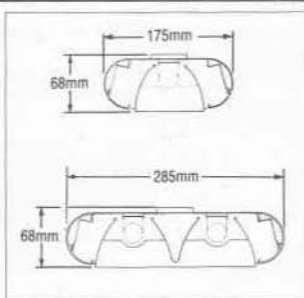
RANGE (Packed complete with 60W Circular Warm White tube)

Nominal size mm	Rating	Circuit	Luminaire cat. no.	Size mm
500 dia	1 x 60W	SS	F1DO-60	500 dia.

Luminaires supplied c/w tube and Opal diffuser.

Spare diffuser: F1DO-CIRC.


F1X SINGLE

F1X TWIN

F1X

Single and twin variations of symmetrical reflectors in a white body. Three lengths – 1200mm, 1500mm and 1800mm. Excellent light output and distribution minimises the number of luminaires for any given output.

This luminaire may be surface mounted or conduit suspended.

Supplied less lamp. Use 26mm diameter tubes.

RANGE

Nominal size mm	Rating	Circuit	Body cat. no.	Reflector cat. no.	Length mm
1200	1 x 36W	VS	F1X-136	F1X-14	1288
1200	2 x 36W	VS	F1X-236	F1X-24	1288
1500	1 x 58W	VS	F1X-158	F1X-15	1588
1500	2 x 58W	VS	F1X-258	F1X-25	1588
1800	1 x 70W	VS	F1X-170	F1X-16	1852
1800	2 x 70W	VS	F1X-270	F1X-26	1852

QUATTRO

DESCRIPTION

A range of modular recessed fluorescent luminaires for commercial interiors, with a comprehensive selection of light control attachments enabling the creation of a variety of lighting atmospheres.

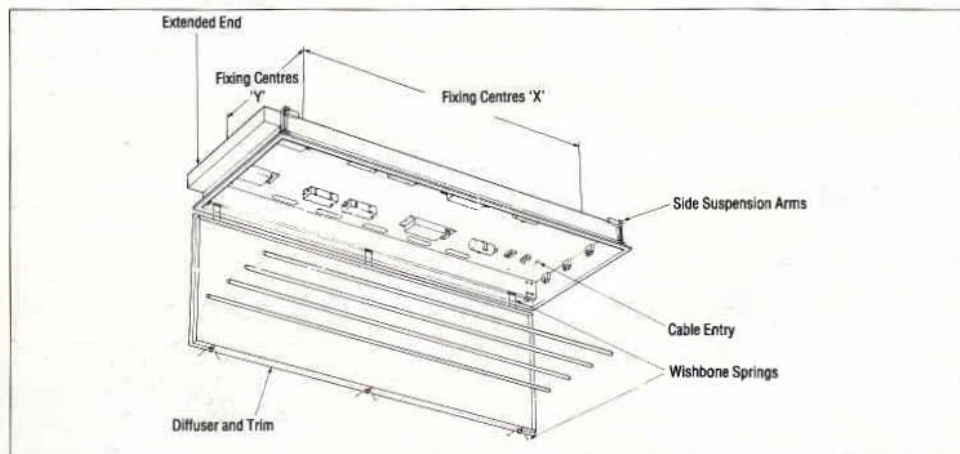
All models use Vivatronic control gear as standard; switchstart and electronic ballast versions are available to order. The luminaires are compatible with most commercial ceiling systems.

BODIES

These are fabricated from high quality zinc steel and offered in two widths:

- (i) FRAV series — 300mm wide. 1 and 2 (linear) tube.
- (ii) FRBV series — 600mm wide. 2 and 3 U-tube, 2, 3 and 4 linear tube.

All linear lamp versions are constructed with an integral end box to contain the full tube length. This reaches beyond the ceiling module, and should therefore be inserted first if the ceiling is already installed.



RANGE

Body c/w gear	Nominal dimensions	Lamps	DIFFUSERS			Metal Frame		LOUVRES		
			Opal-sided	Prismatic	Air-handling	Opal	Prismatic	Low brightness	VDU	Bi-planar
			FRD	FRE	FRF	FRD	FRP	FRX	FRV	FRL
FRAV 136	300 x 1200	1 x 36W	312	312	—	312	312	—	—	312
FRAV 158	300 x 1500	1 x 58W	315	315	—	315	315	—	—	315
FRAV 170	300 x 1800	1 x 70W	318	318	—	318	318	—	—	318
FRAV 236	300 x 1200	2 x 36W	312	312	—	312	312	2312	2312	312
FRAV 258	300 x 1500	2 x 58W	315	315	—	315	315	2315	2315	315
FRAV 270	300 x 1800	2 x 70W	318	318	—	318	318	2318	2318	318
FRBV 236	600 x 1200	2 x 36W	612	612	612	612	612	—	—	612
FRBV 240U	600 x 600	2 x 40W U	66	66	66	66	66	—	—	66
FRBV 270	600 x 1800	2 x 70W	618	618	618	618	618	—	—	618
FRBV 336	600 x 1200	3 x 36W	612	612	612	612	612	3612	3612	612
FRBV 340U	600 x 600	3 x 40W U	66	66	66	66	66	—	—	66
FRBV 370	600 x 1800	3 x 70W	618	618	618	618	618	3618	3618	618
FRBV 418	600 x 600	4 x 18W	66	66	66	66	66	466	466	66
FRBV 436	600 x 1200	4 x 36W	612	612	612	612	612	4612	4612	612
FRBV 470	600 x 1800	4 x 70W	618	618	618	618	618	4618	4618	618

ATTACHMENTS

There are eight standard attachments.

FRD: Opal sides, flat opal base. Polystyrene.

FRE: Opal sides, flat prismatic (TL12) base. Polystyrene.

FRF: Aluminium air-handling frame, flat prismatic (TL19) panel. Acrylic.

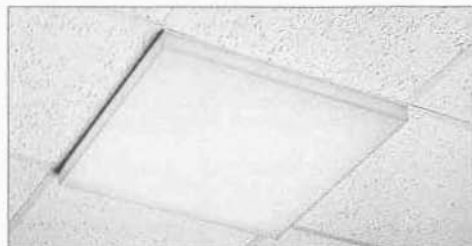
FRQ: Shallow aluminium frame, flat opal panel. Polystyrene.

FRP: Shallow aluminium frame, flat prismatic (TL19) panel. Acrylic.

FRL: Bi-planar louvre. Aluminium (optional gear covers available).

FRV: Very low brightness VDU louvre. Aluminium.

FRX: Low brightness louvre. Aluminium.



FRD



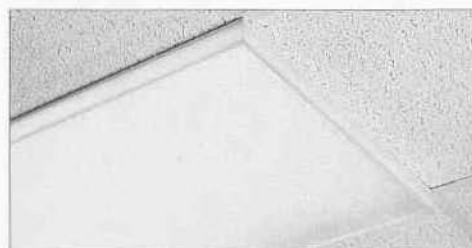
FRP



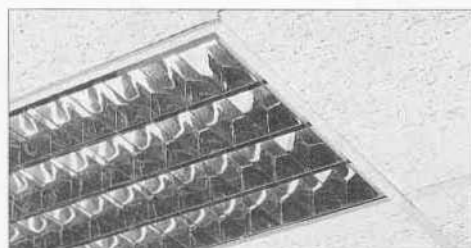
FRE



FRL



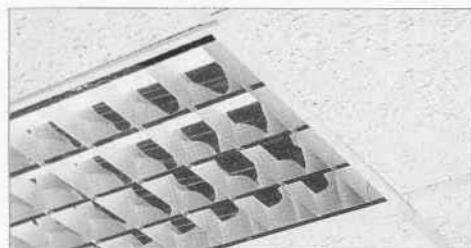
FRF



FRV



FRQ



FRX

QUATTRO

AIR-HANDLING

The backs of the luminaire bodies incorporate several elongated slots through which air may travel in air-handling applications. The FRF attachment allows the wide versions to offer air-handling facilities whilst still retaining the acrylic prismatic diffuser favoured in some situations. Equally, all of the louvre attachments permit full air-handling capability in both the narrow and wide versions.

The standard method of operation is with negative pressure return plena, although ducted extract systems can be made to order as special items.

FIXING DETAILS

A) SUSPENSION

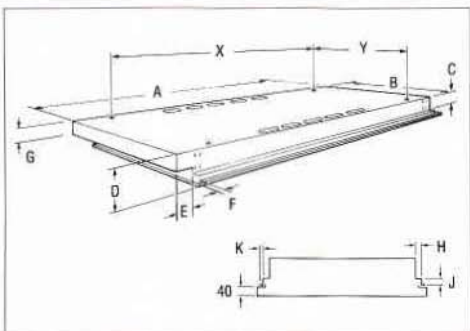
Three methods of suspension may be used:

- rod suspension (Catalogue number KL 4601: set of 4 rods)
- 6mm studding
- side-arm suspension (Catalogue number FR 1001: set of 4 arms)

The first two methods support the luminaire directly from the structural ceiling; the third uses the load-bearing gridwork of the suspended ceiling, allowing it to be fully installed before the lighting is fitted. In addition such a system offers a significant degree of flexibility in layout, since it is possible to re-arrange the luminaire positions with a minimum of disturbance to the suspended ceiling.

B) ATTACHMENTS

All attachments are fitted to the bodies by wishbone springs giving quick positive location and easy removal for maintenance and cleaning.



DIMENSIONS

Dimensions	FRAV 1200	1500	1800	FRBV 600	1200	1800
A	1224	1524	1788	561	1224	1788
B	236	236	236	538	538	538
C	97	97	97	97	97	97
D	105	105	105	105	105	105
E	64	64	28	—	64	28
F	19	19	19	19	19	19
G	52	52	52	—	52	52
H	16	16	16	16	16	16
J	26	26	26	26	26	26
K	15	15	15	15	15	15

SUSPENSION CENTRES

Longitudinal (x)	900	1125	1350	516	900	1350
Transverse (y)	200	200	200	500	500	500

REPLACEMENT CONTROL GEAR AND ACCESSORIES

Lampholder	Linear tubes	GB 1668
	U tubes	GB 1694
Capacitor clip	All models	GY 5320
Vivatronic starter	'U'-tube luminaires	G 69532-4P
Vivatronic starter	All other models	G 69577-4
Fuse (3 amp)	All models	GT 1299
Fuse holder	All models	GT 1387
Terminal block	3 way (2 lamp)	GT 1364/3
	4 way (3/4 lamp)	GT 1364/4

	Choke	Quantity	Capacitor (s)	Quantity
FRAV 136	GCS 36/40	1	GC 2417	1
FRAV 158	GCS 58/65	1	GC 2435	1
FRAV 170	GCS 70/75	1	GC 2435	1
FRAV 236	GCS 36/40	2	GC 2419	1
FRAV 258	GCS 58/65	2	GC 2409	1
FRAV 270	GCS 70/75	2	GC 2409	1
FRBV 236	GCS 36/40	2	GC 2419	1
FRBV 240U	GCS 36/40	2	GC 2419	1
FRBV 270	GCS 70/75	2	GC 2409	1
FRBV 336	GCS 36/40	3	GC 2417 + GC 2419	1 + 1
FRBV 340U	GCS 36/40	3	GC 2417 + GC 2419	1 + 1
FRBV 370	GCS 70/75	3	GC 2409 + GC 2435	1 + 1
FRBV 418	GCS 18/20	4	GC 2417	2
FRBV 436	GCS 36/40	4	GC 2419	2
FRBV 470	GCS 70/75	4	GC 2409	2

DIFFUSER CLEANING FLUID:

1 litre	GM 6207/1
5 litres	GM 6207/5

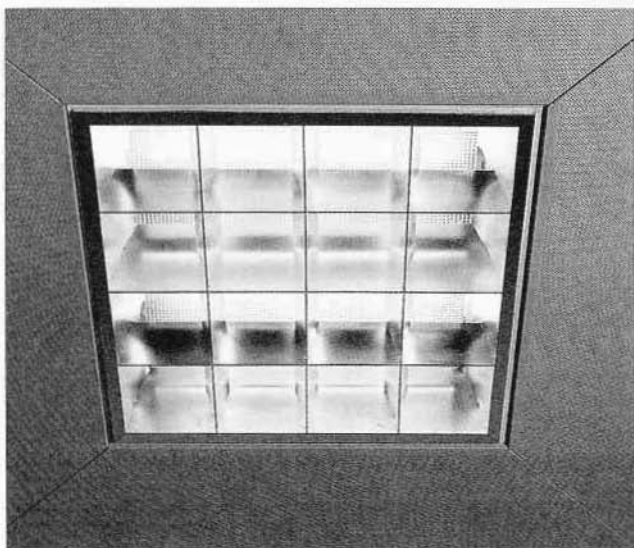
COMPACT FLUORESCENT 2L LUMINAIRES

The developments in compact fluorescent lamp technology resulting in the 2L lamp have opened the way for a new generation of high performance modular luminaires.

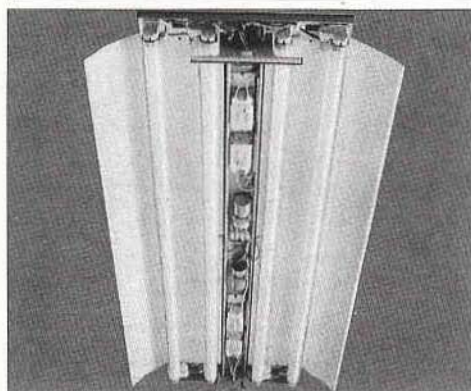
THORN EMI Lighting are designing a variety of fittings around the 2L lamp which make use of its compact nature to offer very precise, high efficiency light control. These advances have made it possible to provide commonly desired lumen packages in 600mm square modules to suit modern suspended ceiling grids, such that the low-brightness and VDU louvres, tailored specifically to fit the 2L compact fluorescent lamps, often give the optimum overall solution.

Luminaires using the 2L lamp are operated by electronic ballast, maximising the efficacy of the lamps, and cutting running costs by reducing consumption of electricity.

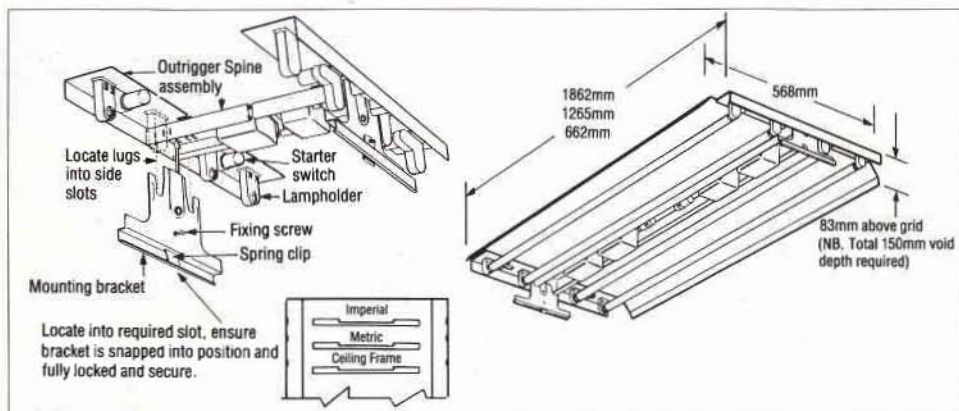
This is the fastest-growing area of lighting technology; continued research into lamp and fittings' design will ensure that THORN EMI Lighting can provide suitable luminaires to cater for the many needs of the commercial world.



TROFFER PACK



A lightweight Troffer for simple recessed lighting in lay-in exposed tee ceilings and most concealed-fix suspended ceilings. Supplied in kit form the luminaire is easy and quick to install and ideally suited for conversion of existing premises as well as new building work. Body sizes are available for metric and imperial modules of 1800mm x 600mm, 1800 x 300mm, 1200mm x 600mm, 1200mm x 300mm, and 600mm x 600mm. The luminaire is supplied complete with White tubes. In the case of the 600mm version these are THORN EMI Lighting T8 U-tubes. Twin tube and four tube (1200mm and 1800mm only) versions are available. Luminaires comply with BS 4533 2-2 (IP20).



RANGE

Luminaires catalogue number	Nominal length mm	Nominal width mm	Tube rating	No. of tubes	Circuit	Approx. weight kg
FTPN 236	1200	300	36W	2	SS HPF lag	4.3
FTPN 270	1800	300	70W	2	SS HPF lead-lag	5.2
FTP 240U	600	600	40W	2	SS HPF lag	6.5
FTP 236	1200	600	36W	2	SS HPF lag	6.7
FTP 436	1200	600	36W	4	SS HPF lag	9.2
FTP 270	1800	600	70W	2	SS HPF lead-lag	9.7
FTP 470	1800	600	70W	4	SS HPF lead-lag	12.7

REPLACEMENT SPARES AND CONTROL GEAR FOR 240V 50HZ SUPPLY

Luminaire	Lampholder with starter socket	Lampholder	Starter switch	Choke leading cct.	Choke lagging cct.	Capacitor
FTP 240U	GB 1641	—	155/400	—	GCU 40	GC 2419
FTP/N 236/FTP 436	GB 1647	GB 1634	155/400	—	GCU 40	GC 2419
FTP/N 270/FTP 470	GB 1647	GB 1634	155/802	GCU 65	GCU 75	GC 2226

For circuit diagrams see Control Gear & Accessories Section.



ATTACHMENTS

Two types are available:-

- Pearl stippled opal flat panel (styrene).
- TL 12 prismatic flat panel (styrene)

These are also available in aluminium frames for use in concealed-fix ceilings.

INSTALLATION

i) LAY-IN EXPOSED TEE CEILINGS.

The luminaire replaces a standard mineral fibre ceiling tile, simply clipping to the main tees and requiring only 150mm void depth for installation. Main tees for support should be 38mm high with a 24mm table running at right angles to the luminaire. If cross tees are used for support, these must comply with the above dimensions and be independently supported as main tees.

ii) CONCEALED FIX CEILINGS.

The luminaire is supported on the attachment's aluminium frame which is in turn supported from the soffit by means of hanger-clips. The ceiling opening should be prepared beforehand to ensure that the correct size is available; this may involve reversing the direction of some of the grid sections. Where appropriate tiles can rest on the table of the attachment frame.

FIRE RATED CEILINGS

A Troffer Pack luminaire has been successfully tested to provide a 1hr fire rating when installed in mineral fibre ceiling with a special support frame and enclosing box. Details on request.

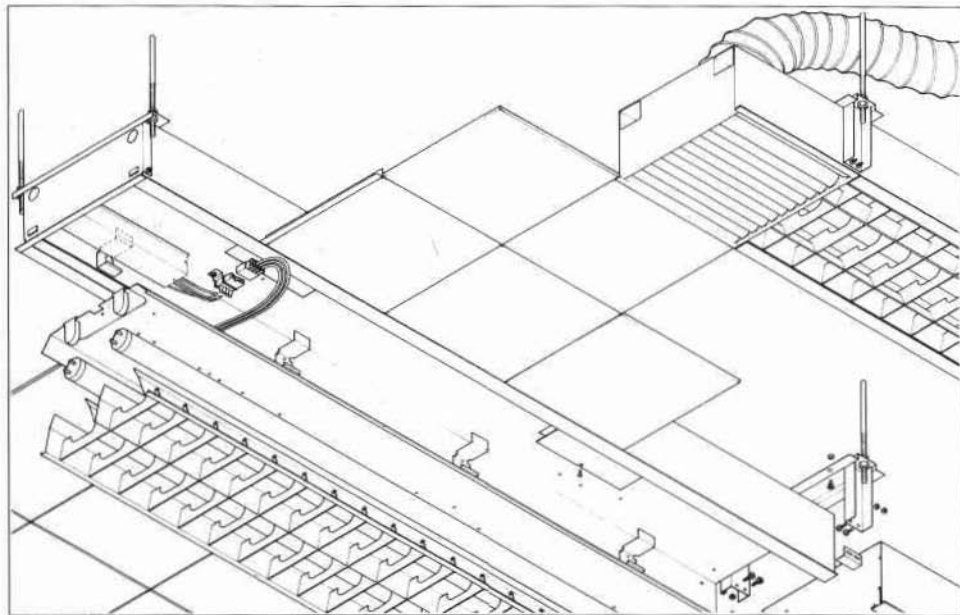
ATTACHMENTS

Nominal size mm	Diffuser for Lay-in Ceilings		Frames c/w diffusers for Concealed Fix Ceilings	
	opal	prismatic	opal	prismatic
1200 x 300	FTPO 312	FTPP 312	FTPFO 312	FTPFP 312
1800 x 300	FTPO 318	FTPP 318	FTPFO 318	FTPFP 318
600 x 600	FTPO 66	FTPP 66	FTPFO 66	FTPFP 66 Mk II
1200 x 600	FTPO 612	FTPP 612	FTPFO 612 Mk II	FTPFP 612 Mk II
1800 x 600	FTPO 618	FTPP 618	FTPFO 618 Mk II	FTPFP 618 Mk II



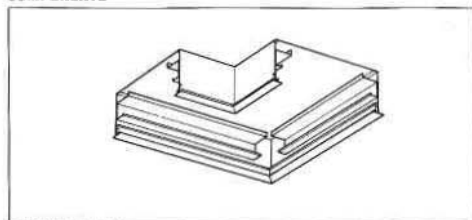
Arena is a lighting system for integrated ceiling projects, featuring unparallelled air handling functions. Significant gains have been made in lighting performance, and the system has far more flexibility in application. The basis is a 300mm wide body, into which gear trays can be fitted at modular or random locations to provide the required scheme. Individual luminaires can be provided in 1200, 1500 and 1800mm lengths. The system is based on the use of T8 fluorescent tubes and Vivatronic electronic starting.

The range of light-control attachments includes three sets of louvres designed to meet the diverse requirements of modern office specifications. The VDU louvre in particular finds application in those areas where lighting must be unobtrusive and yet still effective and elegant.

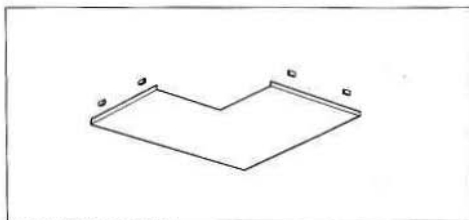


A TYPICAL ASSEMBLY OF COMPONENTS

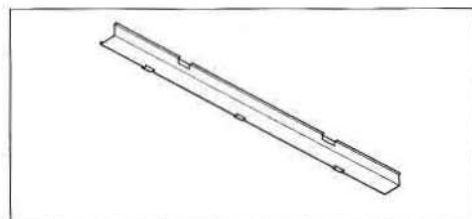
COMPONENTS



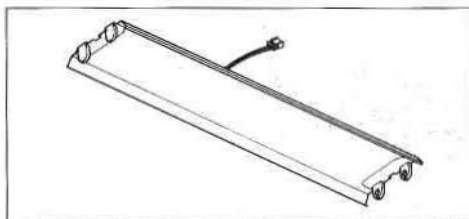
CORNER BODIES



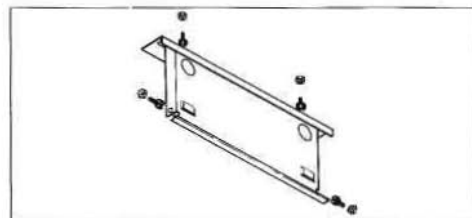
CORNER INFILL PANELS



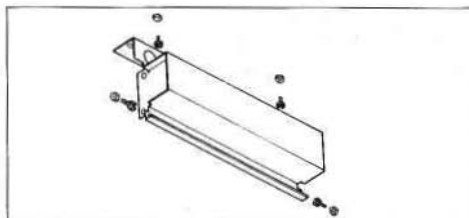
CABLE COVERS



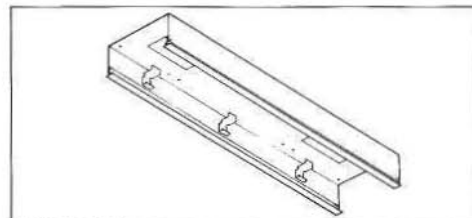
SINGLE AND TWIN T8 LAMP GEAR TRAYS



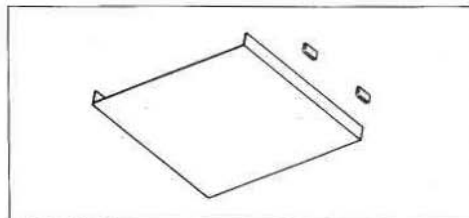
END CAP



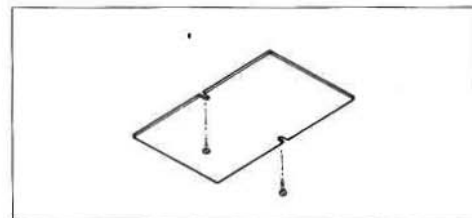
EXTENDED END CAP



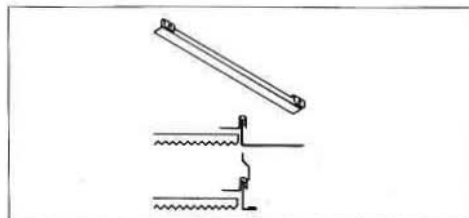
CEILING BODIES



INFILL PANELS

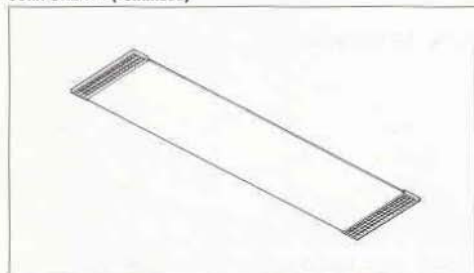


BLANKING PLATE (FIT FOR NON AIR EXTRACT SCHEME)

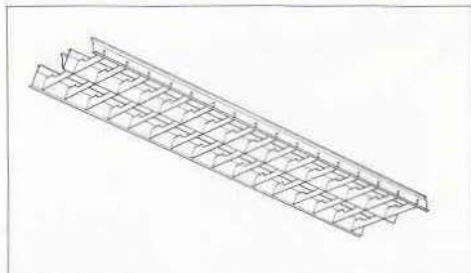


LIGHT BAFFLE (PRISMATIC PANEL AND BLANKING PLATE)

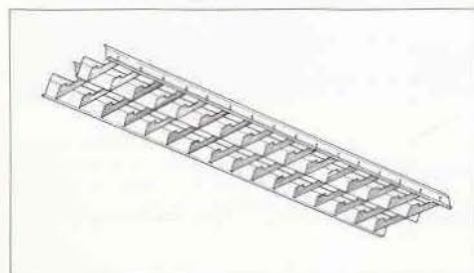
COMPONENTS (continued)



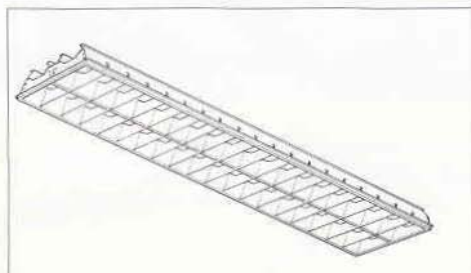
PRISMATIC END EXTRACT PANELS



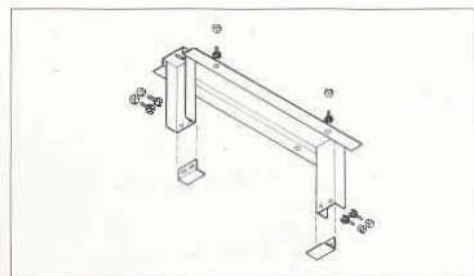
BATWING LOUVRES



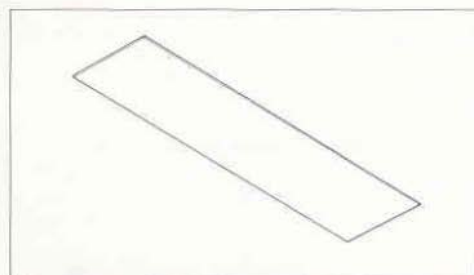
LOW-BRIGHTNESS BATWING LOUVRES



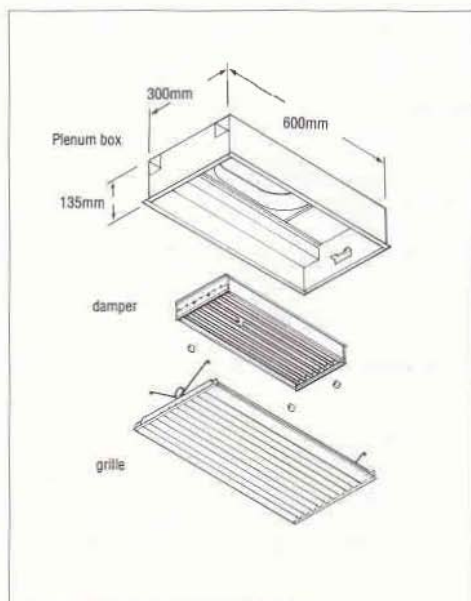
VDU LOUVRES



SUSPENSION BRACKETS



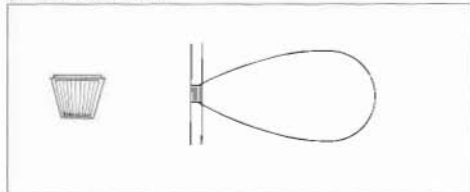
PRISMATIC PANELS (ACRYLIC)



TYPICAL AIR SUPPLY CONFIGURATION

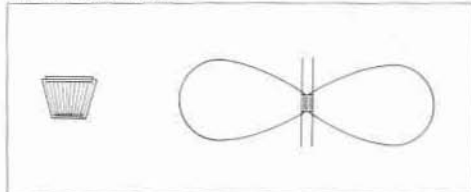
AIR SUPPLY PERFORMANCE CHARACTERISTICS

ONE WAY BLOW GRILLE



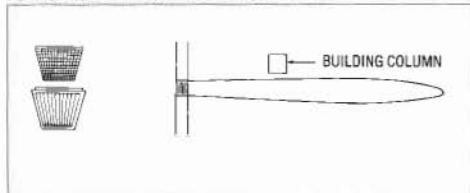
Standard arrangement. Wide 'spread', Shallow 'drop'.

TWO WAY BLOW GRILLE



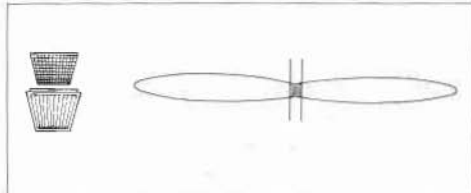
Standard arrangement. Wide 'spreads', Shallow 'drops'.

FULL STRAIGHTENER/ONE WAY BLOW GRILLE



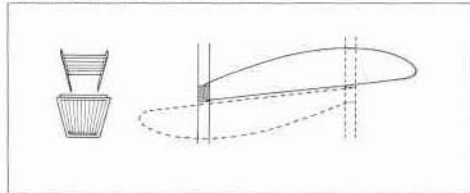
Air envelope straightened to avoid obstacles or to deal with alcoves or corridors.

FULL STRAIGHTENER/TWO WAY BLOW GRILLE



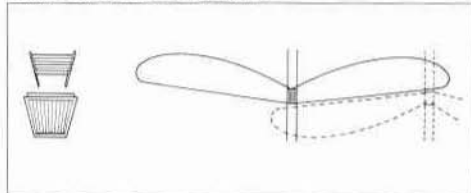
Air envelopes straightened to deal with long narrow rooms.

DEFLECTOR/ONE WAY BLOW GRILLE



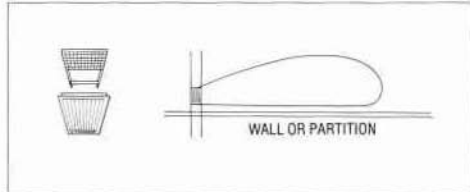
Air supply 'envelope' deflected to avoid colliding with obstacles or with opposing air streams.

DEFLECTOR/TWO WAY BLOW GRILLE



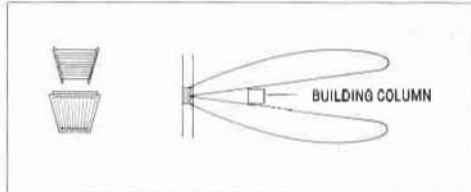
Air 'envelopes' deflected to avoid obstacles or opposing air streams.

HALF STRAIGHTENER/ONE WAY BLOW GRILLE



Air envelope straightened on one side only to cope with side walls or partitions.

SPLIT SPREAD UNIT/ONE WAY BLOW GRILLE



Air envelope divided to pass round obstacle directly in front.

These air control components may easily be relocated or adjusted if the office layout is changed.

RANGE

Module length	1200mm		1500mm		1800mm	
	Description	Weight kg	Description	Weight kg	Description	Weight kg
Ceiling body	CAS 1020	5.5	CAS 1050	6.8	CAS 1080	8.2
Gear tray—single	CAS 1021 1 x 36W	3.6	CAS 1051 1 x 58W	5.0	CAS 1081 1 x 70W	5.5
Gear tray—twin	CAS 1022 2 x 36W	4.5	CAS 1052 2 x 58W	6.8	CAS 1082 2 x 70W	7.3
Prismatic panel (TL 12)	CAS 1024	0.9	CAS 1054	1.0	CAS 1084	1.2
Prismatic panel/end extract louvre	CAS 1027	0.9	CAS 1057	1.0	CAS 1087	1.2
Batwing louvre—single	CAS 1225	1.3	CAS 1255	1.6	CAS 1285	1.8
Batwing louvre—twin	CAS 1226	1.3	CAS 1256	1.5	CAS 1286	1.7
Low brightness batwing louvre—single	CAS 1025	1.3	CAS 1055	1.5	CAS 1085	1.7
Low brightness batwing louvre—twin	CAS 1026	1.3	CAS 1056	1.5	CAS 1086	1.7
VDU louvre—twin	CAS 1326	1.3	CAS 1356	1.5	CAS 1386	1.7

ACCESSORIES (COMMON TO ALL LENGTHS)

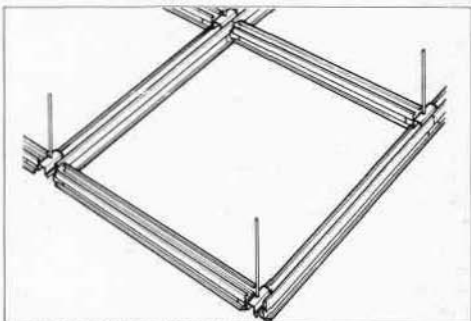
Cat. no.	Description	Weight kg
CAS 1023	Cable cover—1200mm	0.9
CAS 1053	Cable cover—1500mm	1.0
CAS 1083	Cable cover—1800mm	1.2
CAS 1101	Spare terminal socket	—
CAS 1102	End cap	0.7
CAS 1103	End cap (extension for 1200/1500mm)	1.0
CAS 1104	Suspension bracket	0.7
CAS 1105	Blanking plate	0.2
CAS 1106	Light baffle	—
CAS 1107	Cross tee	—
CAS 1108	300mm x 300mm infill panel	0.5
CAS 1109	Earthing cords	—
CAS 1110	300mm x 300mm supply air grille single throw	1.0
CAS 1111	600mm x 300mm supply air grille single throw	2.1
CAS 1112	300mm x 300mm supply air grille two way throw	1.0
CAS 1113	600mm x 300mm supply air grille two way throw	2.1
CAS 1114	300mm x 300mm damper kit	0.5
CAS 1115	600mm x 300mm damper kit	0.9
CAS 1116	300mm x 300mm deflector kit	0.1
CAS 1117	600mm x 300mm deflector kit	0.3
CAS 1118	300mm x 300mm air extract louvre	0.3
CAS 1120	300mm x 300mm plenum box for grille and damper	2.1
CAS 1121	600mm x 300mm plenum box for grille and damper	3.7
CAS 1122	300mm x 300mm half air straightener	0.1
CAS 1123	600mm x 300mm half air straightener	0.3
CAS 1125	90° corner junction (body)	2.8
CAS 1126	Support angles for 300mm prismatic panels	—
CAS 1128	600mm x 300mm split spread unit	0.3
CAS 1129	300mm x 300mm full air straightener	0.1
CAS 1130	600mm x 300mm full air straightener	0.3
CAS 1131	600mm x 300mm infill panel	1.0
CAS 1132	600mm x 300mm high flow air exhaust grille	1.7
CAS 1133	Infill panel earth cord	—
CAS 1134	90° corner junction infill panel	1.5



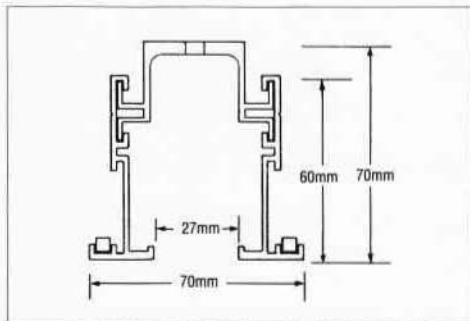
Programme 2 is a fully integrated, modular ceiling system designed to provide a wide range of lighting, air diffusion and acoustic performance from a standard range of components. The system is available in two module sizes – 1500mm square and 1200mm square. It is also available to special order in non-standard module sizes.

THE GRID

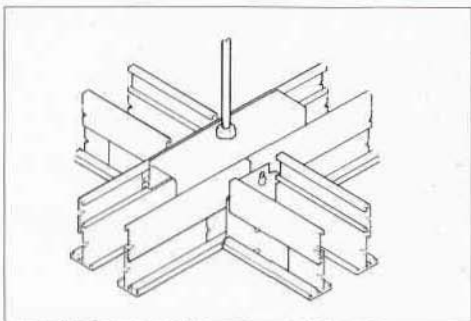
The basic framework which supports all components, is a satin anodised aluminium twin tee grid made up of main tees and cross noggins. The open slot between the extrusions can house air supply and exhaust components, electrical track, sprinklers and other components, or can be sealed by a black PVC strip. The main tees are supported from the soffit of the building by M6 studding in hanger couplers. The cross noggins lock into the main tees.



SECTION OF SUPPORTING GRID VIEWED FROM ABOVE. HANGERS ARE PLACED ON THE MAIN TEES WHERE THEY INTERSECT WITH THE CROSS NOGGINS.

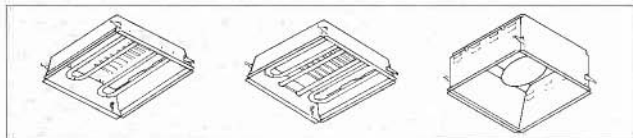


CROSS SECTION THROUGH GRID AT PLAIN HANGER COUPLER.



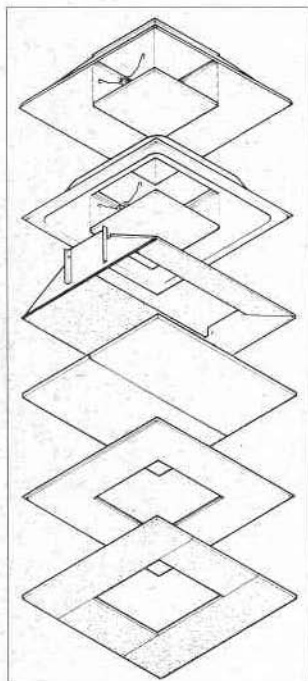
JUNCTION OF CROSS NOGGIN AND MAIN TEE, HANGER COUPLER AT INTERSECTION.

PROGRAMME 2



SQUARE LUMINAIRES

600 x 600mm luminaires in Kolorformat and Quattro ranges available, together with standard optics for use with the range of Programme 2 ceiling infills accepting square luminaires.



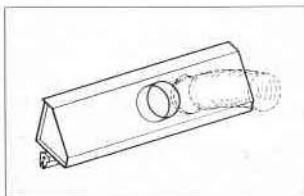
CEILING PANELS

A range of ceiling panels to fit both grid modules is available. These offer a wide choice of shape and surface texture and sound control. Coffered or flat ceiling treatments or a combination of both are possible.



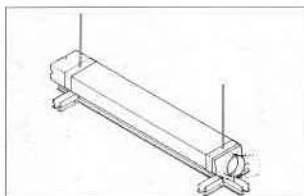
LINEAR COFFER

A spine and gear tray of simplified construction for use in Programme 2 standard module sizes of grid. Available to special order in single-lamp and twin-lamp versions, with or without optic.



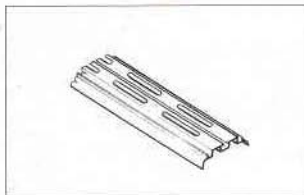
AIR DIFFUSION MODULAR AIR DIFFUSER

A linear air diffuser is supplied complete with plenum chamber and drops into either main tees or cross noggins. Split rollers in the diffuser are provided to adjust air pattern control. 125mm diameter circular spigot.



LINEAR AIR BAR DIFFUSER

A continuous duct of foil backed insulation material coated in neoprene. It is clipped on to the main grid with an equalising strip and air deflectors in half-module lengths. The ends of the duct are closed by pre-formed metal caps with or without spigots. When fed from one end, a run of ducts can be up to 10m in length.



SLOT AIR DIFFUSER

A slotted version of the blanking strip which can also give supplementary exhaust air capacity, and is located between the aluminium tee sections.

FIRE PREVENTION

Sprinkler heads and heat or smoke detectors can be mounted on the grid.

TRACK SYSTEMS

Master-track can be incorporated in special grid members.

ACCESS

Luminaires or ceiling in-fills can easily be removed for access to the void.

TESTING

The performance of each component in the system has been thoroughly tested in the Laboratories and in field trials.

For full details of range, catalogue numbers and performance details refer to Programme 2 Data Book, or nearest THORN EMI Lighting Office.

INTERIOR INDUSTRIAL AND COMMERCIAL DISCHARGE LUMINAIRES

Hipak	58
Radpak	63
Lopak	64
Hipak, Lopak and Radpak Accessories	65
Kolorformat	66
Uplighting	68

HIPAK IP21

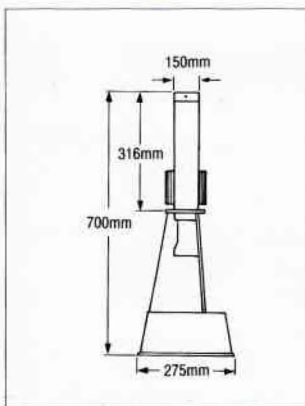
A comprehensive range of industrial luminaires designed for use in Factories, Warehouses, Stores, Foundries, Power Stations, Railway Stations, Sports Halls and Gymnasias.

The ballast is housed in an aluminium extrusion which with the wiring box is contained within a zintec epoxy covered steel frame. The wiring box has through facilities wiring with top and side entry and contains the capacitor, a large terminal block and an ignitor when required. Luminaires are easily installed using a 25mm clearance hole for conduit entry, with additional support lugs located on the steel frame.

Standard Range is suitable for 240V 50Hz supply (details of other supplies on application). Maximum light output is achieved by the precise design of reflector and the choice of three light distributions gives a high degree of flexibility in lighting design layout.

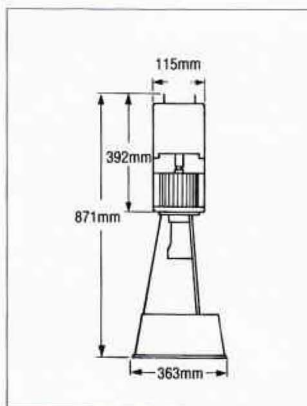
Wide, Medium and Narrow lighting distributions are obtainable with three parabolic reflectors covering lamp wattages from 250W to 1000W including High Pressure Sodium, Mercury and Metal Halide lamps.

The reflectors are self cleaning by directing an upward flow of air to pass over the lamp and light reflecting surfaces. A skirt reflector is available for use with Mercury reflector lamps and this is supplied complete with a protective wire guard. A wire guard and glass cover assembly are available as optional extras for parabolic reflectors. Complies with BS 4533:102-1 IP21 drip proof is safety marked and carries the 'F' symbol.



DHK 250/S & DHK 400/S

Operates 250W or 400W MBFR lamps in ambient temperatures between -20°C and +45°C.



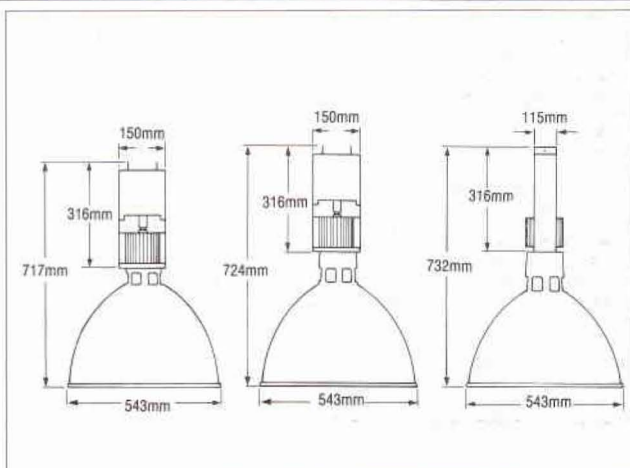
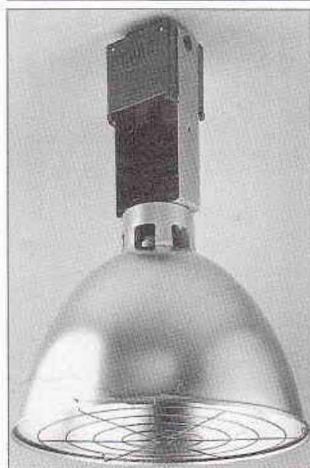
DHK 700/S & DHK 1000/S

Operates 700W or 1000W MBFR in ambient temperatures between -20°C and +40°C.

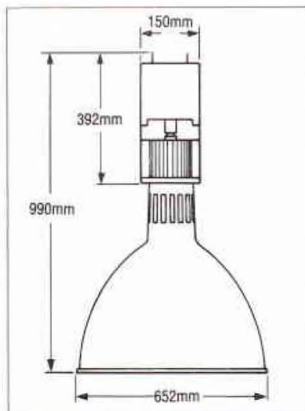
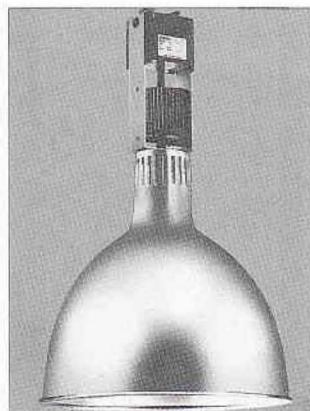
RANGE Packed less lamp which must be ordered separately

Rating	Lamp type	Complete luminaire Cat. no.	Control housing including gear Cat. no.	Reflector Cat. no.	Wire guard Cat. no.	Approx. weight inc. lamp kg
250W	MBFR	DHK 250/S	DHK 250	DHRS 400	Included	6-50
400W	MBFR	DHK 400/S	DHK 400	DHRS 400	Included	7-40
700W	MBFR	DHK 700/S	DHK 700	DHRS 1000	Included	13-90
1000W	MBFR	DHK 1000/S	DHK 1000	DHRS 1000	Included	14-00

Note: DHRS skirt reflector may be replaced by a DHRW, DHRM or DHRN parabolic reflector for use with MBFU lamps.



DHK 250/W & DHK 400/W, DHK 250/M & DHK 400/M, DHK 250/N & DHK 400/N



DHK 700/M & DHK 1000/M

DHK 250/W, 250/M & 250/N DHK 400/W, 400/M & 400/N

Operates 250W and 400W MBF lamps in ambient temperatures between -20°C and $+45^{\circ}\text{C}$.

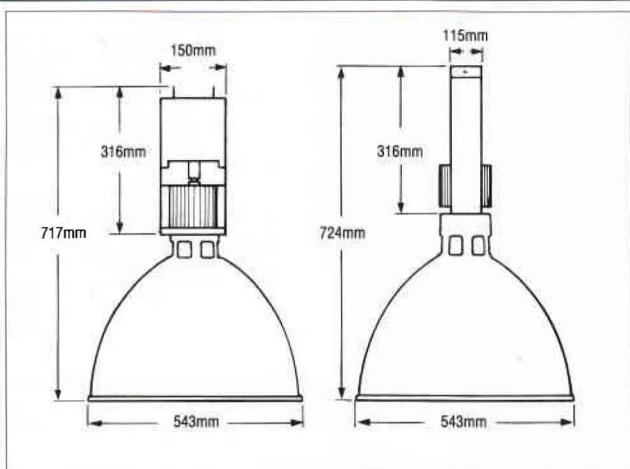
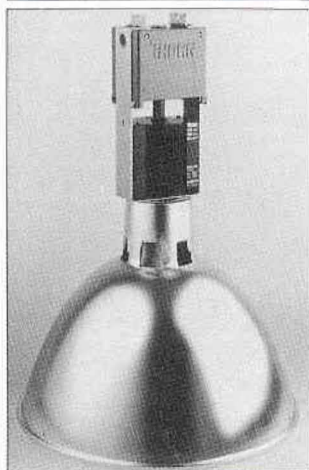
DHK 700/M & 1000/M

Operates MBF lamps in ambient temperatures between -20°C and $+40^{\circ}\text{C}$.

RANGE Packed less lamp which must be ordered separately

Rating	Lamp type	Complete luminaire Cat. no.	Control gear housing including gear Cat. no.	Reflector Cat. no.	Optional wire guard Cat. no.	Optional glass cover assembly Cat. no.	Approx. weight inc. lamp kg
250W	MBF	DHK 250/W	DHK 250	DHRW 400	DHWG 400	DHGA 400	7.45
250W	MBF	DHK 250/M	DHK 250	DHRM 400	DHWG 400	DHGA 400	7.45
250W	MBF	DHK 250/N	DHK 250	DHRN 400	DHWG 400	DHGA 400	7.45
400W	MBF	DHK 400/W	DHK 400	DHRW 400	DHWG 400	DHGA 400	8.35
400W	MBF	DHK 400/M	DHK 400	DHRM 400	DHWG 400	DHGA 400	8.35
400W	MBF	DHK 400/N	DHK 400	DHRN 400	DHWG 400	DHGA 400	8.35
700W	MBF	DHK 700/M	DHK 700	DHRM 1000	DHWG 1000	-	15.70
1000W	MBF	DHK 1000/M	DHK 1000	DHRM 1000	DHWG 1000	-	15.80

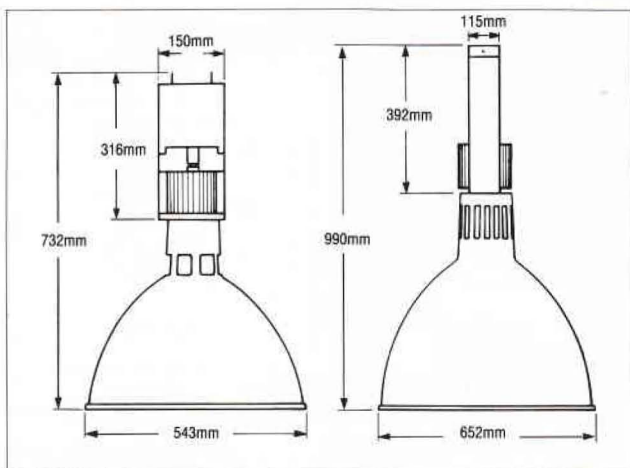
Note: DHRW, DHRM or DHRN parabolic reflectors can be replaced by a DHRS skirt reflector for use with MBFR lamps.



DHC 250/W, DHC 400/W DHC 250/M, DHC 400/M

DHC 250/W, 250/M & 250/N DHC 400/W, 400/M & 400/N DHC 1000/M

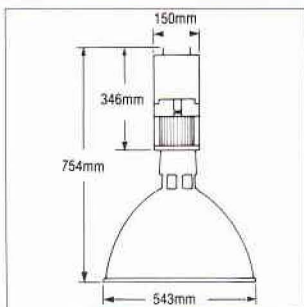
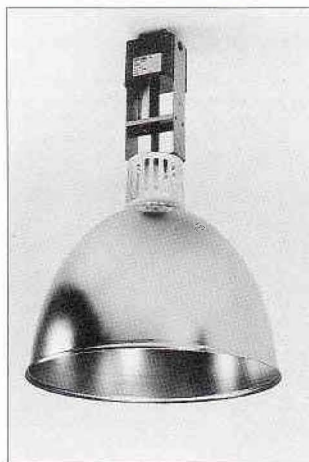
Operate MBIF lamps in ambient temperatures as follows: 250/400W -20°C to +45°C 1000W -20°C to +40°C. 1000W version operates on 415V 50Hz supply (wiring arrangement in the luminaire can be changed for 380V supply)



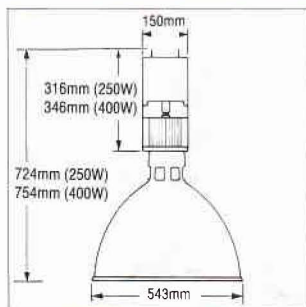
DHC 250/N, DHC 400/N DHC 1000/M

RANGE Packed less lamp which must be ordered separately

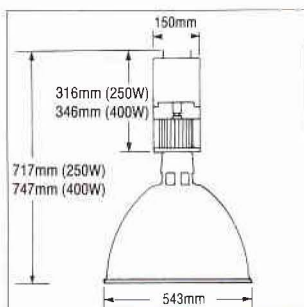
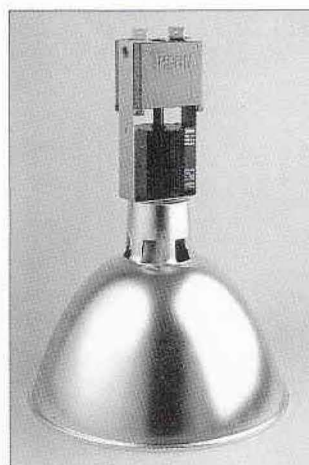
Rating	Lamp type	Complete luminaire Cat. no.	Control housing inc. gear Cat. no.	Reflector Cat. no.	Optional wire guard Cat. no.	Optional glass cover assembly Cat. no.	Approx. weight inc. lamp kg
250W	MBIF/BUH	DHC 250/W	DHC 250	DHRW 400	DHWG 400	DHGA 400	9-40
250W	MBIF/BUH	DHC 250/M	DHC 250	DHRM 400	DHWG 400	DHGA 400	9-40
250W	MBIF/BUH	DHC 250/N	DHC 250	DHRN 400	DHWG 400	DHGA 400	9-40
400W	MBIF/BU	DHC 400/W	DHC 400	DHRW 400	DHWG 400	DHGA 400	8-75
400W	MBIF/BU	DHC 400/M	DHC 400	DHRM 400	DHWG 400	DHGA 400	8-75
400W	MBIF/BU	DHC 400/N	DHC 400	DHRN 400	DHWG 400	DHGA 400	8-75
1000W	MBIF/U	DHC 1000/M	DHC 1000	DHRM 1000	DHWG 1000	-	15-80



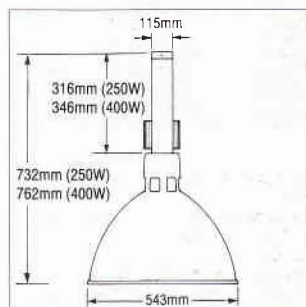
DHS 400/MDLT



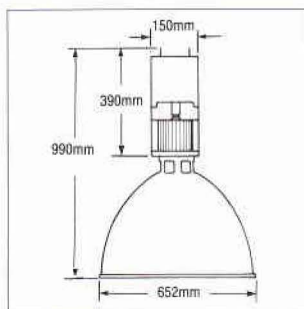
DHS 250/M & DHS 400/M



DHS 250/W & DHS 400/W



DHS 250/N & DHS 400/N



DHST 1000/M

DHS 250/W, 250/M & 250/N, DHS 400/W, 400/M & 400/N, DHS 400/M DLT

Operates 250W SON and SON-T lamps and 400W SON, SON-T and SONDL-T lamps in ambient temperatures between -40°C and $+45^{\circ}\text{C}$.

DHST 1000/M

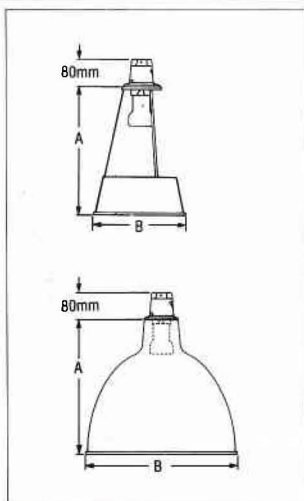
Operates a 1kW SON lamp with remote gear in ambient temperatures between -40°C and $+40^{\circ}\text{C}$.

RANGE Packed less lamp which must be ordered separately

Rating	Lamp type	Complete luminaire Cat. no.	Control gear housing inc. gear Cat. no.	Reflector Cat. no.	Optional wire guard Cat. no.	Optional glass cover assembly Cat. no.	Approx. weight inc. lamp kg
250W	SON	DHS 250/W	DHS 250	DHRW 400	DHWG 400	DHGA 400	9-35
250W	SON	DHS 250/M	DHS 250	DHRM 400	DHWG 400	DHGA 400	9-35
250W	SON	DHS 250/N	DHS 250	DHRN 400	DHWG 400	DHGA 400	9-35
400W	SON	DHS 400/W	DHS 400	DHRW 400	DHWG 400	DHGA 400	10-45
400W	SON	DHS 400/M	DHS 400	DHRM 400	DHWG 400	DHGA 400	10-45
400W	SON	DHS 400/N	DHS 400	DHRN 400	DHWG 400	DHGA 400	10-45
400W	SON-DLT	DHS 400/MDLT	DHS 400	DHRM 400/DLT	DHWG 400	DHGA 400	10-45
1000W	SON	*	DHST 1000*	DHRM 1000*	DHWG 1000	-	7-00

Note: DHRM 400/DLT Reflector is designed for use with 400W de-luxe tubular lamp to achieve a medium lighting distribution.

* For complete luminaires, order these items together with RBSG 1000A remote gear box. Ignitor is included in DHST 1000


DHT 1000/S & 1000/M

DHT 1000/S and 1000/M accepts 250W/400W/700W and 1000W-MBF, MBFR, MBIF and SON/SON-T lamps. Also the 400W SON-DLT lamp when used with the DHRM 400/DLT reflector.

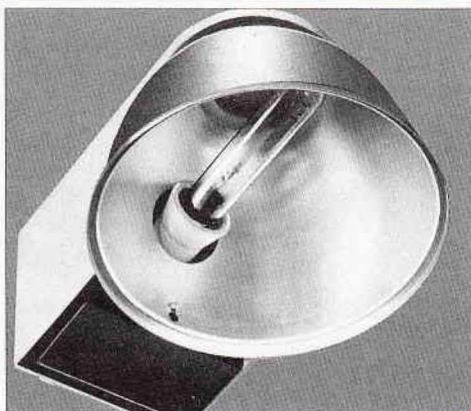
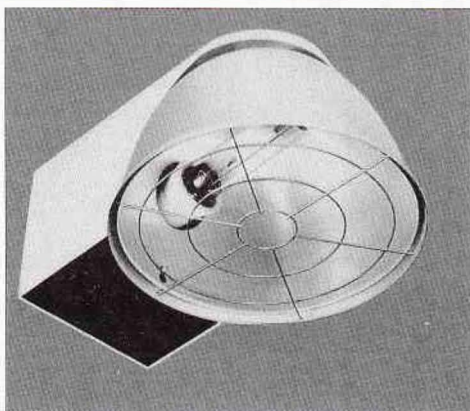
RANGE Packed less lamp which must be ordered separately

Lamp type and rating*	Wiring box and lampholder assembly	Reflector skirt	Reflector Cat. no. parabolic	Dimensions A mm depth	B mm diameter	Weight inc. lamp kg
1000W MBIF/U	DHT 1000	—	DHRM 1000	598	652	3.6
1000W MBF	DHT 1000	—	DHRM 1000	598	652	3.6
700W MBF	DHT 1000	—	DHRM 1000	598	652	3.6
400W MBF	DHT 1000	—	DHRM 400	416	543	2.47
250W MBF	DHT 1000	—	DHRM 400	416	543	2.47
400W MBIF/BU	DHT 1000	—	DHRM 400	416	543	2.47
250W MBIF/BUH	DHT 1000	—	DHRM 400	416	543	2.47
400W SON-T	DHT 1000	—	DHRM 400	416	543	2.47
400W SON-DLT	DHT 1000	—	DHRM 400/DLT	408	543	2.47
250W SON-T	DHT 1000	—	DHRM 400	416	543	2.47
400W MBF	DHT 1000	—	DHRW 400	401	543	2.47
250W MBF	DHT 1000	—	DHRW 400	401	543	2.47
400W MBIF/BU	DHT 1000	—	DHRW 400	401	543	2.47
250W MBIF/BUH	DHT 1000	—	DHRW 400	401	543	2.47
400W SON-T	DHT 1000	—	DHRW 400	401	543	2.47
250W SON-T	DHT 1000	—	DHRW 400	401	543	2.47
400W MBF	DHT 1000	—	DHRN 400	408	543	2.47
250W MBF	DHT 1000	—	DHRN 400	408	543	2.47
400W MBIF/BU	DHT 1000	—	DHRN 400	408	543	2.47
250W MBIF/BUH	DHT 1000	—	DHRN 400	408	543	2.47
400W SON-T	DHT 1000	—	DHRN 400	408	543	2.47
250W SON-T	DHT 1000	—	DHRN 400	408	543	2.47
1000W MBFR	DHT 1000	DHRS 1000	—	479	362	2.47
700W MBFR	DHT 1000	DHRS 1000	—	479	362	2.47
400W MBFR	DHT 1000	DHRS 400	—	385	275	2.01
250W MBFR	DHT 1000	DHRS 400	—	385	275	2.01

* See control gear and accessories section for appropriate gear box.

Note: Skirt or parabolic reflectors of the appropriate size can be used with the DHT 1000 top assembly. Both types are suitable for operation in ambient temperatures up to 45°C.

Remotely mounted control gear is required.


OPEN LUMINAIRE

LUMINAIRE WITH WIRE GUARD

RADPAK IP21

A compact discharge luminaire designed for use at low and medium mounting heights up to 10 metres in industrial and commercial applications such as sports halls, warehouses, loading bays, shops, stores and factories. It is supplied complete with pre-wired control gear with plug and socket, lamp and parabolic aluminium reflector. It comprises a lightweight white glass reinforced polyester (GRP) body which houses the control gear offset on a black removable gear tray. The reflector is connected to the body assembly by three self-retaining screws. Accessories include a dished polycarbonate cover and a wireguard.

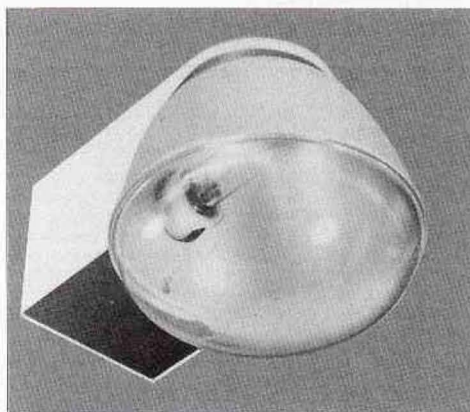
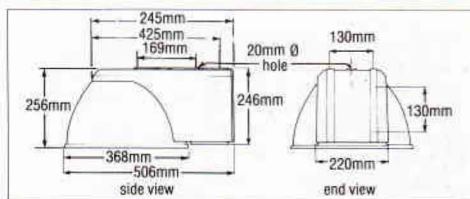
Mounting can be achieved by conduit, chain, close ceiling or wall.

Chain suspension set is available as an optional extra. The self cleaning reflector gives a radial batwing distribution with good glare control enabling uniform lighting levels to be achieved.

For use in temperature range between -40°C and $+45^{\circ}\text{C}$ when close ceiling or wall mounted. Complies with BS4533 Part 102-2 IP21 and is safety marked. Also complies with 'F' mark requirements making it suitable for direct mounting on to flammable surfaces.

Supply voltage 240V 50Hz. Details of luminaires for other supplies on application.

See data sheet 2DRS 1 for further details of the Radpak range.

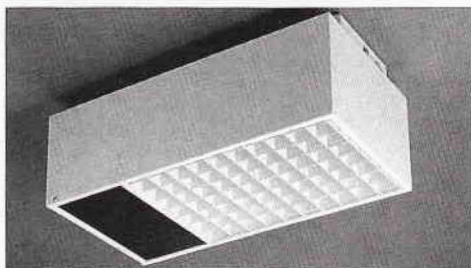

LUMINAIRE WITH VISOR


RANGE Luminaires are supplied complete with control gear, reflector and lamp (less lamp versions are available to order)

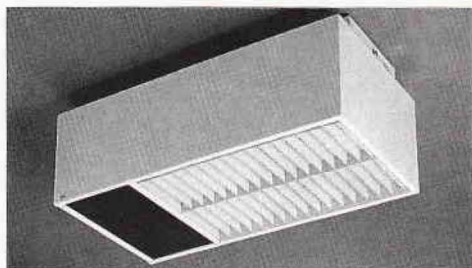
Rating	Lamp type	Luminaire Cat. no.	Optional cover	Optional wire guard	Weight inc. lamp and reflector kg
150W	SON-T	DRS 150	RV	RWG	6-45
250W	SON-T	DRS 250	RV	RWG	8-2
250W	SON-DLT	DRS 250 DLT	RV	RWG	8-2

Chain suspension set Catalogue number RSH is available as optional extra.

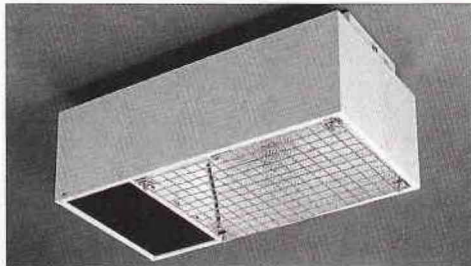
Replacement reflector Catalogue number RR.



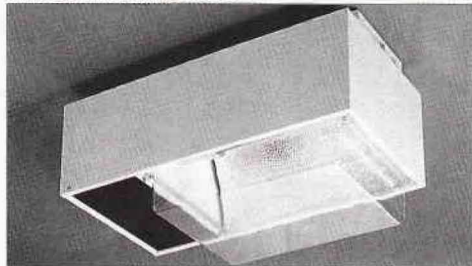
WITH DLE EGGRATE LOUVRE



WITH DLL TRANSVERSE LOUVRE



WITH DLG WIRE GUARD



WITH CLEAR POLYCARBONATE COVER

LOPAK IP21

A compact luminaire design for 150W/250W/400W SON, SON-T and SON-DLT, 250W/400W MBF and 250W/400W MBIF discharge lamps suitable for both industrial and commercial interiors. The luminaire comprises two items, the body, housing a horizontally mounted lamp with gear mounted adjacent on a removable cover and a ceiling plate. The luminaire is supplied complete with lamp, pre-wired mains lead with plug and socket and internal reflector. Wide range of optional attachments include wire guard, clear polycarbonate cover, eggcrate and transverse louvres.

For use in ambient temperatures between -40°C (MBF and MBI -20°C) and 45°C with the following exceptions:

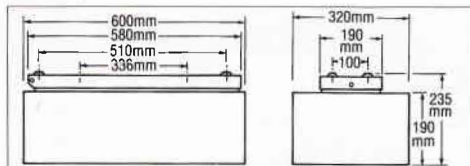
DLC 400 basic open luminaire up to 25°C

DLS 400 DLT, DLS 400 and DLK 400 versions are not thermally suitable for use with the DLV polycarbonate cover. See data sheet 2DL:1 for details.

Complies with BS4533.102-1 IP21 drip proof and luminaires are safety marked.

Lopak also complies with the 'F' mark which indicates its suitability for direct mounting on to a flammable surface.

Supply voltage 240V 50 Hz. Details of luminaires for other supplies on application.



RANGE Luminaires are supplied with ceiling plate, control gear, reflector and lamp (less lamp versions are available to order)

Rating	Lamp type	Luminaire Cat. no.	Optional wire guard	Optional cover	Optional transverse louvre ‡	Optional eggcrate louvre ‡	Weight inc. lamp kg
150W	SON-T*	DLS 150	DLG	DLV	DLL	DLE	11.2
250W	SON-T*	DLS 250	DLG	DLV	DLL	DLE	11.2
400W	SON-T*	DLS 400	DLG	***	DLL	DLE	13.5
250W	SONDL-T	DLS 250 DLT	DLG	DLV	DLL	DLE	11.2
400W	SONDL-T	DLS 400 DLT	DLG	***	DLL	DLE	13.5
250W	MBF	DLK 250	DLG	DLV	DLL	DLE	11.2
400W	MBF	DLK 400	DLG	***	DLL	DLE	13.5
250W	MBIF	DLC 250**	DLG	DLV	—	—	11.2
400W	MBIF	DLC 400**	DLG	DLV	—	—	13.5

* Tubular lamps are supplied as standard but elliptical lamp versions can be supplied to order

** DLC 400 and DLC 250 must be used with the flat glass (Cat. no. DLP) supplied with the luminaire and therefore cannot be physically used with DLL and DLE louvre attachments.

*** Not thermally suitable for use with DLV cover.

‡ A set of 4 clips (Cat. no. DLFC) for fixing louvres to Lopak is available as optional extra.

See data sheet 2:DL:1 for further details of the Lopak range.

HIPAK, LOPAK AND RADPAK ACCESSORIES

REPLACEMENT SPARES AND CONTROL GEAR FOR 240V 50HZ SUPPLIES

Cat. no.	Ballast	Capacitor	Ignitor	Lampholder	Terminal block
DHK 250	G53285-4	GC2370	—	GL 1196	GT1362/2
DHK 400	G53284-4	GC2331	—	GL 1196	GT1362/2
DHK 700	G53291-4	GC2386	—	GL 1196	GT1362/2
DHK 1000	G53292-4	GC2346	—	GL 1196	GT1362/2
DHS 250	G53435-4	GC2386	G53282A	GL 1196	GT1362/3
DHS 400	G53286-4	2 x GC2331	G53282A	GL 1196	GT1362/3
DHST 1000	3 x G53323-4*	2 x GC2386* 1 x GC2382*	G53316‡	GL 1196	GT1362/2
DHC 250	G53436-4	GC2386	G53283	GL 1196	GT1362/2
DHC 400	G53288-4	GC2331	G53283	GL 1196	GT1362/2
DHC 1000	G53299-T**	2 x GC2386	G53342	GL 1196	GT1362/4
DHT 1000†	—	—	—	GL 1196	GT1362/2
DRS 150	G53400-T	GC2331	G53282A	GL 1196	GT1364/3
DRS 250	G53398-T	GC2386	G53282A	GL 1196	GT1364/3
DRS 250 DLT	G53398-T	GC2386	G53282A	GL 1196	GT1364/3
DLK 250	G53399-T	GC2370	—	GL 1196	GT1364/3
DLK 400	G53397-T	GC2331	—	GL 1196	GT1364/3
DLS 150	G53400-T	GC2331	G53282A	GL 1196	GT1364/3
DLS 250	G53398-T	GC2386	G53282A	GL 1196	GT1364/3
DLS 400	G53371-T	2 x GC2331	G53282A	GL 1196	GT1364/3
DLS 250 DLT	G53398-T	GC2386	G53282A	GL 1196	GT1364/3
DLS 400 DLT	G53371-T	2 x GC2331	G53282A	GL 1196	GT1364/3
DLC 250	G53398-T	GC2386	G53283	GL 1196	GT1364/3
DLC 400	G53397-T	GC2346	G53283	GL 1196	GT1364/3

* Included in RBSG 1000/A gearbox

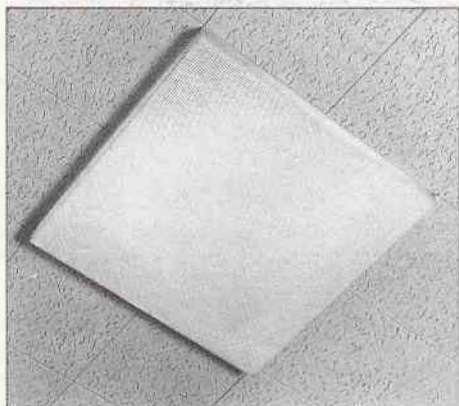
‡ Included in DHST 1000 wiring box

† Gearless versions. Remote gear is used. See Control gear and accessories.

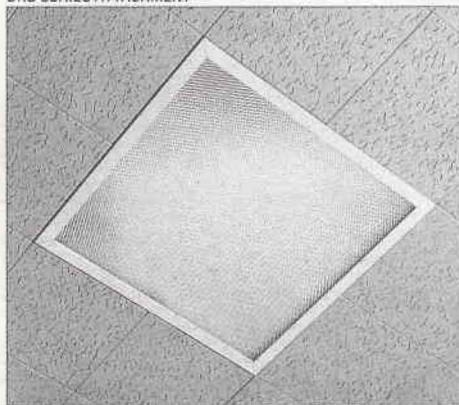
For appropriate types for circuit diagrams see Control gear and accessories section.

REPLACEMENT ATTACHMENTS

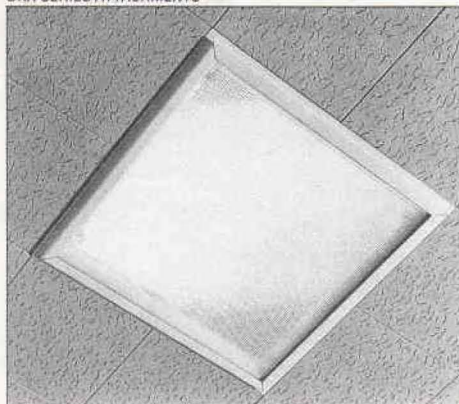
Cat. no.	Description
DHRW 400	Parabolic reflector for 250/400W Hipak — wide distribution
DHRM 400	Parabolic reflector for 250/400W Hipak — medium distribution
DHRN 400	Parabolic reflector for 250/400W Hipak — narrow distribution
DHRM 400/DL	Parabolic reflector for 400W SONDL-T Hipak — medium distribution
DHRM 1000	Parabolic reflector for 700/1000W Hipak — medium distribution
DHRS 1000	Skirt reflector for 700/1000W Hipak
DHRS 400	Skirt reflector for 250/400W Hipak
DHGA 400	Glass cover assembly for Hipak 250/400W parabolic reflectors
DHWG 400	Wire guard for Hipak 250/400W parabolic reflectors
DHWG 1000	Wire guard for Hipak 700/1000W reflector (DHRM 100)
DLE	Square cell louvre for Lopak
DLG	Wire guard for Lopak
DLL	Transverse louvre for Lopak
DLV	Polycarbonate cover for Lopak
DLP	Replacement protective glass for DLC 250 and DLC 400 Lopak
DLFC	Set of 4 fixing clips for Lopak louvres.
RV	Polycarbonate cover for Radpak
RWG	Wire guard for Radpak
RR	Replacement parabolic reflector for Radpak
RSH	Chain suspension set for Radpak



DKG SERIES ATTACHMENT



DKH SERIES ATTACHMENTS



DKF ATTACHMENT

A recessed modular luminaire range for discharge lamps of 125W to 400W. Available with two attachments – the DKG series of dished prismatic trimless controllers, and DKH series flat prismatic (TL 19) panels in shallow white metal frames. It is suitable for air extract from ventilated or air conditioned areas if the air-handling frame attachment is used. Three methods of suspension may be used – conduit, rod suspension, and side arm suspension. It is recommended that additional ceiling supports are fitted within 150mm of each corner of the luminaire.

The luminaire, 600mm x 600mm square (nominal) is compatible with most commercial ceiling systems and is suitable for all applications particularly where good colour rendering is required.

One standard housing accommodating the full range of lamps including 125W, 250W and 400W MBF, and 150W, 250W and 400W SON is common for imperial and metric ceilings. Attachments must be specified to suit the ceiling module.

Note: MBF circuits are rectified up to and including 250W. All luminaires are supplied with lamp. Luminaires comply with BS 4533-102-1 (1982) (IP20).

Indoor luminaires in general are designed to BS 4533-101 (1981) and, except where otherwise stated are 'Luminaires for use in normal atmospheres'. Where use in more onerous situations is contemplated, e.g. in part-completed buildings before drying out and made suitable for occupation – damp cellars, special processing plants etc., additional surface protection may be required. Special finishes for such applications can be agreed in consultation with your local THORN EMI Lighting office.

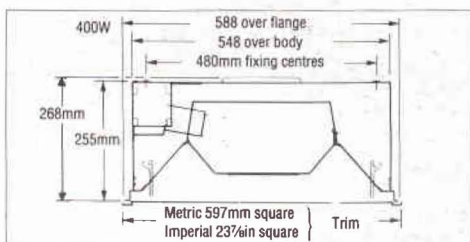
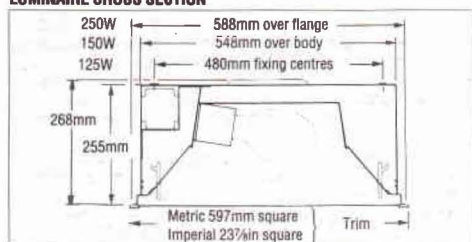
RANGE HOUSING COMPLETE WITH CONTROL GEAR SUPPLIED C/W LAMP FOR 240V 50Hz SUPPLY

Nominal size mm	Watts	Lamp	Cat. no.	Approx. weight kg
600 x 600	250	MBIF	DKC 250	17.1
600 x 600	400	MBIF	DKC 400	19.1
600 x 600	125	MBF	DKK 125	15.0
600 x 600	250	MBF	DKK 250	15.5
600 x 600	400	MBF	DKK 400	19.0
600 x 600	150	SONDL-E	DKS 150	17.0
600 x 600	250	SONDL-E	DKS 250	17.0
600 x 600	400	SONDL-E	DKS 400	19.0

ATTACHMENTS

Description	Imperial Cat. no.	Metric Cat. no.
Prismatic (TL 19) trimless controller	DKG 22	DKG 62
Flat prismatic (TL 19) panel in shallow white metal trim	DKH 22	DKH 62
Flat prismatic (TL 19) panel in white metal air-handling frame	—	DKF 62

LUMINAIRE CROSS SECTION



ACCESSORIES

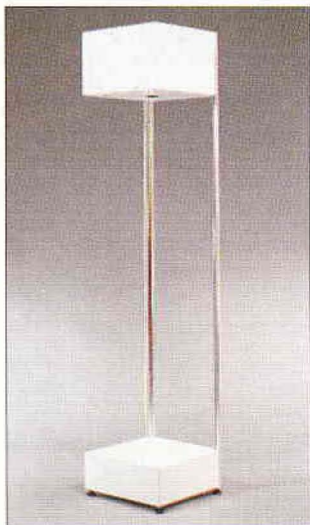
Cat. no.	Description
FTR 1001	Side arm suspension set (set of 4).
FTR 1002	Blanking plate (set of 2).
FTR 1003	Ducting adaptor box
FTR 1004	Damper Control Kit.
KL 4601	Rod suspension set.
DK 1	Stand by lighting unit.
DK 2	MBIF and SON Auxiliary lighting unit (Suitable for 250W circuits only).
DK 3	MBF Auxiliary Lighting unit

REPLACEMENT CONTROL GEAR FOR 240V 50HZ SUPPLY

Cat. no.	Ballast	Ignitor	Capacitor	Terminal block (fused)	Fuse (HRC)
DKC 250	G 53251-T or G 53321-T	G 53283	GC 2386	GT 1331	GT 1336 (10A)
DKC 400	G 53317	G 53283	GC 2346	GT 1331	GT 1330 (13A)
DKK 125	G 53306	—	GC 2383	GT 1331	GT 1268 (5A)
DKK 250	G 53198 or G 53315	—	GC 2370	GT 1331	GT 1336 (10A)
DKK 400	G 53317	—	GC 2331	GT 1331	GT 1330 (13A)
DKS 150	G 53335-T	G 53282/A	GC 2385	GT 1331	GT 1268 (5A)
DKS 250	G 53398	G 53250	GC 2386	GT 1331	GT 1336 (10A)
DKS 400	G 53371	G 53250	GC 2331/BO x 2	GT 1331	GT 1330 (13A)

For circuit diagrams see Control gear and accessories section.

UPLIGHTING



UPLIGHTING

Uplighting offers a comfortable, efficient and attractive means of lighting offices. The use of high intensity discharge lamps in commercial interiors is simplified by the use of this technique and is desirable due to the advantages that uplighting has over conventional lighting:-

- * when used for task lighting, uplights can be more efficient than conventional techniques.
- * improved visual conditions due to lack of veiling reflections
- * flexibility in installation, uplights can be run from a standard 13A supply thus reducing installation costs.
- * graduated brightness on ceiling prevents reflections in VDU screens which can cause discomfort and inefficient operation.

DUK

A free-standing cantilever design that is particularly convenient where space is limited. The model incorporates symmetric or asymmetric distribution reflectors, 2 metres of cable and 13A plug. An integral on/off switch is provided. A small aperture in the lamp housing allows the passage of downward light. The unit is finished in white with anodised aluminium legs. Lamps must be ordered separately.

DUK

Cat. no.	Description
DUK	Housing with symmetric distribution reflector
DUK/A	Housing with asymmetric distribution reflector
DCH 250	Gear tray for 250W MBIF
DSH 150	Gear tray for 150W SONDL-E
DSH 250	Gear tray for 250W SONDL-E
DUWG	Replacement wire-guard
DURS	Replacement symmetric distribution reflector
DURA	Replacement asymmetric distribution reflector

DIMENSIONS

Height: 1800mm

Width: 385mm

Length: 385mm

Weight: 24.0kg



DUH

A free-standing design incorporating twin 13A switched sockets, symmetric or asymmetric distribution reflectors, 2 metres of cable and 13A plug. The unit is finished in white with anodised aluminium legs. An integral on/off switch is provided. A small aperture in the lamp housing allows the passage of downward light. A smoked glass shelf is available as illustrated.

Lamps must be ordered separately.

DIMENSIONS

Height: 1800mm

Width: 385mm

Length: 385mm

Weight: 25.0kg

DUH

Cat. no.	Description
DUH	Housing with symmetric distribution reflector
DUH/A	Housing with asymmetric distribution reflector
DCH 250	Gear tray for 250W MBIF
DSH 150	Gear tray for 150W SONDL-E
DSH 250	Gear tray for 250W SONDL-E
DUGL	Glass shelf
DUBR	Bracket kit for DUGL
DUWG	Replacement wire-guard
DURS	Replacement symmetric distribution reflector
DURA	Replacement asymmetric distribution reflector



DUSD ▲

A decorative, free-standing model with highly polished reflector and dark brown base and column. The unit comes complete with 2 metres of cable and 13A plug. Lamps must be ordered separately.

DIMENSIONS

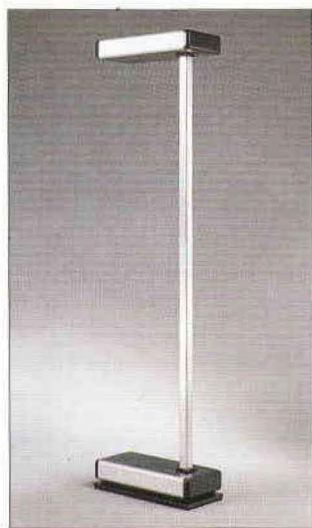
Height: 1800mm

Diameter: 430mm

Weight: 25.5kg

DUSD

Cat. no.	Description
DUSD/R	Polished reflector
DUSD/C	Painted column
DUSD/B 150	Base and gear for 150W SONDL-E
DUSD/B 250	Base and gear for 250W SONDL-E



DUSM ▲

A free-standing model with slim-line base and lamp housing. Available in silver or dark brown. The unit comes complete with 2 metres of cable and 13A plug. Lamps must be ordered separately.

DIMENSIONS

Height: 1850mm

Width: 220mm

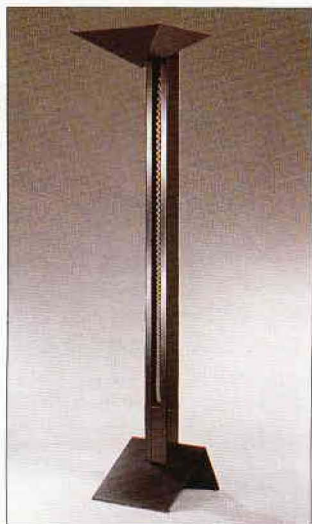
Length: 500mm

Weight: 23.5kg

DUSM

Cat. no.	Description
DUSM 150/BN	Fitting complete with gear for 150W SONDL-T, painted dark brown with silver column
DUSM 150/S	Fitting complete with gear for 150W SONDL-T, painted silver
DUSM 250/BN	Fitting complete with gear for 250W SONDL-T, painted dark brown with silver column
DUSM 250/S	Fitting complete with gear for 250W SONDL-T, painted silver

UPLIGHTING



DUSX ▲

A free-standing model in a sharply modern design. This uplight is complete with 2 metres of cable and 13A plug. It is available in black or white finishes. An integral on/off switch is provided. Lamps must be ordered separately.

DIMENSIONS

Height: 1800mm
Width: 410mm
Length: 410mm
Weight: 26.5kg

DUSX

Cat. no.	Description
DUSX 150/W	Fitting, painted white, complete with gear for 150W SONDL-T
DUSX 150/B	Fitting, painted black, complete with gear for 150W SONDL-T
DUSX 250/W	Fitting, painted white, complete with gear for 250W SONDL-T
DUSX 250/B	Fitting, painted black, complete with gear for 250W SONDL-T



DUSN ▲

A modern design of free-standing uplight. The model is finished in white with black legs and comes complete with 2 metres of cable with 13A plug. An integral on/off switch is provided. Lamps must be ordered separately.

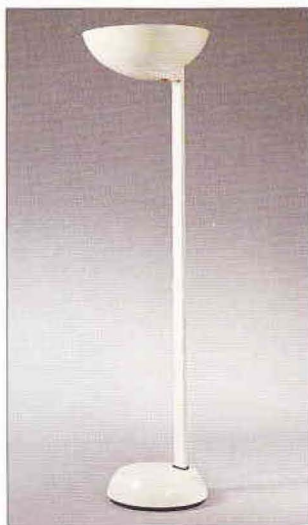
DIMENSIONS

Height: 1850mm
Width: 240mm
Length: 340mm
Weight: 24.0kg

DUSN

Cat. no.	Description
DUSN 150	Fitting complete with gear for 150W SONDL-T
DUSN 250	Fitting complete with gear for 250W SONDL-T

UPLIGHTING



DUY ▲

A classic free-standing design featuring a quality G.R.P. head moulding, slim aluminium column and spun aluminium base. The unit is available with optional twin 13A switched socket outlets. It comes complete with 2 metres of cable and 13A plug. Symmetric or asymmetric distribution reflectors are available. Finish is magnolia. An integral on/off switch is provided.

Lamps must be ordered separately.

Dimensions

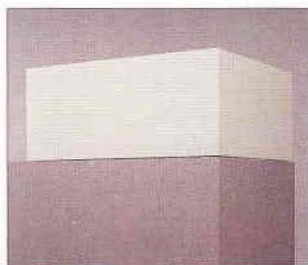
Height: 1800mm

Diameter: 500mm

Weight: 23.0kg

DUY

Cat. no.	Description
DUY	Column and head assembly with symmetric distribution reflector
DUY/A	Column and head assembly with asymmetric distribution reflector
DCY 250	Base with gear for 250W MBIF
DSY 150	Base with gear for 150W SONDL-E
DSY 250	Base with gear for 250W SONDL-E
DCY 250/P	Base with gear for 250W MBIF and twin 13A sockets
DSY 250/P	Base with gear for 250W SONDL-E and twin 13A sockets



DUJ ▲

Uplight housing designed for shelf mounting or incorporation into office furniture. Finished in white. Available with symmetric or asymmetric distribution reflectors. An integral on/off switch is provided.

Lamps must be ordered separately.

Dimensions

Height: 205mm

Width: 365mm

Length: 500mm

Weight: 10.5kg

DUJ

Cat. no.	Description
DUJ	Housing with symmetric distribution reflector
DUJ/A	Housing with asymmetric distribution reflector
DCJ 250	Gear tray for 250W MBIF
DSJ 150	Gear tray for 150W SONDL-E
DSJ 250	Gear tray for 250W SONDL-E
DUWG	Replacement wire-guard
DURS	Replacement symmetric distribution reflector
DURA	Replacement asymmetric distribution reflector



DUL ▲

A wall-mounted uplight with asymmetric distribution reflector. Finish is magnolia.

Lamps must be ordered separately.

Dimensions

Height: 170mm

Width: 360mm

Length: 600mm

Weight: 10.5kg

DUL

Cat. no.	Description
DUCL 250	Fitting complete with gear for 250W MBIF
DUSL 150	Fitting complete with gear for 150W SONDL-E
DUSL 250	Fitting complete with gear for 250W SONDL-E

SPECIAL PROJECTS

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Discharge Lamps for Special Applications	78

SPECIAL PROJECTS

THORN EMI Lighting manufacture and market a wide range of standard lighting equipment but acknowledge that not all lighting needs can be satisfied from standard products. THORN EMI therefore make available through the Special Projects Department the services of Specialist Engineers, Designers and Technicians to develop and produce luminaires and equipment to the Client's own specification. Special Projects Department provides a worldwide service which is available from the initial concept of a project through to its completion with the submission of a quotation and preliminary designs and where necessary prototypes which can be fully tested for performance in THORN EMI's extensive laboratories at Enfield.

This enables the Client to ensure that their lighting requirements integrate in the most economic way with other building services such as Ceiling Systems and Air Conditioning whilst taking full advantage of the latest developments in Lighting Technology.

Some examples of projects that have involved the Special Projects Department are shown here.



ASDA, LEAMINGTON SPA

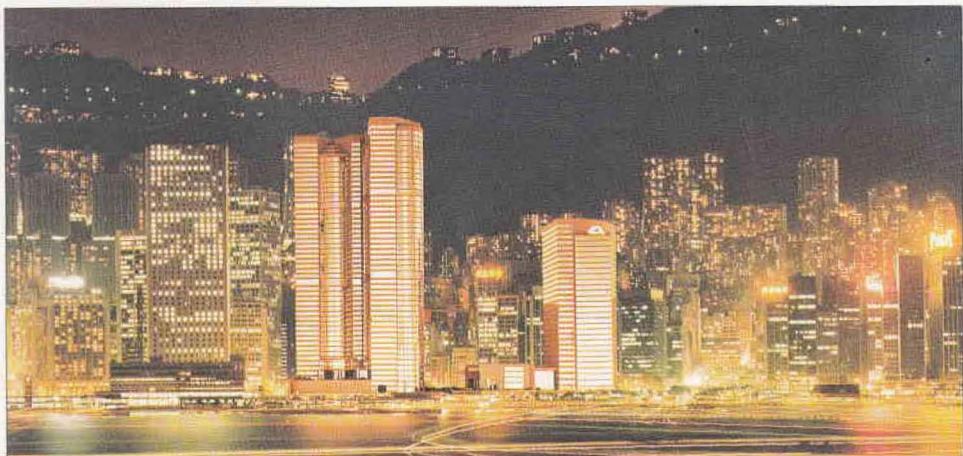


CUTLERS GARDENS, LONDON



HEWLETT PACKARD, BRISTOL. AIR HANDLING 1200mm 36W LUMINAIRES USING BATWING LOUVRES

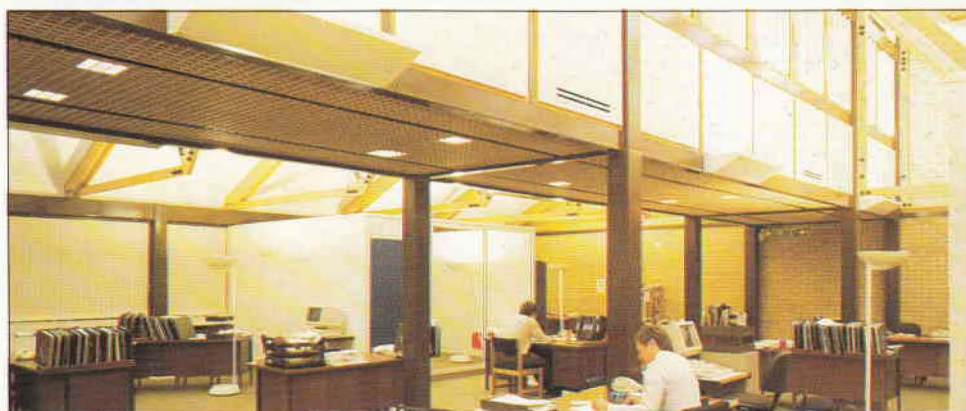
SPECIAL PROJECTS



EXCHANGE SQUARE, HONG KONG. OVER 18,000 SPECIAL FLUORESCENT LUMINAIRES



ANZ BANK, WELLINGTON, NEW ZEALAND. OVER 2,000 SPECIAL RECESSED FLUORESCENT LUMINAIRES WITH LOW GLARE INDEX LOUVRES.



PETERBOROUGH DATA PROCESSING LIMITED



BROADGATE, LONDON

DISCHARGE LAMPS FOR SPECIAL APPLICATIONS

In addition to general lighting applications THORN EMI Lighting produces a number of high intensity discharge lamps to meet specific performance requirements in terms of radiant energy emission.

This includes:

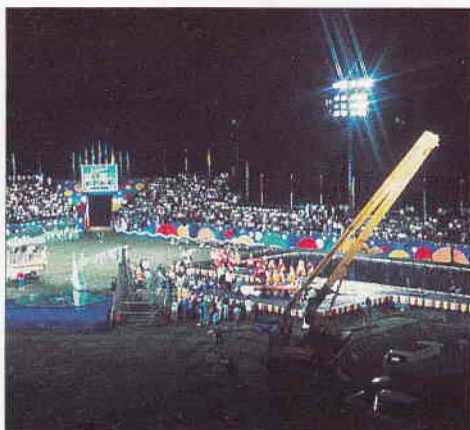
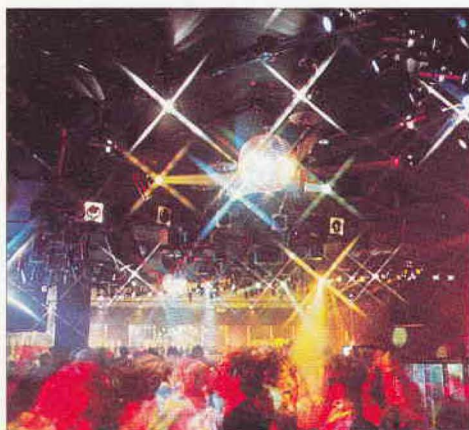
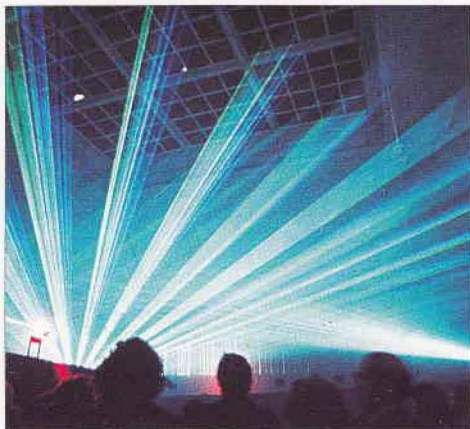
High performance good colour rendering lamps of CSI and CID types for film, television and theatre productions.

UV emitting metal halide lamps for the photo-printing industry and various curing processes.

Blacklight long wave UV versions of MBF lamps for special effects in display and entertainment. Also used for bacteriological, mineralogical and forensic investigations.

Special fluorescent tubes with short wave UV radiation for sterilising purposes.

For the safe operation, installation and disposal of high intensity discharge lamps reference should be made to the THORN EMI Safety Guide which is available free upon request.



2D LAMPS AND LUMINAIRES

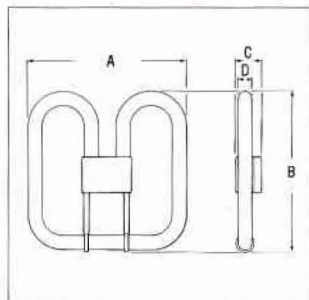
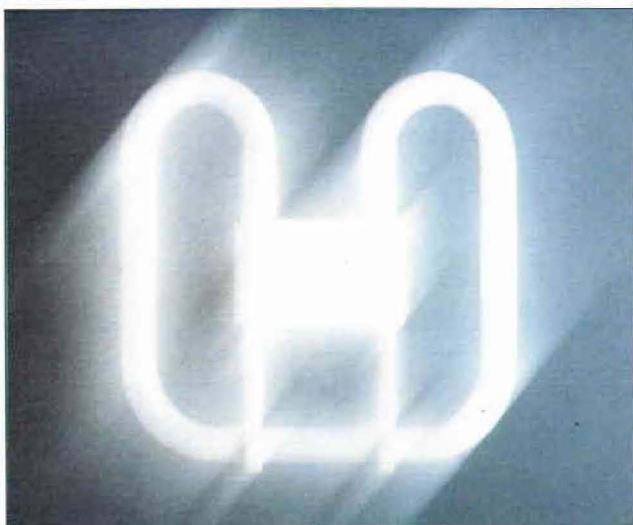
2D Lamps	80
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2D LAMPS

The incandescent light bulb or General Lighting Service lamp has been with us for more than a hundred years. Although improvements to shape, structure and light output have been made over this period the principle remains the same and this light source has served mankind well for most domestic and many commercial lighting applications.

A bulb capable of superseding the GLS bulb must therefore inspire attractive and fashionable designs of domestic and commercial light luminaires as well as providing cheaper and more efficient lighting. The THORN EMI 2D bulb — an exciting new light source — has been specifically developed to meet these needs.

Compared to standard GLS bulbs, THORN EMI 2D lamps offer a comparable light output, 75% reduction in power consumption, and five times longer life. The main advantages of this new light source for the luminaire designer are: compact size — only 140mm square (2D 16W), or 205mm square (2D 28W and 2D 38W); slimness — only 27mm deep (2D 16W), or 35mm deep (2D 28W and 2D 38W); low temperature light source.



PERFORMANCE — PHYSICAL CHARACTERISTICS

Lamp types	2D 16W	2D 28W Polylux 2700 Polylux 3500	2D 38W Polylux 2700 Polylux 3500
Rated lamp power	16W	28W	38W
Nominal dimensions —			
A	140mm	205mm	205mm
B	140mm	205mm	205mm
C	27mm	35mm	35mm
D	15mm	24mm max.	24mm max.
Weight	65g	130g	130g
Operating position	Any	Any	*
Life	5000h	5000h	5000h

ELECTRICAL CHARACTERISTICS

Rated lamp power	16W	28W	38W
Actual lamp power	15.5W	28W	38W
Lamp volts	97V	107V	110V
Lamp current	0.20A	0.32A	0.43A
Total circuit power	21W	36W	48W
Circuit power factor	LPF	HPF	LPF
Lagging power factor	0.44	0.93	0.47
Supply current	0.20A	0.09A	0.32A
Total volt/amps	48VA	23VA	77VA
Minimum starting temperature	-10°C	-10°C	-10°C

LUMINOUS CHARACTERISTICS

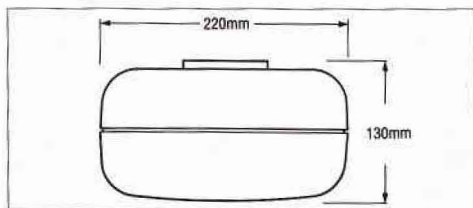
Nominal colour temperature	2700K	2700K	3500K	2700K	3500K
Rated lamp power	16W	28W	28W	38W	38W
Light output					
— lumens at 100 hours	1050	2050	2050	3050	3050
— lumens at 2000 hours	925	1800	1800	2650	2650
Chromaticity co-ordinates	X 0.463	0.463	0.415	0.463	0.415
— Y 0.426	0.426	0.426	0.400	0.426	0.400
Correlated colour temp.	2700K	2700K	3500K	2700K	3500K
Colour Rendering Index Ra	82	82	82	82	82

* Any except in the vertical plane with the brand 'THORN EMI' upside down.

2D OYSTER/XJ MODERN GLASS

OYSTER 16W

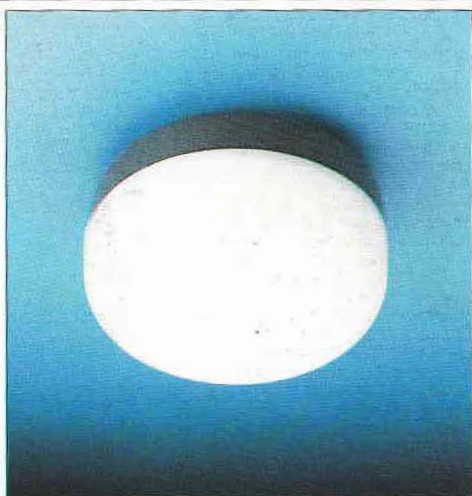
A totally enclosed unit for wall or ceiling mounting. In two-tone polycarbonate with grey body and opal front diffuser — corrosion and vandal-resistant — containing an internal reflector, gear and lampholder. A foam rubber watertight gasket can be fitted at the rear of the luminaire. Packed with a 2D 16W lamp and water-tight gasket. Ceiling or wall mounting. Rated IP23.



OYSTER DIMENSIONS

RANGE

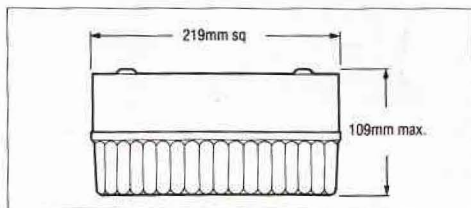
Cat. no.	Description	Lamp watts	Weight kg
2D O0Y 16	Wall/ceiling luminaire	16	1.08
2D O0Y 16 HPF	Wall/ceiling fitting /High Power Factor	16	1.1



2D O0Y 16

XJ MODERN GLASS 16W

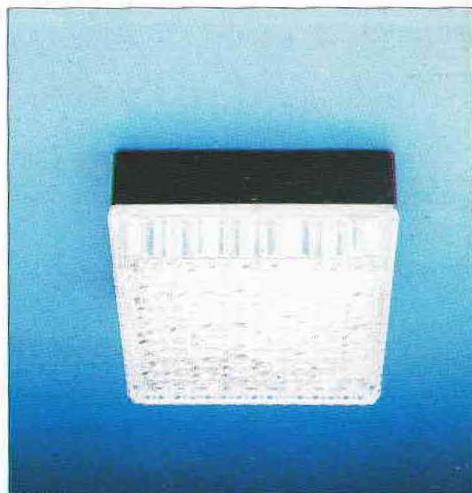
A ceiling mounted unit of crystal pattern glass supported in black finished metal framing. Packed complete with a 2D 16W lamp.



XJ MODERN GLASS DIMENSIONS

RANGE

Cat. no.	Description	Lamp watts	Weight kg
2D XJ 16	Ceiling luminaire	16	3.5
2D XJ 16/HPF	Ceiling luminaire /High Power Factor	16	3.52

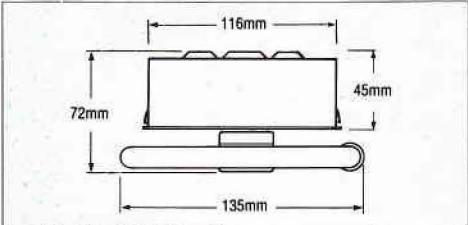


2D XJ 16

2D QUARTO

BASIC BATTEN 16W

A slim square form in all metal construction finished white. The batten can be adapted for use with other manufacturer's shade accessories as well as other items in the Quarto range. Packed complete with a 2D 16W lamp.



BASIC 2D BATTEN DIMENSIONS

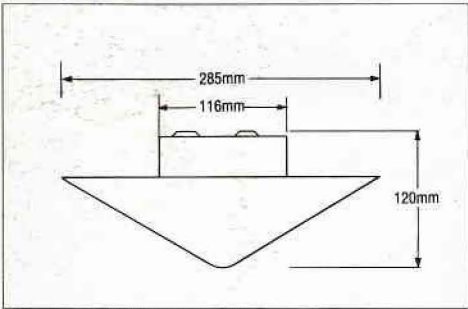
RANGE			
Cat. no.	Description	Lamp watts	Weight kg
2D Q 16	Wall/ceiling batten	16	0.7
2D Q 16/HPF	Wall/ceiling batten High Power Factor	16	0.72



2D Q 16

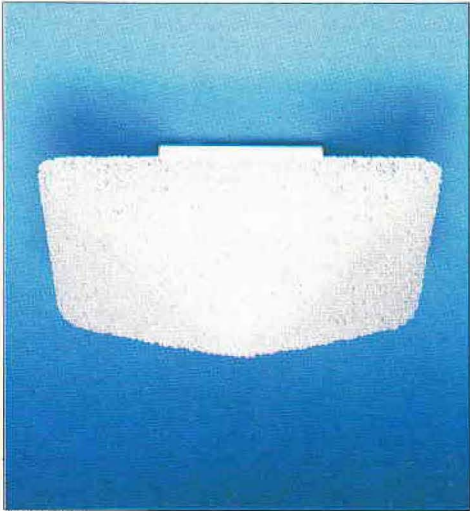
PYRAMID 16W

A new shape with profiled diffusers complete with a metal gearbox and packed with a 2D 16W lamp. Can be ceiling or wall mounted.



PYRAMID LUMINAIRE DIMENSIONS

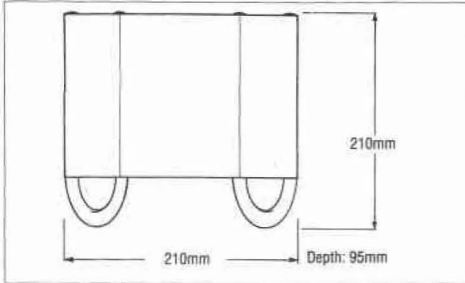
RANGE			
Cat. no.	Description	Lamp watts	Weight kg
2D QP 16P	Wall/ceiling luminaire — plastic shade	16	0.8



2D QP 16P

WALL LUMINAIRE 16W

A modern interpretation of the traditional wall bracket. A metal gearbox and frame with an easily fitted and removable crystal plastic shade. Packed complete with a 2D 16W lamp. The shade can easily be exchanged for fabric exactly matching the interior decor.



WALL LUMINAIRE DIMENSIONS



2D QB 16P

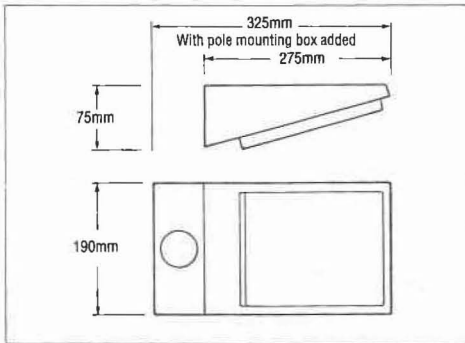
RANGE

Cat. no.	Description	Lamp watts	Weight kg
2D QB 16P	Wall luminaire	16	0.98
2D QB 16	Wall luminaire less shade	16	0.93

OUTDOOR WEDGE 16W

An outdoor amenity luminaire suitable for wall or pole mounting (pole not supplied). Packed complete with a 2D 16W lamp. For pole mounting, pole mounting adaptor is required. One or two luminaires can be mounted onto the pole adaptor. Pole required is 50mm (2 inch) diameter.

IP23 (rainproof).



OUTDOOR-WEDGE DIMENSIONS

RANGE

Cat. no.	Description	Lamp watts	Weight kg
2D OW 16	Wedge/wall mounting	16	2.5
2D OWP	Pole mounting adaptor	—	0.5

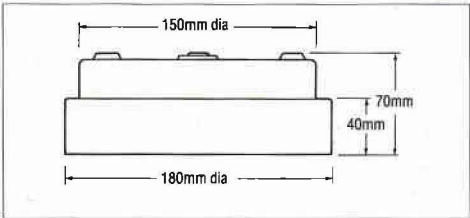


2D OW 16

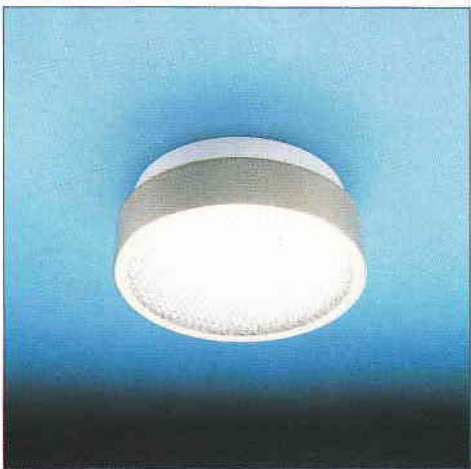
2D RONDO/DOMINO

RONDO 16W

Spill ring luminaires allowing light to reflect on the ceiling surface.
Metal construction with a white gearbox and brass finish circular trim with prismatic attachment. Packed complete with a 16W 2D lamp.
Can be ceiling or wall mounted.



RONDO LUMINAIRE DIMENSIONS



2D RC 16P

RANGE

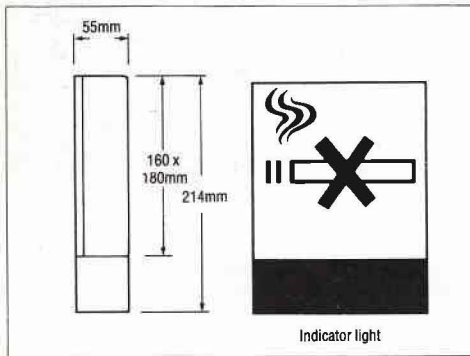
Cat. no.	Description	Lamp watts	Weight kg
2D RC 16P	Circular luminaire/prismatic	16	1.1

DOMINO 16W

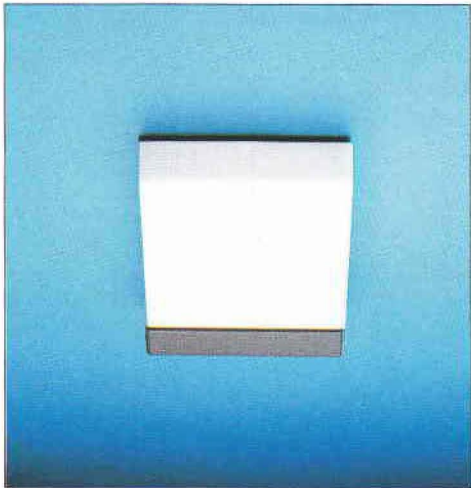
A slim commercial luminaire with a depth of only 55mm making it very suitable for tight locations. Pairs of luminaires can be fixed together to form a twin design. It can also be used as an indicator by attaching transfers. Packed complete with a 16W 2D lamp.

Can be ceiling or wall mounted.

Note: Transfers not supplied.



DOMINO LUMINAIRE DIMENSIONS



2D DO 16

RANGE

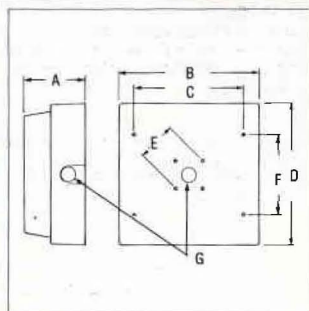
Cat. no.	Description	Lamp watts	Weight kg
2D DO 16	Domino luminaire	16	1.4



2D FV 16



2D FV 28



BULKHEAD 16W/28W

For internal or external applications with long life and low energy consumption. Has an injection moulded black polycarbonate body and opal diffuser secured by two special retaining screws with a triangular head, (a special key is provided). Packed with 2D lamp. Suitable for wall or ceiling mounting. Complies with BS4533:102.1 (IP 65 dustproof and jet proof). (A prismatic diffuser version of the Bulkhead 16W is also available, Catalogue number 2D FC 16).

PHOTOCELL BULKHEAD

A Bulkhead 16W with integral photocell which automatically switches on at dusk and off at dawn (Catalogue number 2D FVP 16).

NOTE

A wall mounted photocell kit (Catalogue number QPK) is available for automatic control when dusk to dawn operation is required. Each unit which is separately wall mounted will operate up to 1000 watts load (1500VA 240V 250Hz). A spare security key is available Catalogue number 08FV.

DIMENSIONS (mm)

Cat. no.	A	B	C	D	E	F	G (entries)
2D FV 16	85.5	198	160	198	50	100	20
2D FV 28	107	254	190	254	50	190	20

RANGE

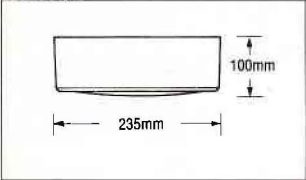
Cat. no.	Description	Lamp watts	Weight kg
2D FV 16	Bulkhead c/w 16W 2D lamp and gear	16	1.10
2D FV 16 HPF	Bulkhead c/w 16W 2D lamp and HPF gear	16	1.12
2D FV 28	Bulkhead c/w 28W 2D lamp and HPF gear	28	2.4
2D FV B1	Bollard for single 2D bulkhead		
2D FV B2	Bollard for twin 2D bulkhead		
2D FV P16	2D vandal resistant bulkhead with integral photocell (LPF only)	16	1.2
2D FC 16	Bulkhead with prismatic diffuser c/w 16W 2D lamp and HPF gear	16	1.12

See page 180 for further details

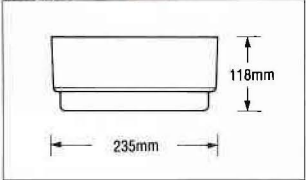
2D NOVA



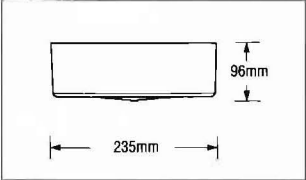
2D XSC 16



2D XSO 16



2D XSF 16



NOVA 16W
SURFACE RANGE

The range consists of a surface mounted housing with white body, supplied with a 2D 16W lamp.
A chrome plated trim is supplied as standard. However, a brass coloured trim is also available and can be ordered by adding BR to the end of the Catalogue number.
There are crystal, opal and fresnel plastic diffuser options.
Designed for ceiling mounting

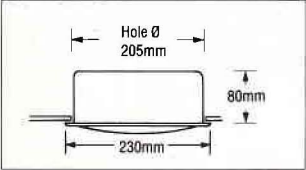
RANGE

Cat. no.	Description	Housing cat. no.	Attachment cat. no.	Lamp watts	Weight kg complete fitting
2D XSC 16	Round/surface/crystal	2D XS 16	2D XC 16	16	1-00
2D XSO 16	Round/surface/opal	2D XS 16	2D XO 16	16	1-00
2D XSF 16	Round/surface/fresnel	2D XS 16	2D XF 16	16	1-00

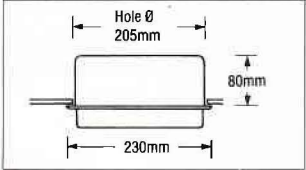
Note: HPF luminaires can be ordered by adding HPF to the Catalogue number.



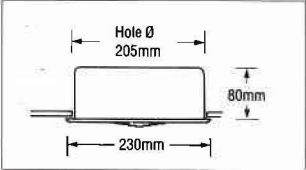
2D XRC 16



2D XRO 16



2D XRF 16



NOVA 16W
RECESSED RANGE

The recessed range uses a circular body requiring minimal void depth, and providing efficient output. Supplied with a 2D 16W lamp.
A chrome plated trim is supplied as standard. However, a brass coloured trim is also available and can be ordered by adding BR to the end of the Catalogue number.
There are options of crystal, opal and fresnel plastic diffusers.
Designed for recessed ceiling mounting.

RANGE

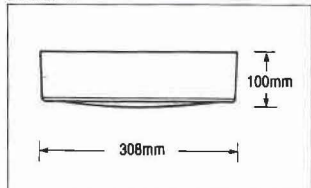
Cat. no.	Description	Housing cat. no.	Attachment cat. no.	Lamp watts	Weight kg complete fitting
2D XRC 16	Round/recessed/crystal	2D XR 16	2D XC 16	16	0-90
2D XRO 16	Round/recessed/opal	2D XR 16	2D XO 16	16	0-90
2D XRF 16	Round/recessed/fresnel	2D XR 16	2D XF 16	16	0-90

Note: HPF luminaires can be ordered by adding HPF to the Catalogue number.

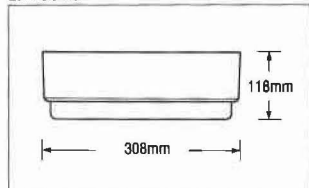
2D SUPERNOVA



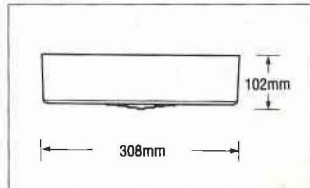
2D XSC 28



2D XSO 28



2D XSF 28



SUPERNOVA 28W SURFACE RANGE

The range consists of a surface mounted housing with white body, supplied with a 2D 28W lamp.

A chrome plated trim is supplied as standard. However, a brass coloured trim is also available and can be ordered by adding BR to the end of the catalogue number.

There are crystal, opal and fresnel plastic diffuser options.

Designed for ceiling mounting.

RANGE

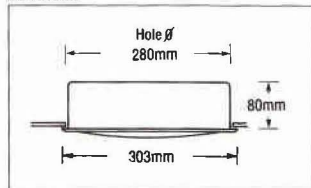
Cat. no.	Description	Housing cat. no.	Attachment cat. no.	Lamp watts	Weight kg complete fitting
2D XSC 28	Round/surface/crystal	2D XS 28	2D XC 28	28	2-25
2D XSO 28	Round/surface/opal	2D XS 28	2D XO 28	28	2-25
2D XSF 28	Round/surface/fresnel	2D XS 28	2D XF 28	28	2-25

Available with 2700 K or 3500 K lamp. When ordering specify lamp as suffix e.g. 2D XSC 28/2700.

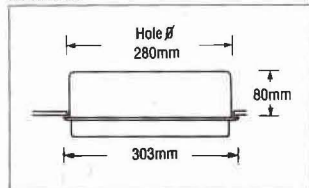
Note: Luminaires are HPF as standard.



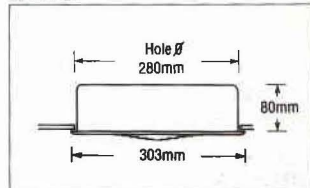
2D XRC 28



2D XRO 28



2D XRF 28



SUPERNOVA 28W RECESSED RANGE

The recessed range uses a circular body requiring minimal void depth, and providing efficient output. Supplied with a 2D 28W lamp.

A chrome plated trim is supplied as standard. However, a brass coloured trim is also available and can be ordered by adding BR to the end of the Catalogue number.

There are options of crystal, opal and fresnel plastic diffusers.

Designed for recessed ceiling mounting.

RANGE

Cat. no.	Description	Housing cat. no.	Attachment cat. no.	Lamp watts	Weight kg complete fitting
2D XRC 28	Round/recessed/crystal	2D XR 28	2D XC 28	28	2-25
2D XRO 28	Round/recessed/opal	2D XR 28	2D XO 28	28	2-15
2D XRF 28	Round/recessed/fresnel	2D XR 28	2D XF 28	28	2-15

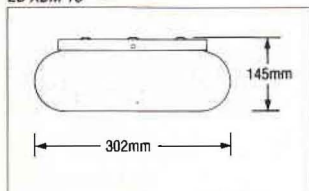
Available with 2700 K or 3500 K lamp. When ordering specify lamp as suffix: e.g. 2D XRC 28/2700.

Note: Luminaires are HPF as standard.

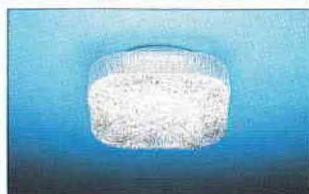
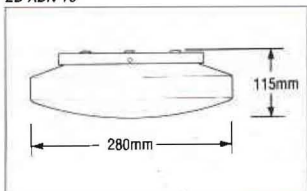
2D NOVA/SUPERNOVA GLASSWARE



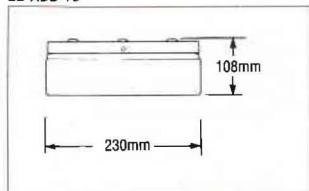
2D XBM 16



2D XBN 16



2D XBD 16



NOVA GLASSWARE 16W

The range has two profiled opal glasses and one crystal glass. They are attached to the white gallery by 4 screw fixing. Can be ceiling or wall mounted.
Supplied complete with a 2D 16W lamp.

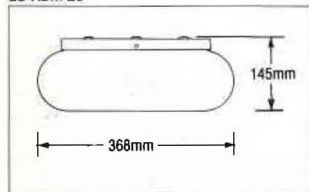
RANGE

Cat. no.	Description	Gallery Cat. no.	Attachment Cat. no.	Lamp watts	Weight kg complete fitting
2D XBM 16	Rounded opal glass + 16W gallery	2D XB 16	2D XM 16	16	1.6
2D XBN 16	Profiled opal glass + 16W gallery	2D XB 16	2D XN 16	16	1.6
2D XBD 16	Decorative crystal glass + 16W gallery	2D XB 16	2D XD 16	16	1.6

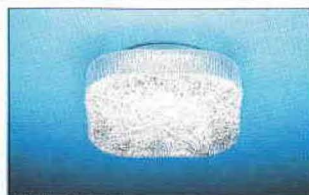
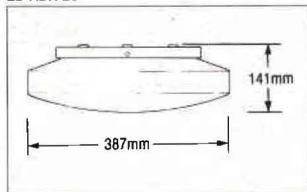
Note: HPF luminaires can be ordered by adding HPF to the Catalogue number.



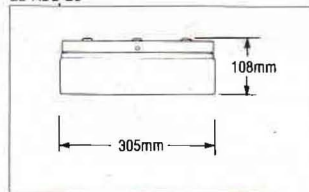
2D XBM 28



2D XBN 28



2D XBD 28



SUPERNOVA GLASSWARE 28W

The range has two profiled opal glasses and one crystal glass.
They are attached to the white gallery by 4 screw fixing.
Can be ceiling or wall mounted.
Available with 2700K or 3500K lamp. When ordering specify lamp as suffix e.g. 2D XBM 28/2700.

RANGE

Cat. no.	Description	Gallery Cat. no.	Attachment Cat. no.	Lamp watts	Weight kg complete fitting
2D XBM 28	Rounded opal glass + 28W gallery	2D XB 28	2D XM 28	28	2.5
2D XBN 28	Profiled opal glass + 28W gallery	2D XB 28	2D XN 28	28	2.5
2D XBD 28	Decorative crystal glass + 28W gallery	2D XB 28	2D XD 28	28	2.5

Note: Luminaires are HPF as standard.

2D DOWNLIGHTS/2D UNILITE



2D DSFR 16



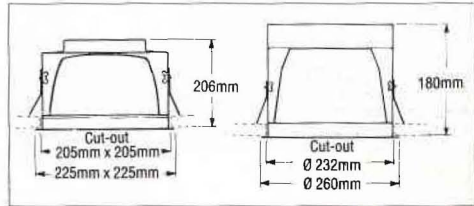
2D DCFR 16

DOWNLIGHTS 16W

Downlights that operate effectively with a 16W lamp are a practical reality with this range of luminaires. All packed complete with a 2D 16W lamp. The range includes square and circular types for recessing.

RANGE

Cat. no.	Description	Lamp watts	Weight kg
2D DSFR 16	'Square' — fully recessed	16	1.4
2D DCFR 16	'Circular' — fully recessed	16	1.4



2D UNO 16

UNILITE 16W/28W

An all purpose interior luminaire, moulded in vandal resistant polycarbonate. The black base is supplied with a choice of diffuser, opal or prismatic. Suitable for wall or ceiling mounting.

Note: the 2D Unilite 28W is available with 2700K or 3500K lamp. When ordering specify lamp as suffix, eg. 2D UNO 28/3500.

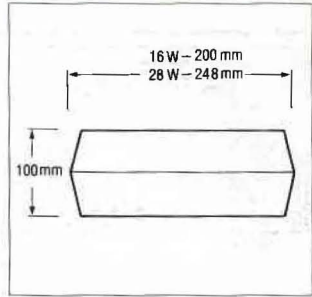


2D UNP 16

RANGE

Cat. no.	Description	Lamp watts	Weight kg
2D UNO 16	Square opal	16	1.2
2D UNO 16 HPF	Square opal, High Power Factor	16	1.22
2D UNP 16	Square prismatic	16	1.2
2D UNP 16 HPF	Square prismatic, High Power Factor	16	1.22
2D UNO 28	Square opal	28	2.2
2D UNP 28	Square prismatic	28	2.2

Note: 28W luminaires are HPF as standard.



2D FACET/DOMUS



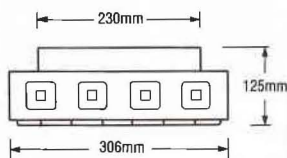
2D SFP 28



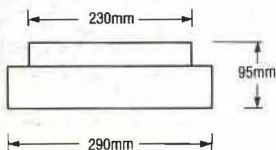
2D SFL 28



2D SFW 28



Available with 2700K or 3500K lamp.
When ordering specify lamp as suffix:
eg - 2D SFP 28/2700.



Available with 2700K or 3500K lamp.
When ordering specify lamp as suffix:
eg - 2D SFP 28/2700.

RANGE

Cat. no.	Description	Gear box Cat. no.	Attachment Cat. no.	Lamp watts	Weight kg complete fitting
2D SFP 28	Square/prismatic	2D S 28	2D SFP	28	1.85
2D SFL 28	Square/parabolic louvre	2D S 28	2D SFL	28	1.90
2D SFW 28	Square/timber louvre	2D S 28	2D SFW	28	1.75

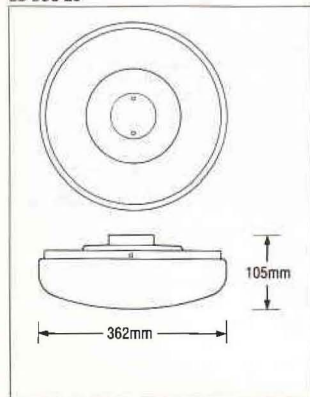
Note: Luminaires are HPF as standard.



2D BSO 28



2D BSC 28



2D BSD 28

RANGE

Cat. no.	Description	Gallery Cat. no.	Attachment Cat. no.	Lamp watts	Weight kg complete fitting
2D BSO 28	Batten/opal	2D B 28	2D SO 28	28	2.55
2D BSC 28	Batten/crystal	2D B 28	2D SC 28	28	2.55
2D BSD 28	Batten/decorative glass	2D B 28	2D SD 28	28	2.55

Note: Luminaires are HPF as standard.

FACET 28W

The range of attachments gives either prismatic or parabolic louvre in a white frame or a timber louvre in a timber frame. These attach to a white gearbox which allows upward spill lighting.
Designed for ceiling mounting.

DOMUS 28W

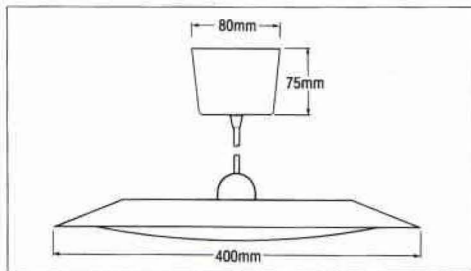
The attractive opal acrylic, striated glass bowl, or crystal attachments are fixed to the reflector on a plastic gearbox. There is a pattress supplied for ceiling mounting.
Packed complete with 2D 28W 2-pin 2700K lamp.

2D PENDANT/ADAPTOR

PENDANTS 16W

The gear is contained in the ceiling rose and the unit comes complete with one metre of cable, lampholder and 2D 16W lamp.

The shade luminaire available is a very slim design that would only be achieved with a THORN EMI 2D lamp.



RANGE

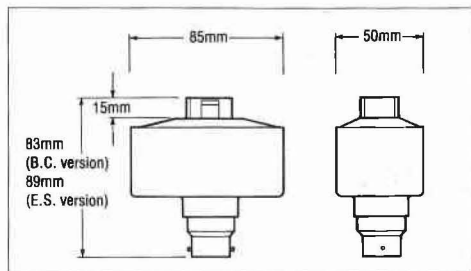
Cat. no.	Description	Lamp watts	Weight kg
2D P 16	Pendant	16	0.6
2D PD 160	Pendant with shade (beige)	16	0.8



2D PD 160

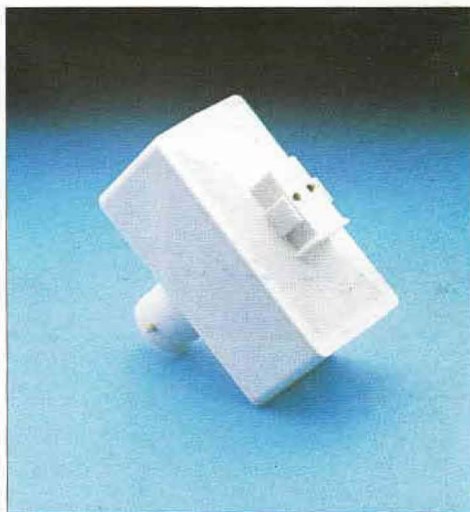
ADAPTOR 16W

The adaptor allows immediate conversion of existing BC sockets to THORN EMI 2D. It is plugged into the existing lampholder socket and can then accept the 2D lamp. Packed complete with a 2D 16W lamp.



RANGE

Cat. no.	Description	Lamp watts	Weight kg
2D A 16	Adaptor	16	0.5
2D A 16 ES	Adaptor/ES	16	0.5



2D A 16

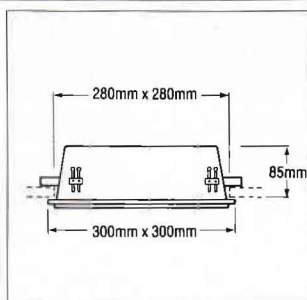
2D HYFORM



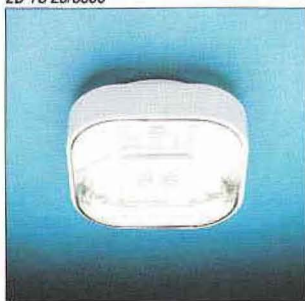
2D YR 28/3500



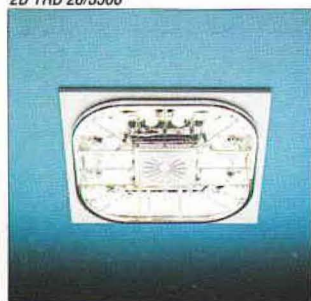
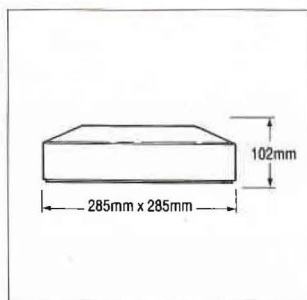
2D YS 28/3500



2D YRD 28/3500



2D YSD 28/3500



2D YRL 28/3500



2D YSL 28/3500

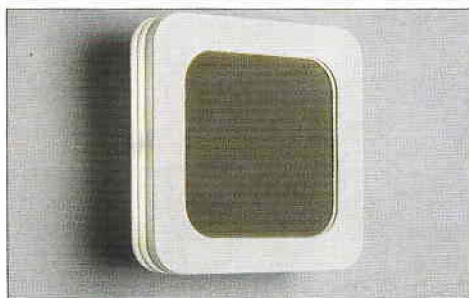
HYFORM

A range of high performance luminaires, recessed or surface mounted. Two optional clip-on attachments are available, a low brightness louvre or a lens controller. The luminaire is supplied with a 2D 28W 3500K lamp.

RANGE

Cat. no.	Description	Body Cat. no.	Attachment Cat. no.	Lamp watts	Weight kg complete fittings
2D YR 28/3500	Recessed with performance reflector	2D YR 28/3500	-	28	2-3
2D YRD 28/3500	Recessed and lens controller	2D YR 28/3500	2D YD	28	2-51
2D YRL 28/3500	Recessed and low brightness louvre	2D YR 28/3500	2D YL	28	2-52
2D YS 28/3500	Surface with performance reflector	2D YS 28/3500	-	28	2-3
2D YSD 28/3500	Surface and lens controller	2D YS 28/3500	2D YD	28	2-51
2D YSL 28/3500	Surface and low brightness louvre	2D YS 28/3500	2D YL	28	2-52

Note: luminaires are HPF as standard.



2D AT 116 G



2D AT 116 BN

2D AT 116

This slim wall mounted luminaire creates a very attractive lighting effect. Nearly all the light is directed out of the side louvres forming a halo which enhances the wall's texture. The coloured centre of the luminaire is also illuminated by a secondary ring of light.

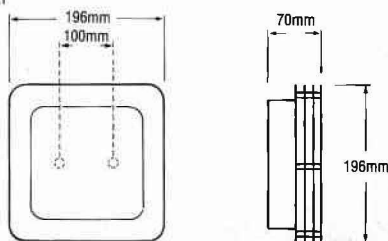
The centre area of the luminaire is available in two colours — olive green or rust brown.

Supplied complete with a 2D 16W lamp.

RANGE

Cat. no.	Description	Lamp watts	Weight kg
2D AT 116 G	Wall light, green centre	16	1.6
2D AT 116 BN	Wall light, brown centre	16	1.6

2D AT



2D SP 16

2D SP 16/28

A modern interior wall light, its finely perforated white diffusing screen gives a subtle suggestion of the lamp outline. Available in two sizes: 16 watt or 28 watt.

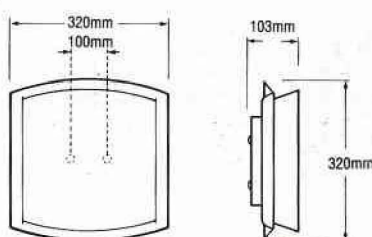
Supplied complete with a 2D 16W or 2D 28W 2700K lamp.

RANGE

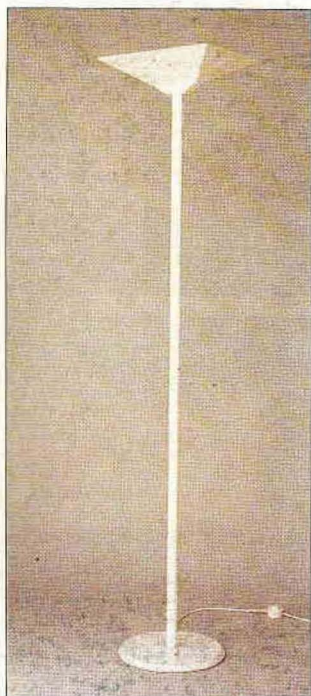
Cat. no.	Description	Lamp watts	Weight kg
2D SP 16	White wall light	16	2.1
2D SP 28	White wall light	28	2.4

Note: the 2D SP 28 is HPF as standard.

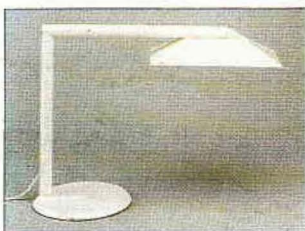
2D SP



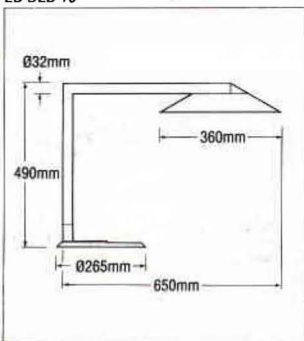
2D D-LINE



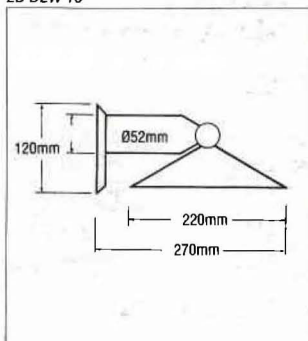
2D DLU 16



2D DLD 16



2D DLW 16



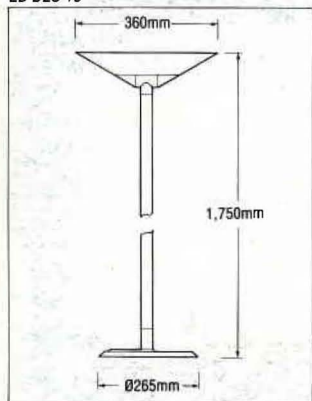
D-LINE 16W

A co-ordinated design programme featuring a 2D Uplight, wall light and desk light, all finished in off-white.

Supplied complete with a 2D 16W lamp.

RANGE

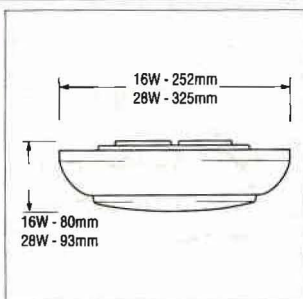
Cat. no.	Description	Lamp watts	Weight kg
2D DLD 16	Desk light	16	6.4
2D DLU 16	Uplight	16	8.0
2D DLW 16	Wall light	16	2.4



2D CLUB 2D CONVERSION PACK



2D CL 28W



CLUB 16W AND SUPER CLUB 28W

A slim, tough plastic luminaire, the Club 16W is fitted with a glass diffuser; the Super Club 28W uses a matching plastic diffuser. The red and white versions are weather-proof (IP 54 splash-proof), however the brass version is for interior application only. Super Club is available with the 2D 28W 2700K lamp only, and is switch start. All fittings are supplied with the appropriate 2D lamp.

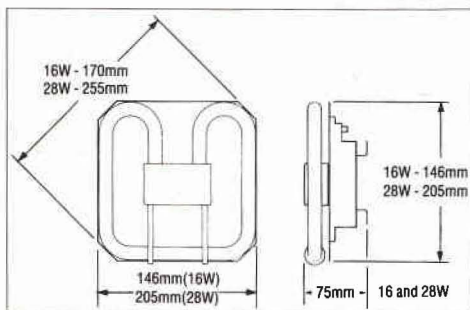
RANGE

Cat. no.	Description	Lamp watts	Weight kg
2D CL 16 W	Surface fitting, White	16	1.4
2D CL 16 R	Surface fitting, Red	16	1.4
2D CL 16 BR	Surface fitting, Brass (interior use only)	16	1.4
2D CL 28 W	Surface fitting, White	28	1.77
2D CL 28 R	Surface fitting, Red	28	1.77
2D CL 28 BR	Surface fitting, Brass (interior use only)	28	1.77

Note: 28W luminaires are HPF as standard.

CONVERSION PACK 16W/28W

Conversion Pack 2D CP 16 and 2D CP 28. The conversion pack is for converting existing luminaires to 2D. The reflector plate ensures efficient operation and houses the gear and terminals.



RANGE

Cat. no.	Description	Lamp watts	Weight kg
2D CP 16	16W conversion pack	16	0.75
2D CP 16/HPF	16W conversion pack High Power Factor	16	0.75
2D CP 28	28W conversion pack High Power Factor	28	1.35



16W AND 28W CONVERSION PACK

INDUSTRIAL INVINCIBLE LUMINAIRES

Certification/Approvals/Standards	98
LUV corrosion-resistant luminaires	99
LZ corrosion-resistant luminaires	100
FP flameproof range	101
FF food factory luminaire	102
FV impact resistant luminaire	102
FNDV Type N corrosion-resistant luminaires	103
Glendale corrosion-resistant luminaires	104
DNW Wellglass Type N	105
SONPAK OTN floodlight	106
MN25 Junior floodlight	107
DB/DN Bulkhead luminaires	108
Pole mounting systems	109
Invincible range control gear and accessories	110

INVINCIBLE

CERTIFICATION/APPROVALS/STANDARDS

BSI SAFETY MARK ▲

For hostile environments ie. non-explosive, the recognised design standard for luminaires is BS 4533 suitable for use with tungsten filament, tubular fluorescent and other discharge lamps on supply voltages not exceeding 1KV. The standard covers all aspects of safety (electrical, mechanical and thermal) incorporating type tests for checking compliance of the design of a product with the requirements of the specification. The BSI Safety Standard Mark Scheme is related to the parameters of the standard and is identical in all other respects to the Kitemark scheme which incorporates performance as well as safety.

Luminaires bearing the Safety Mark have been certified by BSI as conforming to very stringent safety standards based on BS 4533 and that numerous safety tests have been performed on production samples covering general construction, thermal endurance, protection against electric shock, resistance to impact, resistance to heat, fire and tracking, provision for earthing and insulation resistance. The Safety Mark on a product indicates that every effort has been made to ensure that it is safe and gives an independent assurance to the user that luminaires have been designed, manufactured and type-tested in accordance with the relevant national standard.

BASEEFA Ⓢ

The national testing and certifying authorities in the United Kingdom for products used in areas where gas-air mixtures (potentially explosive) may be present continuously or for short periods of time are BASEEFA (British Approvals Services for Electrical Equipment in Flammable Atmospheres) and SMRE (Safety in Mines Research Establishment). Luminaires are submitted for approval by type test for coal mining and explosives processing and manufacturing installations to the SMRE.

Equipment for industrial surface hazardous areas is approved by BASEEFA (part of the Health and Safety Executive). Luminaires are tested to the appropriate British Standard and on compliance BASEEFA will issue a Certificate of Assurance to the manufacturer, together with a licence to apply the certified mark. The licence is valid for three years, thereafter renewable.

The certificate will basically concern itself with the hazardous area protection concept and may not consider other aspects of the design, ie. not indicate the degree of protection against dusts and liquids (see IP code page 4) or resistance to corrosion.

In recent years the changes in the testing and certifying authorities in the United Kingdom have resulted in a range of national standards available basically for the same type of equipment or protection.

Whilst new luminaire designs are approved to the latest specifications, luminaires certified on approved previous standard will still be valid. It must be recognised that with the issue of a new standard, the older standard is not automatically superseded, cancelled or that the basic principle, of the type of protection covered in the standard, is changed. Legislation does not require that apparatus for use in hazardous areas be certified but in practice because of the responsibilities imposed by the Health and Safety at Work Act, users require the appropriate certification approval.

CLASSIFICATION OF HAZARDOUS AREAS

British Standard BS 5345 Code of Practice Part 1 defines areas of risk as follows:

ZONE 0

where an explosive gas-air mixture is continuously present or present for long periods

ZONE 1

where an explosive gas-air mixture is likely to occur in normal operation

ZONE 2

where an explosive gas-air mixture is not likely to occur in normal operation and if it appears it is only present for a short period

Prior to the introduction of BS 5345 Zones were called Divisions as defined in BS CP1003:1964.

The above Zonal Classifications deal only with risk due to flammable gases and vapours and, by implication, flammable mists.

Dust hazards are not included as they are covered in a separate BSI Standard, recently issued — BS 6467 Part 1 1985.

Electrical apparatus with protection by enclosure in presence of combustible dust.

By implication, an area that is not classified Zone 0, 1 or 2 is deemed to be non-hazardous and where standard industrial electrical equipment can be used.

IGNITION TEMPERATURE CLASSIFICATION

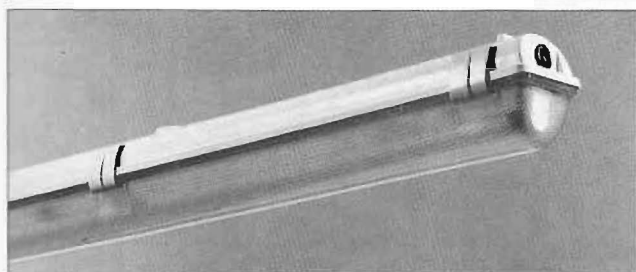
The ignition temperature is defined as the lowest temperature, determined by a standardised method, at which the most explosive mixture of the given substance and air will just ignite at a heated surface. Values vary considerably, eg. town gas/air is over 600°C, petrol/air about 250°C. Classification of temperature grades has been established internationally and the following table shows the relationship between the T class and the maximum surface temperature of the apparatus.

Temperature class	Maximum surface temperature °C
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

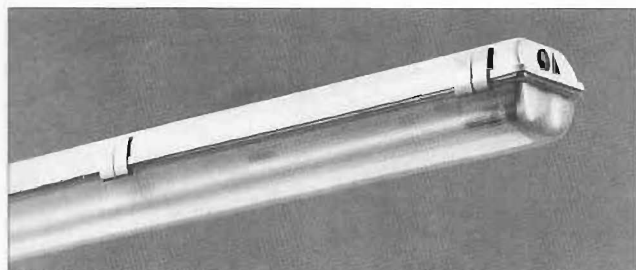
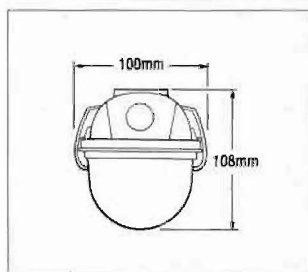
The ambient temperature is 40°C unless otherwise stated and marked on the apparatus. The user must ensure the maximum surface temperature or the T class of the luminaire **does not exceed** the ignition temperature of the gases or vapours involved.

TYPE OF PROTECTION (NON-SPARKING)

Is defined in British Standards as a type of protection applied to electrical apparatus such that in normal operation it is not capable of igniting a surrounding explosive atmosphere and a fault capable of causing ignition is not likely to occur.



LUV SINGLE TUBE LUMINAIRE



LUV TWIN TUBE LUMINAIRE
LUV CORROSION-RESISTANT
LUMINAIRES IP65 ▲

A range of luminaires designed and manufactured in the UK for use in applications such as breweries, plating works, food processing areas, factories, abattoirs, chemical works or any hostile environments where a dust-tight, jetproof luminaire would be required. The luminaire consists of clear stippled acrylic diffuser clipped to a white glass reinforced polyester (GRP) canopy by self-retaining robust toggles. A high quality polyurethane gasket forms a very effective seal between the canopy and diffuser. The reflector-gear tray has retaining safety cords to facilitate easy installation and maintenance. Luminaires are certified by BSI to BS4533:102-1 and Safety marked. Classified IP65 dust-tight and jetproof.

Suitable for use in ambient temperatures from -5°C to maximum shown in range table below when vertically or horizontally mounted. Cold store versions from -30°C to $+5^{\circ}\text{C}$

SUPPLY VOLTAGE

Standard luminaires 240V 50Hz. Details of luminaires for other supplies and circuits on application.

ADAPTOR KIT (BESA BOX MOUNTING)

Cat. no. Description
LUVB BESA box adaptor (set of 2)

TOGGLE CLIPS

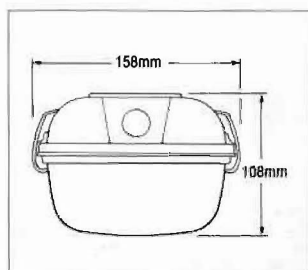
Cat. no. Description
LUVN Toggle Clips (Noryl material) set of 8
LUV A Toggle Clips (Acetal material) set of 24

IMPORTANT

Toggle clips Cat. No. LUVN — material (Noryl) Polyphenylene oxide/styrene used on standard luminaires are generally suitable for use in *inorganic environments* including acids such as hydrochloric, phosphoric; alkalis such as sodium hydroxide, ammonia; water steam and salts.

For *organic environments* such as paraffins, petrol, motor oils; chlorinated solvents such as carbon tetrachloride, trichlorethylene, ethers, alcohols, ketones; benzene and its derivatives; detergents, the LUV Acetal toggle clip is available.

See Data Sheet 3.LUV 1 for further details on the LUV range.



RANGE Packed complete with 26mm dia Pluslux 3500 Powersaver white lamps

Nominal length mm	Lamp rating	No. of lamps	Circuit electronic start	Complete luminaire Cat. no.	Diffuser Cat. no.	Maximum ambient temperature $+^{\circ}\text{C}$	Weight kg
600	18W	1	ES	LUV 118	LUV 12	45	2.05
600	18W	2	ES	LUV 218	LUV 22	25	3.2
1200	36W	1	ES	LUV 136	LUV 14	40	3.0
1200	36W	2	ES	LUV 236	LUV 24	40	4.7
1500	58W	1	ES	LUV 158	LUV 15	35	3.9
1500	58W	2	ES	LUV 258	LUV 25	30	6.4
1500	80W*	1	SSSC	LUS 180	LUV 15	5	3.9
1500	80W*	2	SSSC	LUS 280	LUV 25	5	6.4
1800	70W	1	ES	LUV 170	LUV 16	40	4.6
1800	70W	2	ES	LUV 270	LUV 26	30	7.5

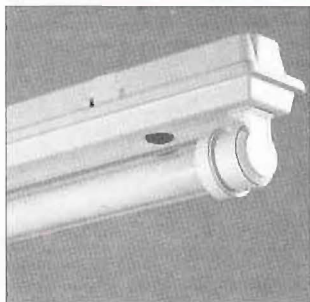
* Suitable for cold store use from -30°C to $+5^{\circ}\text{C}$

ES=Electronic Start

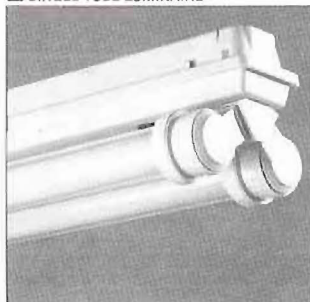
SSSC=Starter Switch Series Circuit

Note: The electronic starter circuit used in standard luminaires will operate 26mm or 38mm dia fluorescent lamps

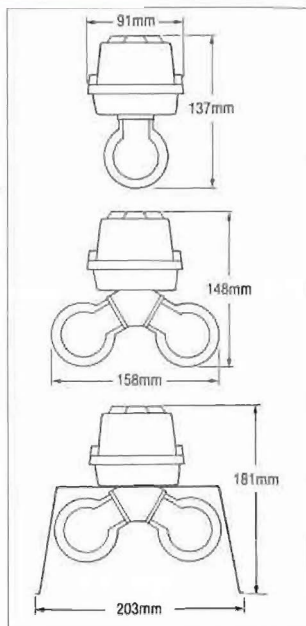
INVINCIBLE



LZ SINGLE TUBE LUMINAIRE



LZ TWIN TUBE LUMINAIRE



CORROSION-RESISTANT LUMINAIRES IP54

Suitable for conditions of high humidity or where corrosive elements are present. The GRP body is moulded in two halves screwed against a neoprene gasket with four nylon screws. Cable entry is at the top or end by grommets holes. Special sealed lampholders grip either the glass of the tube (LZM types) or the outside of an LZC acrylic cylinder to resist the ingress of dust and moisture to IP54 classification. The LZC 15 and 16 cylinder give complete mechanical protection to the fluorescent tube. All internal metal parts are coated to withstand adverse conditions during maintenance. PVC trough reflectors are available as optional attachments. Luminaires comply with BS 4533 IP54 Dustproof, Splashproof and are Safety Marked. Suitable for use in ambient temperatures from -5°C to $+25^{\circ}\text{C}$ (1800mm versions $+5^{\circ}\text{C}$ to $+25^{\circ}\text{C}$) when horizontally or vertically mounted. Supply voltage 240V 50Hz. Details of luminaires for other supplies on application.

RANGE

Nominal length mm	Lamp rating	Circuit	Batten c/w lampholder ring and cylinder where applicable cat. no.	Description	Cylinder or lampholder ring assembly cat. no. *	Length mm	Approx. weight inc. tubes kg
1500	1 x 65W	ES	LZMV 1065	Bare tube batten	LZM	1587	8.1
1500	2 x 65W	ES	LZMV 2065	Bare tube batten	2 x LZM	1587	10.8
1500	1 x 65W	ES	LZCV 1065	Batten and one cylinder	LZC 15	1587	9.0
1500	2 x 65W	ES	LZCV 2065	Batten and two cylinders	2 x LZC 15	1587	12.5
1800	1 x 75W	ES	LZMV 1675	Bare tube batten	LZM	1850	9.5
1800	2 x 75W	ES	LZMV 2675	Bare tube batten	2 x LZM	1850	12.5
1800	1 x 75W	ES	LZCV 1675	Batten and one cylinder	LZC 16	1850	10.5
1800	2 x 75W	ES	LZCV 2675	Batten and two cylinders	2 x LZC 16	1850	14.8

Note: ABS plastic trough reflectors are available for single and twin luminaires

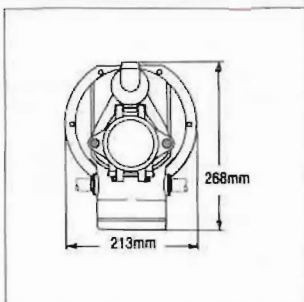
1500mm = LZU 25; 1800mm = LZU 26 Sealing ring for LZC/LZD cylinder sets is Catalogue no. LZL.

ES = Electronic Starter Circuit.

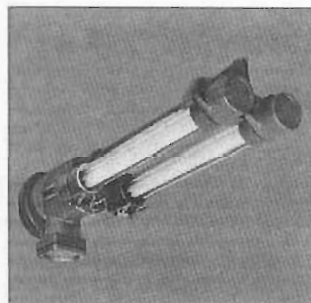
*Note: Lampholder assemblies suitable for T12 lamps only.



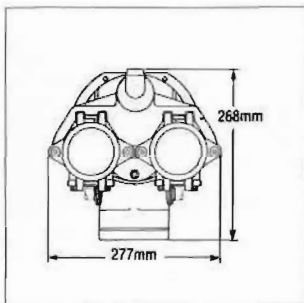
SINGLE TUBE FP FLAME PROOF



SINGLE TUBE FP FLAME PROOF



TWIN TUBE FP FLAME PROOF



TWIN TUBE FP FLAME PROOF

FP FLAMEPROOF RANGE IP65 ZONE 1 MoP Certificate no. 6055, for groups IIA, IIB.

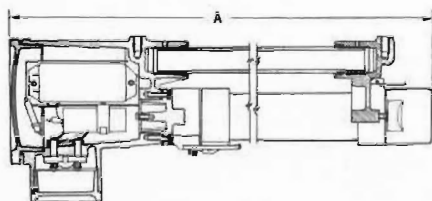
Temperature range Z at ambient temperature (50°C) specified on luminaire. Cast aluminium end boxes are rigidly supported by a steel connecting tube. Main casting incorporates switchless control gear on a removable tray, and underslung mains cable entry to facilitate installation. The remote end casting is removable for relamping. All visible joints are gasketed and external screws are of stainless steel socket headed type.

Maintenance or relamping is from either one end or below and the glass tube assembly or gear tray can be removed without disturbing the incoming mains supply. 2 x 20 mm entries are standard but alternative entries can be supplied to special order. Reflectors with or without wire guards are available.

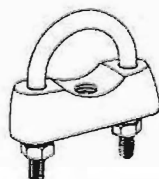
Luminaires comply fully with BS 229, BS 689 and are dust-light and jetproof (IP65).

SUPPLY VOLTAGE

240V 50Hz. Details of luminaires for other supplies on application.



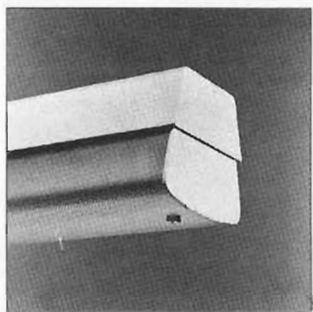
FP4600 Adjustable suspension bracket for fitting and/or reflector.



RANGE (Packed complete with white tubes)

Nominal Length mm	Rating	Circuit	Luminaire cat. no.	Dimension A length mm	Width mm	Weight inc. tubes kg	Fixing centres mm
600	2 x 20W	QS	FP 2020	971	278	22.7	690
1200	1 x 40W	RS	FP 1040	1581	212	23.9	1300
1200	2 x 40W	RS	FP 2040	1581	278	28.8	1300
1500	1 x 65W	RS	FP 1065	1882	212	26.3	1601
1500	1 x 65W	RS	FP 2065	1882	278	32.1	1601
1800	1 x 85W	RS	FP 1685	2147	212	29.0	1866
1800	2 x 85W	RS	FP 2685	2147	278	35.4	1860

With reflector, width of all sizes becomes 303mm. With reflector and wire guard, width of all sizes becomes 328mm.



FF FOOD FACTORY LUMINAIRE



FF FOOD FACTORY LUMINAIRE IP23

The heavy gauge sheet steel housing has spot welded ends and a white plastic finish, clear patterned high impact resistant acrylic enclosure with acrylic ends. Smooth exterior minimises the collection of moisture or dirt. The closure is held by three captive screws and seats on to a fixed neoprene gasket. Lampholders and control gear are mounted on a reflector gear tray below. The gear tray which has self retaining safety chains is removable as a complete unit by loosening three screws.

Luminaire complies with BS 4533:102.1 IP23 rainproof and is safety marked.

SUPPLY VOLTAGE

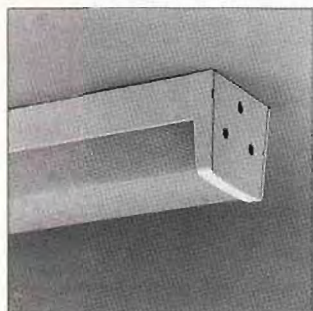
240V 50Hz.

Details of luminaire(s) for other supplies on application.

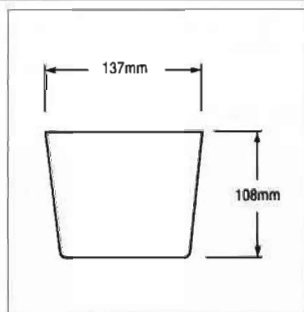
RANGE

Nominal length mm	Rating	No. of tubes	Circuit	Luminaire cat. no.	Enclosure cat. no.	Length mm	Weight inc. tubes kg	Fixing centres mm
1500	65W	Two	ES	FFDV 265	FFD 25	1613	15.3	610

ES=Electronic starter circuit



FV IMPACT RESISTANT LUMINAIRE



FIXING CENTRES ARE 707 OR 500MM WITH CENTRAL BESA BOX FIXING

FV IMPACT RESISTANT LUMINAIRE IP40

An impact resistant luminaire designed for use in areas of public access and similar locations where resistance to mechanical damage is required. The luminaire comprises an extruded aluminium alloy body with die cast end plates, an extruded polycarbonate diffuser which slides into the body and a removable gear tray. One end plate can be removed by undoing three screws with a special key and sliding the diffuser out. The gear and lampholders are fixed to a tray which is removable and the mains supply is connected by means of a plug and socket. The gear tray, by releasing a retaining screw can be slid out and left hanging on two studs, or completely removed simply by turning and lifting out of the luminaire body.

The luminaire is supplied complete with two 3ft 30W 1in diameter white fluorescent tubes.

RANGE

Cat. no.	Lamp	Circuit	Length mm	Weight kg
FV 2030	2 x 3ft 30W	SS	937	5.5

APPROVALS

Luminaire complies with BS 4533:102.1 and is safety marked.

CLASSIFICATION FOR PROTECTION IP40

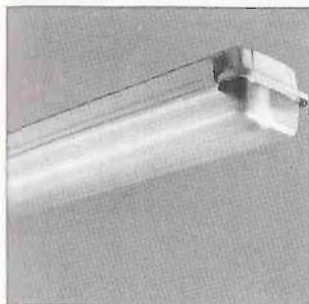
Maximum ambient temperature +30°C.

SUPPLY VOLTAGE

240V 50Hz-details of luminaire for other supplies on application.

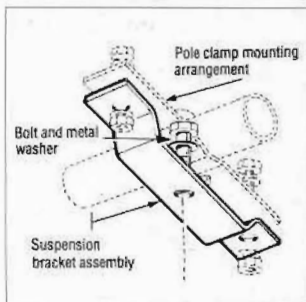
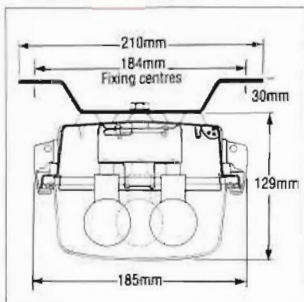
IMPORTANT

It is essential to use a special key Catalogue number OB/FV supplied separate to luminaire (for security reasons) before installing or servicing a luminaire.



FNDV TYPE 'N' LUMINAIRE FNDV TYPE 'N' CORROSION RESISTANT LUMINAIRES IP65 ZONE 2

A range of fluorescent luminaires designed for use in Zone 2 hazardous areas. Constructed of a corrosion resistant glass reinforced plastic (GRP) canopy attached to a high impact resistant acrylic diffuser by toggles which are self retaining to the canopy. A high quality neoprene gasket is positioned between the canopy and diffuser to form a very effective seal. Standard luminaires are supplied complete with 38mm white tubes, two seagull shaped galvanised suspension brackets, cable cleats for retaining through wiring and earthing leads for continuous through earthing and for earthing the suspension brackets.



An auxiliary galvanised steel fixing strap (Catalogue number FND 4621) for mounting to a 50mm pole or pipe is available as an optional extra. Luminaires are supplied as standard with a sealing plug at one end and an open end to accept M20 gland or conduit.

STANDARD COMPLIANCE

The FNDV range complies with BS 4533 2.1 Unrestricted Breathing BASEEFA Approved Certificate No. 81346. 240/250V 50Hz Supply.

Alternative versions (IP54 classification) BASEEFA Certificate No. Ex 72777/B for 220V 50Hz supply with SRS Control gear are available to order. FNDV Range BASEEFA Certificate No. Ex 81345/X. Restricted Breathing with vivatronic circuit also available to order IP65 Classification. Rated Class 1 (earthed metalwork) against electric shock, the luminaire must be adequately earthed. Rating IP 65 dust tight, jetproof against the ingress of dust and moisture.

STANDARD RANGE (Unrestricted breathing) Packed with T12 white lamps.

Nominal length mm	No. of tubes	Lamp rating	Circuit	Complete luminaire cat. no.	Length mm	Weight kg	Fixing centres mm	Diffuser cat. no.
600	2	20W	ES	FNDV 2020	684	4.4	190 x 184	LUD/FND 22
1200	1	40W	ES	FNDV 1040	1300	5.6	600 x 184	LUD/FND 24
1200	2	40W	ES	FNDV 2040	1300	7.0	600 x 184	LUD/FND 24
1500	1	65W	ES	FNDV 1065	1595	6.9	600 x 184	LUD/FND 25
1500	2	65W	ES	FNDV 2065	1595	9.8	600 x 184	LUD/FND 25

Note: 184mm refers to the centres on the fixing bracket.

Optional Extra: FND 4621 - Clamp for 50mm O/D pole or pipe.

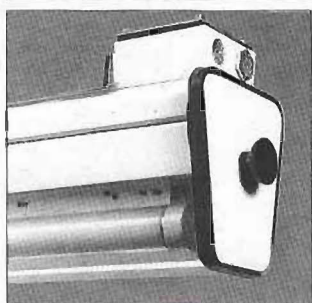
OPERATING CONDITIONS Suitable for continuous operation in ambient temps and surface temp classification (T Class) as follows:

Luminaire Cat. no	Mounting position	Ambient temperature °C			T Class ‡		
		FNDR* 220V	240V	FNDV 250V	FNDR* 220V	240V	FNDV 250V
FNDV 2020	Ceiling	35	30	25	6	4	3
	Wall - Vertical	35	30	—	6	4	—
FNDV 1040	Wall - Horizontal	35	30	25	6	4	3
	Ceiling	50	30	30	6	4	4
FNDV 2040	Wall - Vertical	—	—	—	—	—	—
	Wall - Horizontal	50	30	30	6	4	4
FNDV 1065	Wall - Horizontal	45	30	25	6	4	3
	Ceiling	40	30	30	5	4	4
FNDV 2065	Wall - Vertical	—	—	—	—	—	—
	Wall - Horizontal	40	30	30	5	4	4
FNDV 2065	Ceiling	25	30	20	5	3	3
	Wall - Vertical	—	—	—	—	—	—
	Wall - Horizontal	25	30	—	5	3	—

* Incorporates SRS control gear (20W version QS) and has IP54 classification.

‡ Maximum external surface temperature °C.

INVINCIBLE

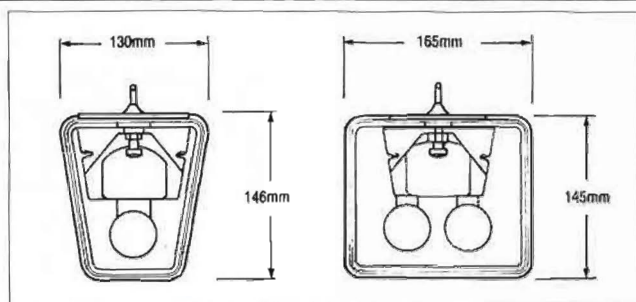


GLENDALE CORROSION-RESISTANT LUMINAIRE

GLENDALE CORROSION-RESISTANT LUMINAIRES IP55 ZONE 2

The thick acrylic enclosure has aluminium gasketed end plates of which one can be removed to withdraw the gear channel for relamping. All internal parts are rustproofed and stove enamelled white.

Standard luminaires have two eyebolts for suspension and a nylon cable gland suitable for 0-0200-0-275 o.d. cables.



Luminaires with SB in their Catalogue numbers have fixing studs and Zone 2 conduit boxes with two 20mm entries, one being removable. Luminaires can be mounted horizontally or vertically, in ambient temperatures up to 35°C (65W suitable only up to 25°C when mounted vertically). Made to BS 4533-2.1 (IP55) dust-proof, jetproof, BASEEFA certificate no. 72064.

SUPPLY VOLTAGE
240V 50Hz Details of luminaires for other supplies on application.

RANGE

Nominal length mm	Rating	Circuit	Complete luminaire(s) cat. no. †	Suspension*	Replacement Enclosures	Length mm	Weight kg	Fixing centres mm
600	1 x 20W	QS	FGSB 20	stud/box	FGSB 12	686	6.35	457
600	2 x 20W	QS	FGSB 220	stud/box	FGSB 22	686	7.25	457
600	1 x 20W	QS	FGEA 220	eye/gland	FGEA 22	686	7.25	457
1500	1 x 65W	RS	FGSB 65	stud/box	FGSB 15	1595	12.7	610
1500	2 x 65W	RS	FGSB 265	stud/box	FGSB 25	1595	17.25	610
1500	1 x 65W	RS	FGEA 65	eye/gland	FGEA 15	1595	12.7	610
1500	2 x 65W	RS	FGEA 265	eye/gland	FGEA 25	1595	17.25	610

* Suspension and mains entry

† Nomenclature

A=cable gland entry;

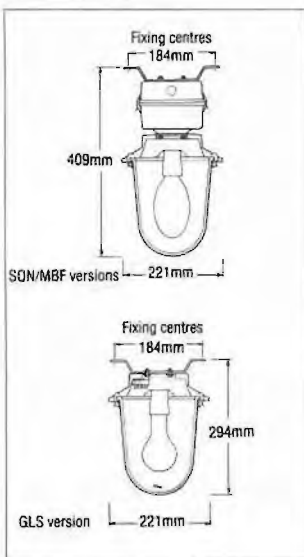
B=Zone 2 box 2 x 20mm ET;

E=eye bolt mounting;

S=stud mounting.

For full mounting details see pole mounting systems.

Note: 4ft 40W Single and Twin versions available to order.



DNW WELLGLASS TYPE N IP65

A dust-tight and jetproof luminaire suitable for use in hostile and hazardous environments. Designed for use in Zone 2 hazardous areas or any hostile environment where a dust-tight, jetproof, wellglass luminaire would be required. The luminaire complete with fully pre-wired control gear, including PFC capacitor and lamp. Less gear version is available and packed less lamp. The body is made of corrosion resistant white glass reinforced polyester (GRP) with mounting bracket and is fixed to a toughened glass bowl with self-retaining stainless steel toggle clips.

Installation and maintenance is simplified as the top part of the GRP body can be installed before the heavier section housing the control gear and the lamp housing is retained by a stainless steel wire. Mains cable entry is by two M20 clearance holes (one each side of the body housing) one of which is sealed with a removable blanking plug and neoprene washer. Mains termination suitable for looping twin 2.5mm² cables. Earthing facility provided with the luminaire for earthing conduit and/or pyro cable via a cable gland. Alternative versions with Besa box lid for top suspension/cable entry available special order (Catalogue number prefix DNW becomes DNWT). For pole mounting a separate pole clamp bracket (Catalogue number FND4621) is available as an optional extra. Mounting arrangements available for walkways, etc. See page 109.

STANDARD COMPLIANCE

The DNW range complies with BS 5433:2-1 Type N. Restricted breathing. BASEEFA Approved, Certificate No. 82127 220/240/250V 50Hz, 250V 60Hz.

Rated Class 1 (earthed metalwork) against electric shock, the luminaire must be adequately earthed. Rated IP65 dust-tight, jetproof against the ingress of dust and moisture. Wire guard available.

See Data Sheet 3:DNW.1 for further details of the DNW range.

RANGE

Luminaire Cat. no.	Lamp rating & type	Cable entry †	Weight inc. lamp kg approx.
DNW 70	70W SON	Twin M20 side entry	5.5
DNWT 70	70W SON	Single M20 top entry	5.5
DNW 80	80W MBF	Twin M20 side entry	5.4
DNWT 80	80W MBF	Single M20 top entry	5.4
DNW 125	125W MBF	Twin M20 side entry	5.4
DNWT 125	125W MBF	Single M20 top entry	5.4
DNW 200*	150/200W GLS	Twin M20 side entry	2.9
DNWT 200*	150/200W GLS	Single M20 top entry	2.9

† Side entry versions have two holes 180mm apart one open and the other for looping in is sealed with a removable blanking plug.

DNWT versions available to special order are supplied complete with BESA box domed lid to accommodate 20mm conduit top entry.

* Supplied less lamp and gear.

RANGE — OPERATING CONDITIONS

Suitable for mounting on wall, ceiling or pole in the following ambient temps on 50Hz supply.

Cat. no.	Lamp rating & type	220/240V		250V	
		Ta	T	Ta	T
DNW 70	70W SON	40°C	5	30°C	5
DNW 80	80W MBF	35°C	4	25°C	4
DNW 125	125W MBF	35°C	4	25°C	4
DNW 200	150/200W GLS	30°C	5	—	—
DNWW	Wire guard				

Note: The above also applies to DNWT versions

Ta — Maximum ambient temperature — degrees C.

T — External surface temperature classification — degrees C.

See page 109 for details of handrail mountings, etc.



OTN 250-4

APPLICATIONS

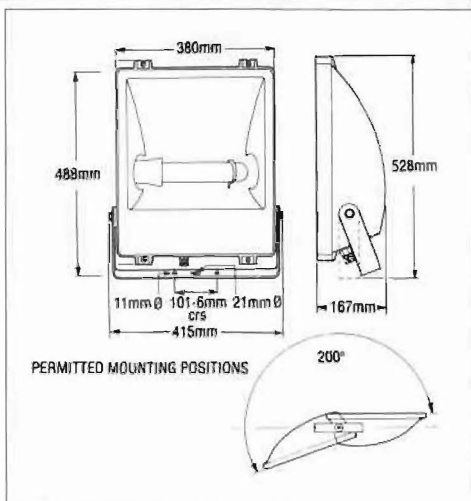
Designed for use in a Zone 2 hazardous area or for any application where a corrosion resistant, dust-tight, jetproof luminaire is required. Ideal for coastal and offshore environments, petrochemical installations, oil/gas platforms, solvent usage and storage areas, laundries, pharmaceutical plants, plating and printing works and similar hostile and hazardous applications.

DESCRIPTION: lightweight GRP construction to simplify installation, stainless steel stirrup, toughened glass in GRP frame swings open for easy access to gear and lamp compartment.

RANGE – 240V 50Hz

(details of luminaires for other voltages available on application)

Cat. no.	Description	Weight kg	Projected area
OTN 150-4	SONPAK Type N c/w 150W SON-T	11	0.175m ²
OTN 250-4	SONPAK Type N c/w 250W SON-T	12.75	0.175m ²



MOUNTING: direct wall mounting. On 5 metre QCO column with QFBOT adaptor. See *Column* section for details of 8, 10 and 12m column and stirrup mounting brackets. Also fixed to any suitable support using M20 bolt (not supplied) through centre hole of stirrup.

CLASSIFICATION FOR PROTECTION IP65

Against electric shock - class 1 earthed metalwork.
Against ingress of moisture and dust - IP65 dust-tight jetproof
Complies with BS 4533 Pt 2 section 2.1 1976
Type of protection Ex N restricted breathing
BASEEFA certificate No. Ex 85108
Max. ambient temp 40 - 55°C depending on mounting angle
Surface temp classification 3 or 4 depending on mounting angle.



MN25 JUNIOR FLOODLIGHT PROJECTOR ZONE 2

MN25 JUNIOR FLOODLIGHT PROJECTOR ZONE 2

APPLICATIONS

For Zone 2 hazardous areas.

DESCRIPTION

REFLECTOR: super purity spun aluminium, polished and anodised. Secured internally to LM6-M aluminium alloy ring casting with stirrup fixing. Heat resisting toughened front glass sealed in to reflector by gasket and stainless steel visor band. Gasketed and fastened to body casting by stainless steel studs and wing nuts.

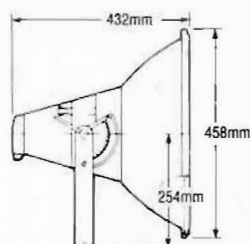
AUXILIARY REFLECTOR: polished aluminium.

LAMPHOLDER HOUSING: Pressure die-cast aluminium; lampholder position adjustable for focusing. End cap is detached for access to terminal block. Gland for 7-11mm O/D cable. Lampholder is a porcelain enclosed break type.

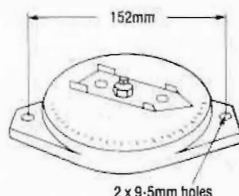
MOUNTING: a) Galvanised steel stirrup with 21mm central fixing hole. Plastic coated locking bolts/handles. Quadrant for aiming marked 0°-180° b) Base plate (M25 BPJ) bolts direct to stirrup.

RANGE

Cat. no.	Description	Weight kg	Projected area m ²
MN25S	Specular reflector projector floodlight	9.97	0.16
MN25D	Diffuse reflector projector floodlight	9.97	0.16
M25 BPJ	Base plate (optional extra)	0.36	—
M25/TG 5275	Replacement glass for MN25S & MN25D	2.0	—



Single fixing M20 bolt (not supplied)



M25 BPJ BASE PLATE

LAMPS

GLS 300/500W, MBF/U 250/400W, MBI and MBIF 250/400W, SON 250/400W

For control gear and circuit details see *Control gear and accessories* section. Gear box for Zone 2 application — to special order only.

CLASSIFICATION FOR PROTECTION

Against electric shock: Class 1 — earthed metalwork. Against ingress of moisture or dust: IP65, dust-tight and jetproof.

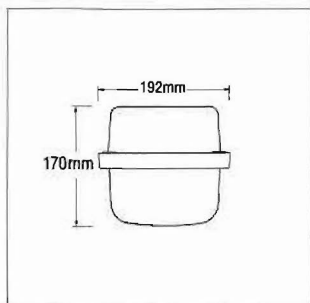
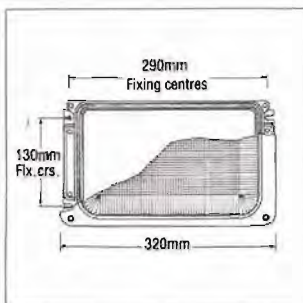
APPROVALS

Luminaire complies with BS4533 Part 2 Sec 2-1 1976. Type N.

BASEEFA certificate No. Ex 76058/B.

Restricted Breathing.

Surface temperature Classification: T4 for all lamps up to 400W. T3 for 500 GLS lamps. Can be mounted in any position and is suitable for use in ambient temperatures up to 40°C.



DB 80

DB Version 
DN Version 

BULKHEAD LUMINAIRES IP65

Dust-tight jetproof bulkhead design suitable for use in hostile and hazardous environments.

Pressure die-cast aluminium alloy LM6 body and frame, primed and stove enamelled light hammer grey. The frame assembly which contains a borosilicate glass diffuser bowl is hinged to the body casting and secured against a silicon gasket by four captive stainless steel Allen screws (M5 x 15mm). Body is tapped top and bottom 20mm conduit. Zone 2 versions 2 x 20mm tapped holes adjacent at one end, one hole with removable plug.

Fixing is achieved by four M6 bolts, washers and nuts supplied with the luminaire. Zone 2 versions are supplied complete with fixing straps slotted for M6 bolts. Heavy duty galvanised wire guard also available (Catalogue number DBW). Complies with BS4533-2-1 IP65 Dust-tight Jetproof, Restricted Breathing. (Type N versions T4 classification). DN Versions Section 2-1 BASEEFA Approved Certificate No. 81139. DB Versions Section 2-2 BSI Safety Marked. Mountings available for fixing to handrails, walkways, etc. See page 109

SUPPLY VOLTAGES: 240/250V 50Hz. (Details of luminaires for other supply voltages on application).

Luminaires can be supplied with polycarbonate diffuser bowls to order. For more onerous environments such as offshore installations an alternative PTFE finish can be supplied to order.

RANGE Supplied complete with lamp & control gear.

Luminaire Cat. no.	Lamp rating and type	Cable entries	Approx. weight inc. lamps kg
DB 70	70W SON Elliptical	Single hole at each end of luminaire	5-98
DB 80	80W MBF Elliptical	Single hole at each end of luminaire	5-98
DB 50	50W MBF Elliptical	Single hole at each end of luminaire	5-98
DB 160*	150/200W GLS or 160W MBTF	Single hole at each end of luminaire	4-3

To order luminaires with polycarbonate bowl add letter M to standard catalogue no. eg. DBM 70
50W MBF & 70W SON no restriction on mounting, 80W MBF restricted to ceiling mounting only.
Maximum ambient temperature is 25°C when polycarbonate bowl is used.
Polycarbonate bowl not suitable for GLS & MBTF lamps.

BASEEFA APPROVED RANGE Supplied complete with lamp and control gear.

Luminaire Cat. no.	Lamp rating and type	Cable entries	Approx. weight inc. lamps kg
DN 70	70W SON elliptical	Twin adjacent at one end of fitting	5-98
DN 80	80W MBF elliptical	Twin adjacent at one end of fitting	5-98
DN 50	50W MBF elliptical	Twin adjacent at one end of fitting	5-98
DN 200*	150/200W GLS or 160W MBTF	Twin adjacent at one end of fitting	4-3

* Supplied less lamp and control gear.

DB 50 & DN 50 versions are available to special order only.

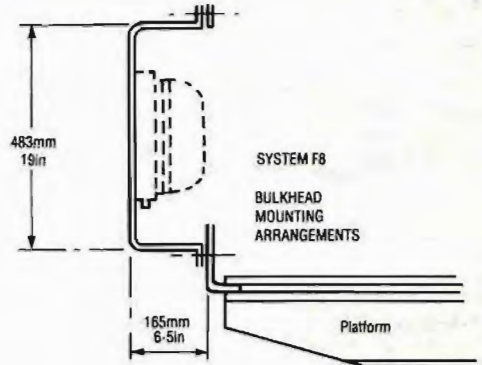
OPTIONAL EXTRAS AND SPARES FOR BOTH DN & DB LUMINAIRES

Cat. no.	Description
DBW	Wire guard
DBG	Spare glass
DBM	Polycarbonate bowl

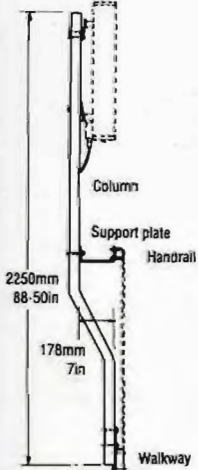
POLYCARBONATE BOWLS: To order luminaires with polycarbonate bowl add letter M to Catalogue no. e.g. DBM 70. When polycarbonate bowl is used, maximum ambient temperature 25°C, 80W MBF versions restricted ceiling mounting. Not suitable for GLS or MBTF.

POLE MOUNTING SYSTEMS

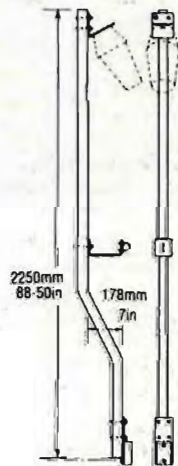
A RANGE OF MOUNTING SYSTEMS FOR LUMINAIRES ON INDUSTRIAL WALKWAYS



TYPICAL MOUNTING ARRANGEMENT
SYSTEM F1



SYSTEM F5



INVINCIBLE RANGE CONTROL GEAR AND COMPONENTS

RANGE

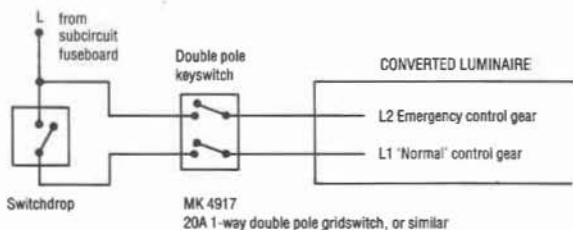
Luminaire Cat. no.	Choke/ Ballast	Capacitor	Lampholder	Starter/Ignitor	Mains terminal block	Fuse holder	Circuit dia. †
LUV 118	GCS 18/20	GC 2428/S	GB 1660	G 69577.4	GT 1367	—	19
LUV 218	2 x GCS 18/20	GC 2419/S	GB 1660	2 x G 69577.4	GT 1367	—	2 x 19
LUV 136	GCS 36/40	GC 2417/S	GB 1660	G 69577.4	GT 1367	—	19
LUV 236	2 x GCS 36/40	GC 2419	GB 1660	2 x G 69577.4	GT 1367	—	2 x 19
LUV 158	GCS 58/65	GC 2435/S	GB 1660	G 69577.4	GT 1367	—	19
LUV 258	2 x GCS 58/65	GC 2274/S	GB 1660	2 x G 69577.4	GT 1367	—	2 x 19
LUV 170	2 x GCSH 70/75	GC 2435/S	GB 1660	G 69577.4	GT 1367	—	20
LUV 270	4 x GCSH 70/75	GC 2441/S	GB 1660	2 x G 69577.4	GT 1367	—	2 x 20
LUS 180	G 53333.2	GC 2167	GB 1660	155/800	GT 1367	—	2
LUS 280	2 x G 53333.2	2 x GC 2167	GB 1660	2 x 155/800	GT 1367	—	2 x 2
LZMV 165	GCS 58/65	GC 2420	GB 1656/X	G 69577.4	GT 1367	—	19
LZMV 265	2 x GBU 65/75	GC 2274	GB 1656/X	2 x G 69577.4	GT 1367	—	2 x 19
LZMV 175	GBU 65/75	GC 2435	GB 1656/X	G 69577.4	GT 1367	—	19
LZMV 275	2 x GBU 65/75	GC 2441	GB 1656/X	2 x G 69577.4	GT 1367	—	2 x 19
FP 2020 ‡	GCU 36/40	GC 2417	GB 1573	GQS 220 (QS unit)	—	—	22
FP 1040 ‡	GBU 40	GC 2435	GB 1573	—	—	GT 1310X	24
FP 2040 ‡	2 x GBU 40	2 x GC 2435	GB 1573	—	—	GT 1310X	2 x 24
FP 1065 ‡	GBI 65	GC 2419	GB 1573	—	—	GT 1310X	24
FP 2065 ‡	2 x GBI 65	2 x GC 2419	GB 1573	—	—	GT 1310X	2 x 24
FP 1685 ‡	GBI 685	GC 2419	GB 1573	—	—	GT 1310X	24
FP 2685 ‡	2 x GBI 685	2 x GC 2419	GB 1573	—	—	GT 1310X	2 x 24
FFDV 265	2 x GCS 58/65	2 x GC 2274	GB 1548/B	2 x G 69577.4	GA 5079	—	2 x 19
FGBS 20 ‡	GCU 18/20	GC 2417	GB 1548/B	G 47045 (QS unit)	GT 1363/3	GT 1310X	—
FGBS 220 ‡	GCU 36/40	GC 2417	GB 1548/B	G 47046 (QS unit)	GT 1363/3	GT 1310X	22
FGEA 220 ‡	GCU 36/40	GC 2417	GB 1548/B	G 47046 (QS unit)	GT 1363/3	GT 1310X	22
FGBS 65 ‡	G 69349.4	GC 2419	GB 1549/B	—	GT 1363/3	GT 1310X	24
FGBS 265 ‡	2 x G 69349.4	2 x GC 2419	GB 1548/B	—	GT 1363/3	GT 1310X	2 x 24
FGEA 65 ‡	G 69349.4	GC 2419	GB 1548/B	—	GT 1363/3	GT 1310X	24
FGEA 265 ‡	2 x G 69349.4	2 x GC 2419	GB 1548/B	—	GT 1363/3	GT 1310X	2 x 24
FV 2030	2 x GCS 30	GC 2419	GB 1555	2 x 155/500	GT 1363/3	GT 1387/3	2 x 1
FNDV 2020 ‡	2 x G 69557.4	GC 2417/P	GB 1580/A4	2 x 65 UFES 69539/4	GT 1385	—	2 x 19
FNDV 1040 ‡	G 69545.4	GC 2417/P	GB 1580/A4	65 UFES 69539/4	GT 1385	—	19
FNDV 2040 ‡	2 x G 69545.4	GC 2419/P	GB 1580/A4	2 x 65 UFES 69539/4	GT 1385	—	2 x 19
FNDV 1065 ‡	G 69546.4	GC 2435/P	GB 1580/A4	75 UFES 69541/4	GT 1385	—	19
FNDV 2065 ‡	2 x G 69546.4	GC 2274/P	GB 1580/A4	2 x 75 UFES 69541/4	GT 1385	—	2 x 19
DNW 70 ‡	G 53373.T	GC 2383/BO	GL 1217	G 53361.4	GT 1396/3	—	A
DNW 80 ‡	G 53394.4	GC 2383/BO	GL 1217	—	GT 1396/3	—	F
DNW 125 ‡	G 53395.H	GC 2383/BO	GL 1217	—	GT 1396/3	—	F
DNW 200 ‡	—	—	GL 1217	—	GT 1396/3	—	—
DN 50 ‡	G 53327.4	GC 2383/BO	GL 1217	—	GT 1385	—	F
DN 70 ‡	G 53373.T	GC 2383/BO	GL 1217	G 53361.4	GT 1385	—	A
DN 80 ‡	G 53333.4	GC 2383/BO	GL 1217	—	GT 1385	—	F
DN 200 ‡	—	—	GL 1217	—	GT 1385	—	—
DB 50	G 53327.4	GC 2383/BO	GL 1194	—	GT 1364/2	—	F
DB 70	G 53320.T	GC 2383/BO	GL 1194	G 53353.4	GT 1396/2	—	A
DB 80	G 53333.4	GC 2383/BO	GL 1194	—	GT 1364/2	—	F
DB 160	—	—	GL 1194	—	GT 1396/2	—	—
OTN 150	G 53417.4	GC 2331	GL 1196	G 53250	GT 1396/4	—	H
OTN 250	G 53418.4	GC 2386	GL 1196	G 53250	GT 1396/4	—	H

‡ Important: The component catalogue numbers shown must be used for replacements in order to comply with BASEEFA requirements. It is essential that no other component is used.

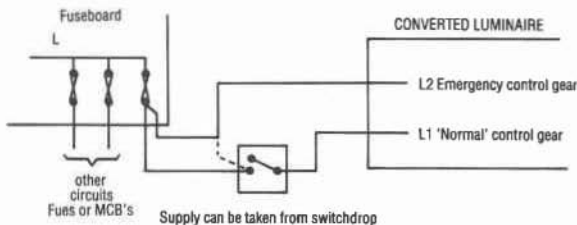
† See Fluorescent tube control gear and accessories and Discharge control gear sections for circuit diagrams.

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EMERGENCY LIGHTING - GENERAL INFORMATION



'KEYSWITCH' TESTING



'FUSEBOARD' TESTING DEFINITIONS

1. NON-MAINTAINED EMERGENCY LIGHTING LUMINAIRE

A luminaire containing one or more lamps which operate from the emergency supply **only** upon the failure of the normal supply.

2. MAINTAINED EMERGENCY LIGHTING LUMINAIRE

A luminaire containing one or more lamps which operate from the normal supply or from the emergency supply at all times. Note that all THORN EMI emergency lighting luminaires falling into the "maintained" category are supplied with a 4-way terminal block enabling both switched and unswitched incoming mains supplies to be accommodated. This ensures that the luminaire can be switched independent of the emergency lighting facility.

3. SUSTAINED EMERGENCY LIGHTING LUMINAIRE

A luminaire containing two or more lamps, at least one of which is energised from the emergency supply and the remainder from the normal supply. Such a luminaire is intended to sustain illumination at all times. In all cases the emergency lamp(s) operate in the non-maintained mode only.

4. SLAVE EMERGENCY LIGHTING LUMINAIRE

A luminaire providing either maintained or non-maintained operation which is powered from a central battery system.

MAINTENANCE PROCEDURES FOR EMERGENCY LIGHTING LUMINAIRE

BS 5266 recommends that, for self contained emergency lighting luminaires:

- (i) Daily: the charge indicator LED's are checked to indicate normal operation.
- (ii) Monthly: a short operational check be carried out to ensure that each luminaire illuminates on mains failure.
- (iii) Six-monthly: a duration test for a period of at least 1 hour is carried out.
- (iv) Three-yearly: a full duration test be carried out.

In addition, the Industry Committee for Emergency Lighting, in its publication ICCL 1001:1978, recommends that battery packs and lamps are replaced at 4-year intervals.

THORN EMI Lighting recommend that lamps used in maintained emergency lighting luminaires e.g. exit signs and integrated emergency lighting luminaires are replaced at 12-monthly intervals. This ensures that the photometric performance is maintained.

RECOMMENDED TEST CIRCUITS

Regular maintenance of an emergency lighting system is an important factor in ensuring reliable operation. However equally important is the connection method of the converted luminaire/remote emergency housing to the mains supply. One of the above illustrated circuits must be employed for the testing of emergency gear — failure to do so will result in serious component failure.

NOTE

Under no circumstances must the supply to the emergency gear be removed while the luminaire is being powered by the standard control gear. To simulate a mains failure and thus test the luminaire both supplies must be broken simultaneously.

INTEGRATED EMERGENCY LIGHTING LUMAIRES

THE PRINCIPLE

Conventional THORN EMI luminaires are available in self contained emergency lighting form by incorporating inside the spine, or housing, an inverter module and battery pack, thus not affecting the appearance of the installation.

In the event of mains failure the standard fluorescent tube will remain illuminated at a reduced level for the designated period (either three or one hour versions are offered). This will occur irrespective of whether the tube was previously switched on or off. When mains supply returns the tube resumes normal operation and the battery pack is automatically recharged. A visible red LED monitor is included in the luminaire to indicate that the batteries are being charged.

These emergency lighting luminaires provide a much greater light output than is normally associated with self contained 4W or 8W fluorescent emergency units, thus giving the user greater safety assurance.

Although these luminaires will normally be supplied for operation in the maintained mode (lamp on at all material times) the luminaires can be supplied in non-maintained form (lamp only operates in event of mains failure) if necessary.

THE EMERGENCY LIGHTING MODULE

The highly efficient solid state 220/240 volt 50Hz emergency lighting module has three main functions:

- * To change over from mains to battery supply.
- * To convert d.c. supply to a high frequency a.c. supply that is capable of driving a standard fluorescent tube.
- * To provide charging current for the batteries from the mains supply. The THORN EMI emergency lighting module is guaranteed for four years from the date of installation and has been tested and certified to meet the ICEL 1001 specification.

THE BATTERY

Each THORN EMI emergency lighting luminaire contains a battery comprising long life, high temperature, 4Ah sealed nickel cadmium cells. The battery must be carefully selected so that the claimed light output and durations can be achieved, so THORN EMI use 8'D' cells for tube loads up to and including 40W and 10'D' cells for 58 to 100W loads.

As with the emergency lighting module, the battery is guaranteed for four years from the date of installation.

WIRING

Standard luminaires in self contained emergency lighting form save on installation and wiring costs as only one unit is involved. Wiring is fast and straightforward, direct into the terminal block. Provision is made for two live supplies:

- i) An unswitched supply to keep the battery on charge, and to sense mains failure.
- ii) A supply via a lightswitch so that the tube(s) can be switched off at times when the building is unoccupied. In the 'off' mode, the battery is still under charge, and the emergency lighting will still operate in the event of mains failure.

PERFORMANCE

Most THORN EMI fluorescent luminaires are available in integrated emergency lighting form, the full list being detailed on the opposite page. After mains failure the battery supply will illuminate a single tube circuit for either three hours at standard brightness or alternatively for one hour at high brightness. The one hour high brightness units provide approximately twice the lumens of the equivalent three hour unit.

Most circuit arrangements i.e. electronic start, switchstart and SRS can be offered in conjunction with the emergency lighting module. In practice the emergency lighting luminaire will be equipped with the same type of control gear as the standard luminaire.

LIGHT OUTPUT

Emergency lighting specifications call for minimum escape route lighting levels to be achieved at all material times, not just when the luminaire is new and the batteries fully charged.

The emergency lighting lumens quoted in the following table are for comparison purposes only and are based on the lamp and module operating under standard conditions on a test bench.

To comply with the minimum illuminance requirements laid down in BS 5266 for scheme planning spacing/height data is necessary. This takes into account such factors as:

- a) The luminous intensity distribution of the luminaire.
 - b) Correction factors for the minimum light output condition.
 - c) The maintenance factor.
- THORN EMI Lighting's data is provided by a BSI registered photometric laboratory which means assurance that the designed performance will be achieved in practice.

RANGE

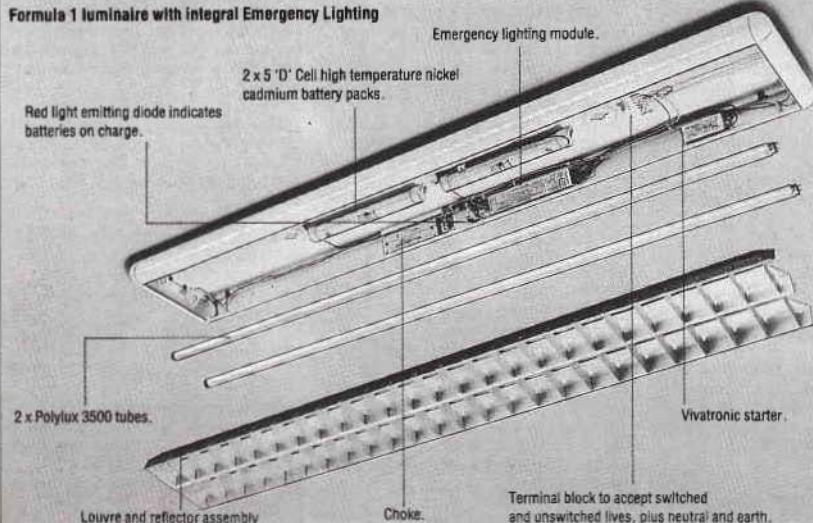
Tube type	Lighting Design lumens* (2000 hrs)	Nominal emergency lighting lumens 3 hour	1 hour
2ft 18W — 26mm Ø	1325	610	1100
2ft 20W — 38mm Ø	1100	495	946
4ft 36W — 26mm Ø	3200	704	1248
4ft 40W — 38mm Ø	2600	532	1008
5ft 58W — 26mm Ø	5100	969	1785
5ft 65W — 38mm Ø	4750	808	1568
6ft 70W — 26mm Ø	6300	1071	1764
6ft 75W — 38mm Ø	5750	748	1438
8ft 100W — 38mm Ø	8000	880†	1600

* Based on White for 38mm diameter tubes and Polyflux for 26mm diameter tubes. The Lighting Design lumens figure for a 26mm diameter Pluslux 3500 tube is the same as that for the equivalent length 38mm diameter White tube.

† 2 hrs duration.

EMERGENCY LIGHTING

Formula 1 luminaire with integral Emergency Lighting



Listed are the luminaires that can be supplied in Integrated Emergency Lighting form.

All luminaires (with the exception of 100W) are available in one hour maintained versions (Catalogue number prefix E1) and in three hour maintained form (Catalogue number prefix E3).

100W luminaires are available in one hour maintained versions (Catalogue number prefix E1) and in two hour maintained form (Catalogue prefix E2).

All luminaires contain:

- (i) emergency lighting module
 - (ii) high temperature nickel cadmium battery pack
 - (iii) standard gear for mains operation.
- Non-maintained versions can be supplied to special order.

Lamps are supplied with Integrated Emergency Lighting luminaires where this is the case with the standard mains luminaire.

Example:

A 3-hour maintained emergency lighting version of the PPV65 is required. This becomes E3PPV65. The asterisks indicate the location of the prefix.

The page number reference relates to the standard mains luminaire.

ARENA (P49-53)

- **CAS 1021
- **CAS 1051
- **CAS 1081
- **CAS 1022
- **CAS 1052
- **CAS 1082

CLIPPER 1

- **FCMV 58
- **FCMV 670
- **FCMV 2670
- **FCMV 100
- **FCMV 2100

CLIPPER 2 (P25-32)

- **FCLV 70
- **FCLV 100
- **FCLV 2100

FORMULA 1 (P40-42)

- **F1X 236
- **F1X 258
- **F1X 270

LUV (P99)

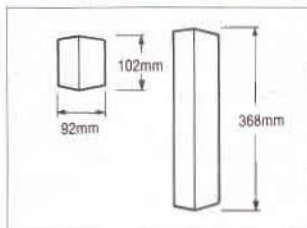
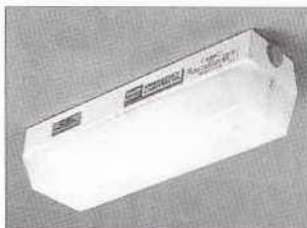
- **LUVW 136
- **LUVW 158
- **LUVW 170

QUATTRO

Selected versions of this luminaire will be available with integral emergency lighting control gear. For details contact your local THORN EMI Lighting Sales Office.

POPULAR PACK (P8-17)

- **PP 65
- **PP 675
- **PPV 675
- **PPV 100
- **PPV 2100

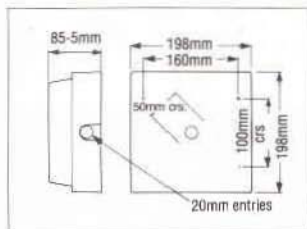
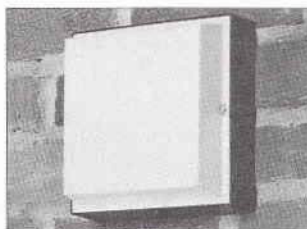

EFV3.T/ICEL, EFVM3 SELF CONTAINED 8W BULKHEAD LUMINAIRE IP65

The traditional, vandal-resistant, 8W emergency lighting bulkhead, now updated to IP65 specification. The white stove enamelled finish, together with the opal polycarbonate diffuser - fixed by allen screws - means this luminaire is suitable for almost any commercial or industrial application, interior or exterior. Cable entry - rear BESA provision plus 20mm screwed conduit entry on end faces. Complies with the requirements of ICEL 1001:1978.

RANGE

Cat. no.	Watts	Description	Weight kg	Duration
EFV3.T/ICEL	1 x 8W	Non-maintained	2.4	3hr
EFVM3	1 x 8W	Maintained	—	3hr
EFBD	—	Replacement diffuser for both EFV3.T/ICEL and EFVM3	—	—
EFBR	—	Reflector - stove enamelled white for both EFV3.T/ICEL and EFVM3	—	—
EGH 3203	—	Self-adhesive transfer 'Exit' in green letters.	—	—
OBB	—	Bezel trim for both EFV3.T/ICEL and EFVM3	—	—

For Central Systems version see page 120

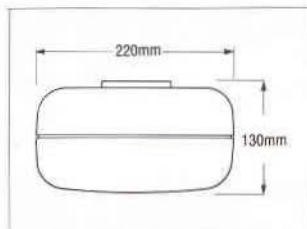
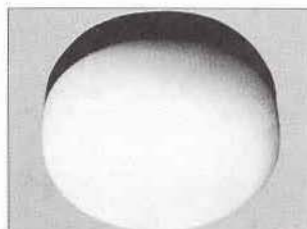

EFP3 SELF-CONTAINED 4W BULKHEAD LUMINAIRE IP65

An emergency lighting version of the popular 2DFV 16 bulkhead, retaining the IP65 specification. Both the opal diffuser - fixed by special triangular screws - and the black base are moulded from vandal-resistant polycarbonate. Cable entry - rear BESA provision plus 20mm screwed conduit entry on two side faces. Complies with the requirements of ICEL 1001:1978.

RANGE

Cat. no.	Watts	Description	Weight kg	Duration
EFP3	1 x 4W	Non maintained	1.3	3hr
EFPD	—	Replacement diffuser for EFP3	—	—

For Central Systems version see page 120


EFY3.T/ICEL SELF CONTAINED OYSTER LUMINAIRE IP23

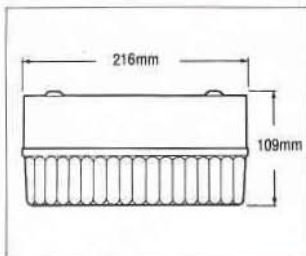
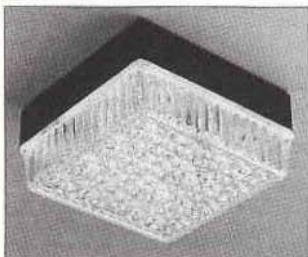
An emergency lighting version of the popular OY60 and 2DOY 16 luminaires. Suitable for interior or under canopy mounting and moulded from vandal-resistant polycarbonate, this versatile luminaire is for use in commercial and industrial applications. Cable entry - rear BESA provision. Complies with the requirements of ICEL 1001:1978.

RANGE

Cat. no.	Watts	Description	Weight kg	Duration
EFY3.T/ICEL	1 x 4W	Non maintained	1.3	3hr
EFOYD	—	Replacement diffuser	—	—

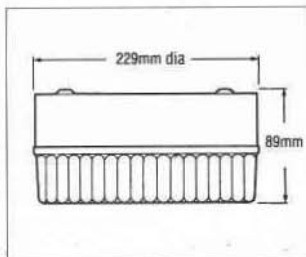
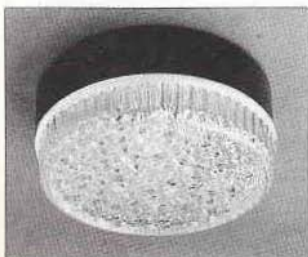
For Central Systems version see page 120

EMERGENCY LIGHTING ICEL



**EFJ3.T/ICEL, EFJM3MK II/ICEL, EFK3.T/ICEL
IP20 SELF CONTAINED 4W SQUARE OR
ROUND CRYSTAL GLASS LUMINAIRES IP20**

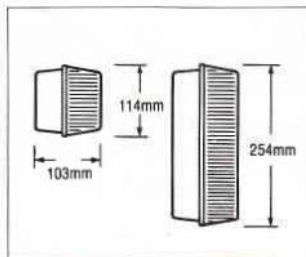
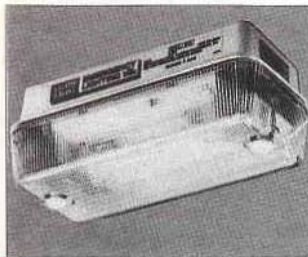
The attractive crystal glass bowls make these luminaires ideal for all commercial applications. The glass bowl is held discreetly in place by four screws. Cable entry—rear BESA provision. Complies with the requirements of ICEL 1001:1978.



RANGE

Cat. no.	Watts	Description	Weight kg	Duration
EFJ3.T/ICEL	1 x 4W	Square—non-maintained	4.2	3hr
EFJM3 MK II/ICEL	1 x 4W	Square—maintained	—	3hr
EFK3.T/ICEL	1 x 4W	Round—non-maintained	3.0	3hr
XJG	—	Replacement square glass bowl		
XKG	—	Replacement round glass bowl		

For Central Systems version see page 120



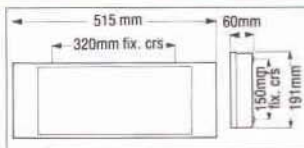
**EFG3.T/ICEL SELF CONTAINED 4W
BULKHEAD LUMINAIRE IP23 IP23**

Featuring a white, stove enamelled aluminium casting for the base and a moulded glass diffuser, this bulkhead luminaire is ideal for most industrial applications. Cable entry—20mm conduit holes in end faces. Complies with the requirements of ICEL 1001:1978.

RANGE

Cat. no.	Watts	Description	Weight kg	Duration
EFG3.T/ICEL	1 x 4W	Non maintained	2.2	3hr
OLG 4800	—	Replacement glass diffuser		
OLG 4801	—	Replacement fixing screws and sealing washers		

For Central Systems version see page 120



Cable entry — rear BESA provision plus 2 x 20mm conduit entry holes on top faces.

EFX3 SINGLE SIDED SELF CONTAINED 8W EXIT SIGN LUMINAIRE IP20 IP20








An elegant, slimline exit box constructed of folded sheet steel and finished in white stove enamel. The box can be either wall or ceiling mounted. The opal PVC fascia panel (ordered separately) is available with six standard legends in green lettering, in compliance with BS 5266. Other colours and legends are available to special order, see below.

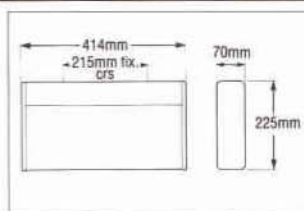
RANGE

Cat. no.	Watts	Description	Weight kg	Duration
EFX3 Mk II ICEL	1 x 8W	Maintained	3.1	3hr
EFXS3	2 x 8W	Sustained	—	3hr

For Central Systems version see page 120

LEGENDS

			
EFXF - Blank Fascia	EFXF1	EFXF2	EFXF3
			
EFXF4	EFXF5	EFXF6	
Other legends available to special order	Illuminated area 340 x 162	Front panels must be ordered separately	


EFXX3 DOUBLE SIDED SELF CONTAINED 8W EXIT SIGN LUMINAIRE IP20 IP20

A sturdy and good looking exit sign, based on an aluminium extrusion, finished in white stove enamel. The double sided, plain, opal, polycarbonate diffuser is supplied with the luminaire. Self-adhesive legends with green lettering are to be ordered separately (see below), for application on site. Thus a different legend can be applied to each side of the fascia panel if required.






RANGE

Cat. no.	Watts	Description	Weight kg	Duration
EFXX3 Mk II ICEL	1 x 8W	Maintained	3.0	3hr
EFXXF	—	Replacement Diffuser*	—	—

For Central Systems version see page 120

*Supplied in reeded finish. Smooth finish (suitable for silk-screening) available to special order only.

LEGENDS — GREEN SELF ADHESIVE TRANSFERS — SET OF TWO

		
EFXT1	EFXT2	EFXT3
		(use in conjunction with other legends — cut as required).
EFXT4	EFXT5	

EMERGENCY LIGHTING COMPONENTS

As a result of continuous development of our emergency lighting range, module Catalogue numbers are frequently changed, and it is necessary to order the most appropriate current production item for replacement purposes.

T5 LUMINAIRES AND REPLACEMENT COMPONENTS

The following is a list of T5 (that is luminaires using 4, 6, 8 or 13W lamps) luminaires in current production, and their replacement components at the time of printing.

CENTRAL BATTERY LUMINAIRES

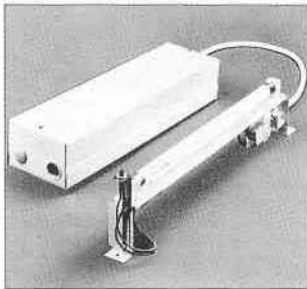
Voltage (dc)	Module
All 12V models	EGH 3730
All 24V models	EGH 3660
All 50V models	EGH 3101
All 110V models	EGH 3102

Similarly, battery pack catalogue numbers are changed, but provided that the type of cell (eg C or D size) and the packing configuration (cells either 'in line' or 'side by side') is quoted, a replacement can be offered.

SELF CONTAINED LUMINAIRES

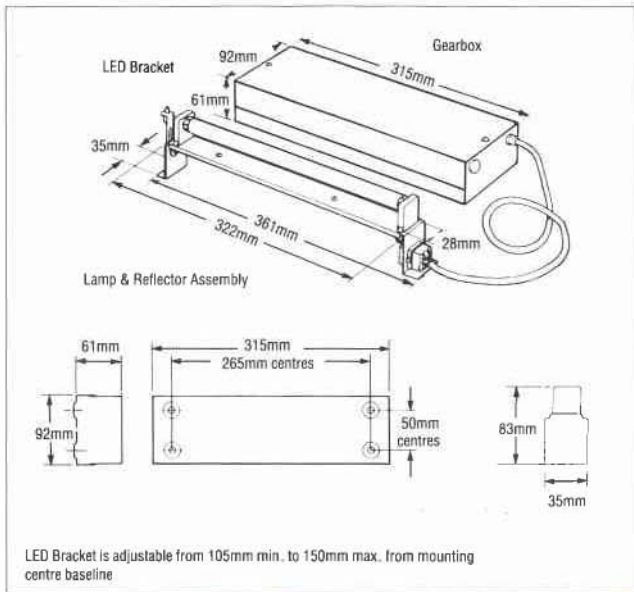
Luminaire	Module(s)	Battery pack	Gear Tray
ECP3.T	EGH 3756.T	EGH 3771/3-6	—
EFG3.T/ICEL	EGH 3754.T	EGH 3778/2.4	EFGT.T
EFJ3.T/ICEL	EGH 3702.T/B*	EGH 3778/2.4	EFYT.T
EFJM3 MkII/ICEL	EGH 3729.T + G69588	EGH 3417	—
EFK3.T/ICEL	EGH 3702.T/B*	EGH 3778/2.4	EFYT.T
EFP3	EGH 3775.4	EGH 3782	EFPT.T
EFV3.T/ICEL	EGH 3606.4 T/B*	EGH 3493	—
EFVM3	EGH 3726.T + EGH 3760.T	EGH 3420	—
EFX3 MkII/ICEL	EGH 3726.T + G 69588	EGH 3421	—
EFXX3 MkII/ICEL	EGH 3726.T + G 69588	EGH 3421	—
EFY3.T/ICEL	EGH 3702.T/B*	EGH 3778/2.4	EFYT.T

* Integral module/gear tray. This number calls up complete item including battery pack and lamp.



SELF-CONTAINED CONVERSION PACK

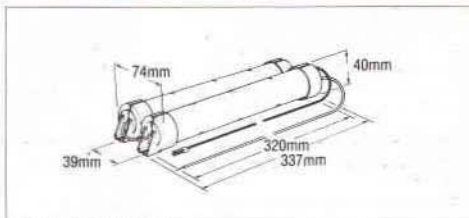
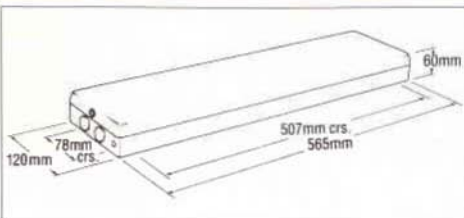
A kit comprising a lampholder reflector assembly and separate gearbox containing module and battery pack for use with standard surface mounted or recessed luminaires to provide a self-contained, non-maintained emergency lighting facility of 3 hours duration. Equipped with 300mm, 8W white fluorescent tube, the reflector assembly is complete with LED charge indicator. The control unit is mounted remotely and if mounted in the void should not be mounted on top of the luminaire or blanketed.



RANGE

Cat. no.	Watts	Description	Mode
ECP3.T	1 x 8W	Emergency lighting conversion pack	Non-maintained

REMOTE EMERGENCY GEAR HOUSINGS



TYPICAL BATTERY PACK

APPLICATIONS: the above gear housing has been designed for instances where a luminaire is required to operate under the failed mains supply condition, but accommodation of the relevant module and battery pack is not possible due to temperature and/or space limitations. Dependent on the version chosen, 26mm or 38mm diameter tubes in the range 15-100W* may be operated for up to three hours duration. For details of luminaires available with emergency gear already fitted refer to the *Integrated Emergency Lighting* section.

DESCRIPTION: the housing consists of a white painted mild steel base with a white, flame-retardant plastic cover. The two parts are secured using two turn clips, one being positioned at each end. Mounted within each housing are the following:

- i) the relevant module and battery pack,
 - ii) a fused mains terminal block,
 - iii) an eight-way terminal block and cable clamp.
- Loosely packed to enable connection to the luminaire to be converted are the following:
- i) an eight-way terminal block and cable clamp,
 - ii) an LED charge indicator,
 - iii) 1.5 metres of 8-way cable, plus miscellaneous labels.

MOUNTING: the housing is suitable for wall or ceiling mounting via four keyhole slots on 78mm x 507mm centres.

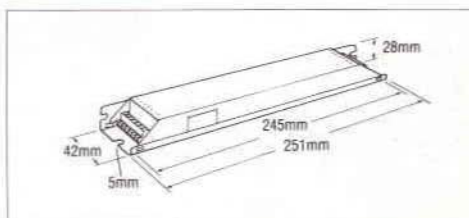
CABLE ENTRY: five 20mm conduit holes are provided, positioned as follows: — two in the base, one at one end and two at the other.

OPERATING VOLTAGE: all housings are suitable for operation on 220/240V 50Hz supplies.

APPROVALS: modules and battery packs employed within these housings comply with ICEL 1001.

WEIGHTS: EGH 3692-T / EGH 3694-T — 2.52 kg
EGH 3693-T / EGH 3695-T — 2.84 kg

* Range does not include 16W 2D lamps



EGH 3665 - 3668.T

RANGE

Cat. no.	Application	Duration
EGH 3692-T	15 — 40W (incl. 28W 2D)	3 hours
EGH 3693-T	58 — 100W	3 hours (2 hrs for 100W)
EGH 3694-T	15 — 40W (incl. 28W 2D)	1 hour
EGH 3695-T	58 — 100W	1 hour

REPLACEMENT ITEMS

Housing Cat. no.	Replacement Module	Replacement Battery pack
EGH 3692-T	EGH 3665-T	EGH 3715
EGH 3693-T	EGH 3666-T	EGH 3716
EGH 3694-T	EGH 3667-T	EGH 3715
EGH 3695-T	EGH 3668-T	EGH 3716

CENTRAL SYSTEMS LUMINAIRES & EMERGENCY OPERATION OF 2D LAMPS

The luminaires listed on pages 115-117 can also be supplied for use with central battery systems. The table gives details of the supply voltages available for each luminaire. To order a luminaire, simply affix the required supply voltage to the Central Systems Catalogue number shown, ie a Central System version of the EFJ3 luminaire for use on 50V DC becomes EIFXJ50.

In addition, most standard mains luminaires eg Popular Pack, Clipper, Formula One, etc, can be supplied for use with Central Battery Systems of 24V, 50V and 110V DC. Please contact your local THORN EMI office for details.

RANGE

Equivalent self-contained luminaire	Central Systems luminaire Cat. no.	12V	24V	50V	110V
EFP3	EPF	—	•	•	•
EFV3	EFV	—	•	•	•
EFX3	EFX	—	•	•	•
EFXX	EFXX	—	•	•	•
FLJ 1008*	EGH 1008	•	—	—	—
FLJ 1013*	EGH 1013	•	—	—	—
EFG3	EIFLG	—	•	•	•
EFY3	EIFOY	—	•	•	•
EFJ3	EIFXJ	—	•	•	•
EFK3	EIFXX	—	•	•	•

* Note: This is the catalogue number for the standard mains (240V) luminaire. A self contained emergency lighting version is not available.

16W 2 PIN LAMPS WITH BUILT-IN STARTERS

Operation of these lamps on emergency circuits is not possible.

16W 4 PIN LAMPS

Details of circuit components required for both central systems and self contained use will be available from your local THORN EMI Lighting Sales Office in due course.

28W 2 PIN LAMPS WITH BUILT-IN STARTERS

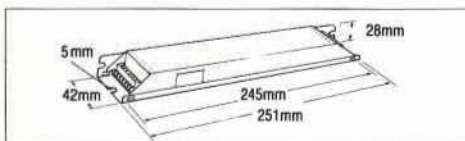
As with the 16W 2 pin lamp above, operation on emergency circuits is not possible.

28W 4 PIN LAMPS

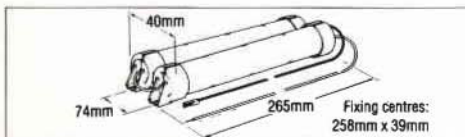
1) MAINTAINED OPERATION: three hour and one hour 'maintained' operation may be achieved by use of the following control gear.

MAINTAINED OPERATION

Module	Battery pack	Duration
EGH 3665-T	EGH 3715	3 hours
EGH 3667-T	EGH 3715	1 hour

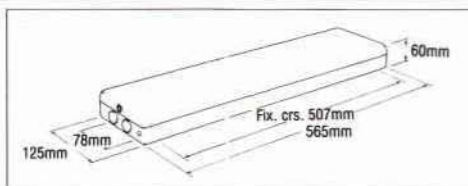


EGH 3665/3667-T



EGH 3715

Where the above gear cannot be accommodated in the current range of 28W 2D luminaires due to thermal and/or space limitations, utilisation of one of the remote gear housings* illustrated is the only available option.

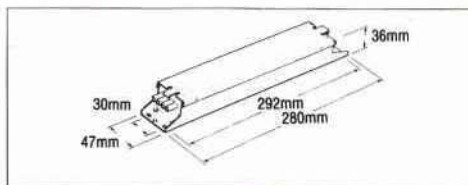


REMOTE GEAR HOUSINGS

Housing	Duration
EGH 3692-T	3 hours
EGH 3694-T	1 hour

* For further details on remote emergency gear housings, see relevant section.

II) CENTRAL BATTERY OPERATION: for operation on central battery systems, use of one of the inverters listed below is necessary. It should be noted that in the majority of cases it will not be possible to accommodate the inverter within the 2D luminaire.



CENTRAL BATTERY OPERATION

Inverter	Voltage
40/R 2906/12	12
40/R 2903/24	24
75/R 3439/50	50
75/R 3440/110	110

INCANDESCENT LUMINAIRES

Mini Spot-on

Spot-on Spotlights

Nova

Surface-mounted luminaires

Recessed luminaires

Modern Glass

Oyster

Eyeball Spotlight

Modern Domestic Cylinder

150W Tungsten Halogen luminaires

Darklight/Downlight luminaires

Popular Downlight

Master-Spot

Master-Track

Lightstream Lamps

Lightstream Accessories

Lightstream luminaires

Halogen Heater

MINI SPOT-ON



TSM 60W



TSM 360B



TSMC 60B



TSM 60W

A range of injection moulded miniature display spotlights suitable for commercial or domestic interior applications. These attractive fittings are available in a variety of colours, are simple to install and are supplied complete with 60W ES Decorspot 63 lamps. The cowls are detachable.

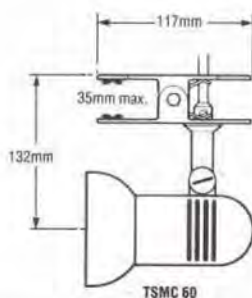
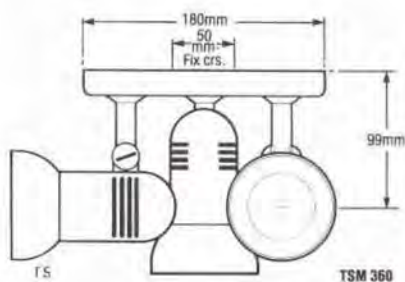
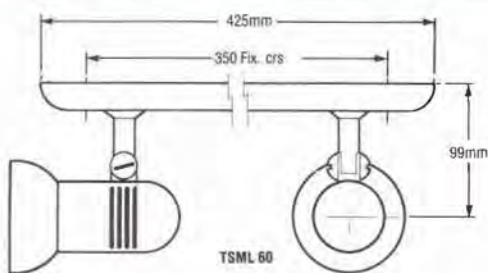
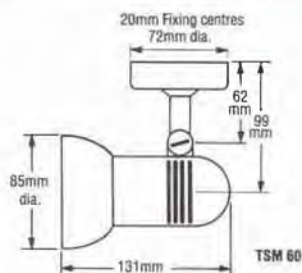
SINGLE SPOTLIGHT: Suitable for wall or ceiling fixing and available in black, white, red, beige and brown.

CEILING LIGHT: A fitting with three adjustable spotlights. Available in white, black and brown.

CLAMP SPOTLIGHT: A versatile fitting, single spotlight complete with clamp fixing (i.e. for shelves), 2 metres of cable and switch. Available in black, white and red.

LIGHTBAR: Suitable for wall or ceiling fixing. The fitting has two adjustable spotlights, available in black, white or brown.

All fittings are attractively packed (Blister) making them suitable for sale through retail outlets.



RANGE

Cat. no.	Cap	Watts (max.)	Fixing	Description
TSM 60B	ES	60	Surface	Black surface spot
TSM 60W	ES	60	Surface	White surface spot
TSM 60BE	ES	60	Surface	Beige surface spot
TSM 60BN	ES	60	Surface	Brown surface spot
TSM 60R	ES	60	Surface	Red surface spot
TSMC 60B	ES	60	Clamp	Black clamp spot
TSMC 60W	ES	60	Clamp	White clamp spot
TSMC 60R	ES	60	Clamp	Red clamp spot
TSML 60B	ES	60	Surface	Black twin lightbar
TSML 60W	ES	60	Surface	White twin lightbar
TSML 60BN	ES	60	Surface	Brown twin lightbar
TSM 360B	ES	60	Ceiling	Black ceiling light
TSM 360W	ES	60	Ceiling	White ceiling light
TSM 360BN	ES	60	Ceiling	Brown ceiling light



SPOT-ON SPOTLIGHTS



TCRN 100



TSRN 100

A range of quality display fittings suitable for interior applications. The bodies are manufactured in impact extruded aluminium, with all fittings finished white. Cowls are available in three colours: silver, white and brown. All fittings are supplied complete with 60W ES Decorspot 80 lamps and are packed in cartons with a display window, suitable for retail outlets.

The fittings are suitable for use with all ES Decorspot lamps up to 100W.

RANGE

Cat. no.	Description	Fixing	Cap	Lamp type (max.)*	Weight kg
TSRN 100	Single spotlight	Surface	ES	100W	0.35
TCRN 100	Triple ceiling light	Ceiling	ES	3 x 100W	0.91
TPRN 100	Twin lightbar	Surface	ES	2 x 100W	1.0
TQRN 100	Triple lightbar	Surface	ES	3 x 100W	1.5

*Supplied c/w 60W ES Decorspot 80 (Clear).

COWLS

Cat. no.	Description	Finish	Weight kg
TRCB	Cowl †	Brown	0.06
TRCS	Cowl †	Silver	0.06
TRCW	Cowl †	White	0.06
TRCLS	Cowl	Silver	0.07

†Suitable for 60W lamp maximum.



TQRN 100

A range of surface mounted interior fittings suitable for commercial applications. There are two galleries available, of shallow design with a simple lever release system for attaching the glassware. Suitable for ceiling or wall mounting.

RANGE

Cat. no.	Description	Lamp
NSB 100	Gallery	100W GLS
NSB 2060	Gallery	2 x 60W GLS

Four different types of glassware are available, all white opal satin etched.

RANGE

Cat. no.	Use with	Max dia mm	Max depth mm	Weight kg complete fitting
NCG 100	NSB 100	203	119	1.24
NCG 200	NSB 2060	356	144	1.70
NFG 100	NSB 100	279	115	1.59
NFG 200	NSB 2060	387	141	2.49
NMG 100	NSB 100	302	145	1.59
NMG 200	NSB 2060	368	145	2.49
MRG 1100	NSB 100	244	137	1.47



NCG TYPE



NFG TYPE



NMG TYPE



MRG TYPE



MTCG TYPE

A small screw neck heat resistant plastic gallery in two sizes with white opal glassware. BC cap only. Gallery and glassware must be ordered separately.

RANGE

Glassware Cat. no.	Gallery Cat. no.	Lamp wattage	Max dia mm	Max depth mm	Total weight kg
MTCG 1060	MTCB1060	60	152	190	0.68
MTCG 1100	MTCB1100	100	203	241	0.79

SURFACE-MOUNTED LUMINAIRES



VSL 2060A



PLASTIC LOUVRE



VSZ 2060A



SMALL SATIN ETCHED OPAL GLASS BOWL

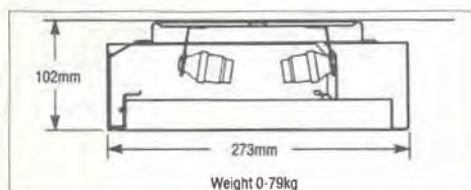


VSX 2060A



CLEAR CRYSTAL GLASS DISH

A range of surface mounted fittings suitable for commercial interior applications. The body is available in two finishes - natural anodised spun aluminium or black painted spun aluminium. Three different attachments are available; a plastic louvre, a clear crystal glass dish or a small satin etched opal glass bowl.



Weight 0.79kg

VS 2060

RANGE (Body)

Cat. no.	Lamp	Cap	Finish
VS 2060 A	2 x 60W GLS	BC	Natural anodised
VS 2060 B	2 x 60W GLS	BC	Black painted



RANGE (Attachments)

Cat. no.	Description	Height mm	Dia mm	Weight kg*
VL 200	Plastic Louvre	120	273	0.91
VX 200	Clear crystal glass dish	139	273	2.49
VZ 200	Small satin etched opal glass bowl	120	273	1.47

*Including fitting, excluding lamp.



VR100/VR200



VRX100/VRX200



VRO200



VRP100



VRL100/VRL200



VRZ100/VRZ200

A range of recessed fittings for commercial interior applications. Two sizes of bodies are available, manufactured in spun aluminium with a polished rim. Installation is simple and straightforward by means of three adjustable support brackets. Six different attachments can be used, depending on the effect required.

RECESSED UNIT

The smaller body is available for use with 100W GLS BC lamp while the larger unit will accept up to 200W GLS ES lamp*. Kolorlux lamps can also be used (an ES version of the smaller unit is available), although separate control gear is required.

* 150W c/c GLS not recommended.

RANGE

Cat. no.	Cap	Lamp type
VR 100	BC	100W GLS
VR100 ES	ES	80W Kolorlux
VR 200	ES	200W GLS/125W Kolorlux

ATTACHMENTS

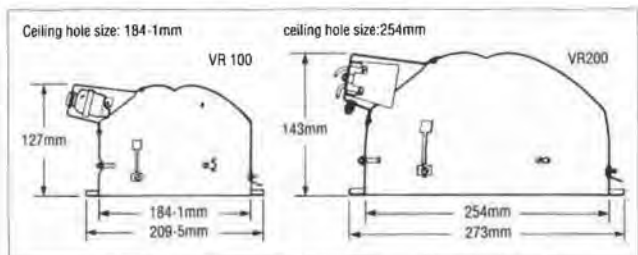
PINHOLE: concentrates light through a 70mm aperture by means of two reflectors to produce a wide angle beam. Made of spun aluminium and finished in eggshell white. (NB. Only suitable for use with VR100 and should not be used in ceilings made of combustible materials).

'O' LIGHTER: the centra disc has the effect of giving glare free light from a narrow distribution. Made of spun aluminium and finished in eggshell white. (NB. Only suitable for use with VR200 and should not be used in ceilings made of combustible materials).

PLASTIC LOUVRE: available for both VR100 and VR200.

CRYSTAL GLASS DISH: available for both VR100 and VR200.

OPAL GLASS DISH: available for both VR100 and VR200. Two sizes of this attachment - small and large - can be supplied.



RANGE

Cat. no.	Description	Use with	Protrusion below Ceiling mm	Weight kg ‡
VP 100	Pinhole attachment	VR 100 †	6	0.79
VO 200	'O' lighter attachment	VR 200 †	6	1.02
VL 100	Plastic louvre	VR 100 †	20	0.45
VL 200	Plastic louvre	VR 200 †	20	0.57
VX 100	Clear crystal glass dish	VR 100/VR 100 ES	30	1.7
VX 200	Clear crystal glass dish	VR 200	35	2.15
VY 100	Large satin etched opal glass bowl	VR100/VR 100 ES	50	1.02
VY 200	Large satin etched opal glass bowl	VR 200	45	1.43
VZ 100	Small satin etched opal glass bowl	VR100/VR 100 ES*	20	0.68
VZ 200	Small satin etched opal glass bowl	VR 200	20	1.13

* To special order only

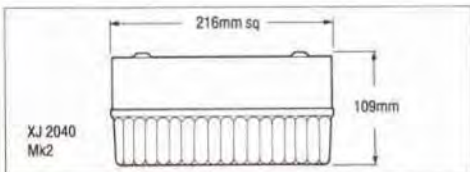
† Not to be used with Kolorlux

‡ Excluding lamp

MODERN GLASS/OYSTER



XJ 2040 MK2

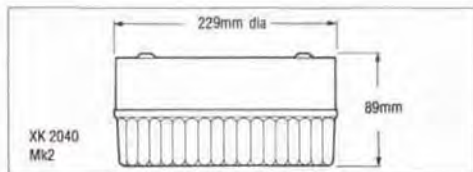


MODERN GLASS

Two ceiling mounted units of crystal pattern glass supported in black finished metal framing. For use with 2 x 40W GLS lamps. For indoor use only.



XK 2040 MK2



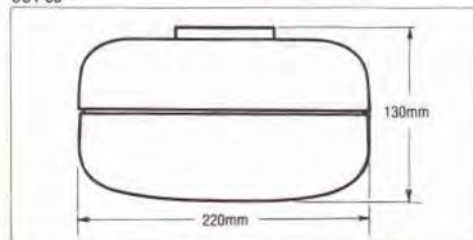
RANGE

Cat. no.	Description	Watts	Weight kg
XJ 2040 MK 2	Square luminaire	2 x 40	3.15
XK 2040 MK 2	Round luminaire	2 x 40	2.25

Note: Emergency lighting versions are available, see page 116



00Y 60



OYSTER

A totally enclosed fitting for wall or ceiling mounting. In two-tone polycarbonate with grey body and opal front diffuser – corrosion and vandal-resistant – which can be removed with a coin, the fitting features an internal reflector, pre-wired porcelain lampholder with high temperature flying leads and a foam rubber watertight gasket. It is supplied complete with 60W pearl doublelife BC lamp.

Luminaire complies with BS 4533:102-2 (IP23) and is suitable for indoor or outdoor use.

Max. Lamp rating 75W.

RANGE

Cat. no.	Description	Watts (max)	Weight kg
00Y 60	Wall/ceiling unit	75	0.68
00Y 4600	Spare gasket	—	—
00YD	Spare diffuser	—	—

Note: An emergency lighting version is available, see page 116



VE 150W

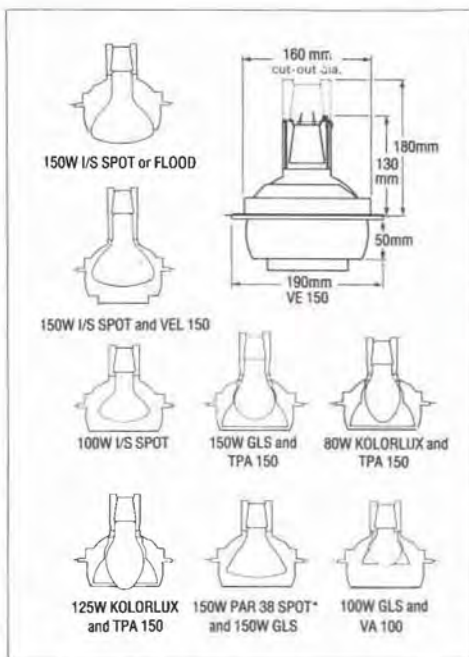


VE 150W + VEL 150W

Semi-recessed fully adjustable luminaire taking a wide range of lamps at correct light centres as shown. Complete with porcelain ES lampholder wired with glass-braided flying leads. Anodised aluminium trim conceals ceiling ring with three-hole fixing. Body is stove enamelled black or white. Separate control gear is required if using Kolorlux lamps.

RANGE

Cat. no.	Description	Colour	Weight kg
VE 150 B	Eyeball luminaire	Black	0.45
VE 150 W	Eyeball luminaire	White	0.45
VEL 150	Louvre attachment	Black	0.05
VA 100	100W auxiliary reflector		0.028
TPA 150	150W auxiliary reflector		0.056



*COOLRAY LAMPS NOT SUITABLE



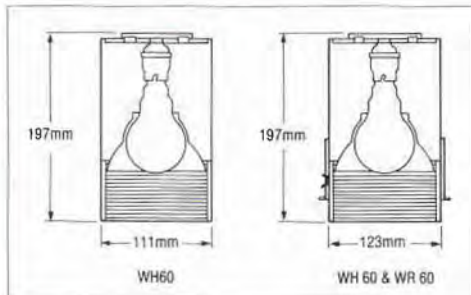
MODERN DOMESTIC CYLINDER

150W TUNGSTEN HALOGEN LUMINAIRES



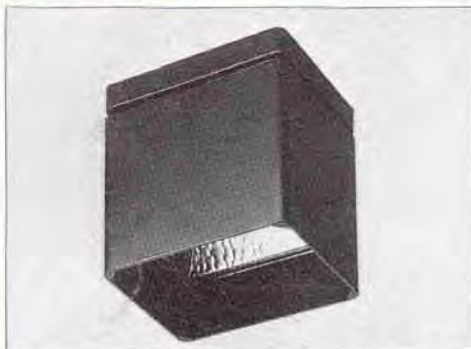
A surface mounted cylinder (WH 60) with brushed silver finish and integral baffles. Complete with 60W GLS lamp with clip-on auxiliary reflector (Catalogue number VA 100). Luminaire can be recessed into the ceiling by using bezel ring (WR 60).

NOTE: 123mm dimension is size of cut-out required, *not* the luminaire size.



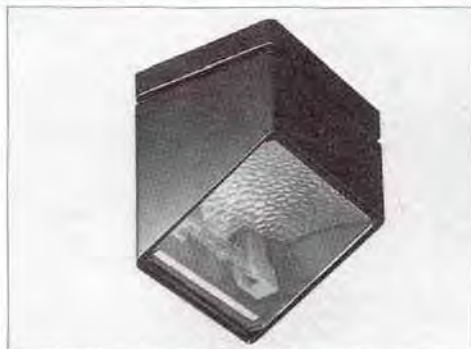
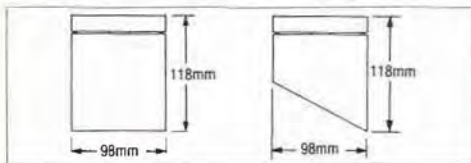
RANGE

Cat. no.	Description	Weight kg
WH 60	Ceiling cylinder	0.57
WR 60	Adjustable bezel ring	0.11



TDH 150

Surface mounted downlighter suitable for use in hotels, reception and public amenity areas etc. Packed complete with the 4000 hour life 150W K12 tungsten halogen lamp.



TWH 150

Wallwasher luminaire similar in construction to the downlighter, but with offset lamp mounting and a different reflector. Particularly suitable for shop window applications, etc.

RANGE

Cat. no.	Description	Lamp	Weight kg
TDH 150	Tungsten-halogen downlighter	150W K12	0.7
TWH 150	Tungsten-halogen wallwasher	150W K12	0.65

100W K14 lamp also suitable



TD 150

DOWNLIGHT/DARKLIGHT RANGE

A range of cylinder fittings suitable for indoor commercial applications. Three versions are available: surface mounted, semi-recessed or fully recessed, with each type available with either a black baffle interior (Downlight) or black reflector (Darklight).

SURFACE MOUNTED CYLINDER

A brushed and lacquered cylinder fitting with a black ceiling plate. This fitting can be mounted directly onto the ceiling or suspended.

RANGE

Cat. no.	Description	Weight kg
TD 150	Darklight surface mounted cylinder	1.0
TB 150	Downlight surface mounted cylinder	1.0

SEMI RECESSED CYLINDER

Suitable for applications where the ceiling void is restricted, the brushed and lacquered cylinder is adjustable (95mm maximum protrusion). The fitting is retained in position by a white ceiling ring.

RANGE

Cat. no.	Description	Weight kg
TDSR 150	Darklight semi recessed cylinder	1.5
TBSR 150	Downlight semi recessed cylinder	1.5

FULLY RECESSED FITTING

The body of the fitting is housed behind the ceiling, with the white ceiling ring the only visible component.

RANGE

Cat. no.	Description	Weight kg
TDFR 150	Darklight fully recessed fitting	1.75
TBFR 150	Downlight fully recessed fitting	1.75

ACCESSORIES

SUSPENSION PLATE: can be used to mount surface fittings onto a suspension rod (see page 40 for details on suspension sets; 450mm rod is recommended).

METAL PLATES: are available for recessed fittings that are to be mounted on fragile or brittle surfaces.

WET PLASTER STRAPS: are available for recessed fittings that are being installed into wet plaster ceilings.

HOOD: for recessed versions, to prevent the ingress of dust or for use in a pressurised plenum. (NB The hood limits lamp usage to 60W GLS maximum).

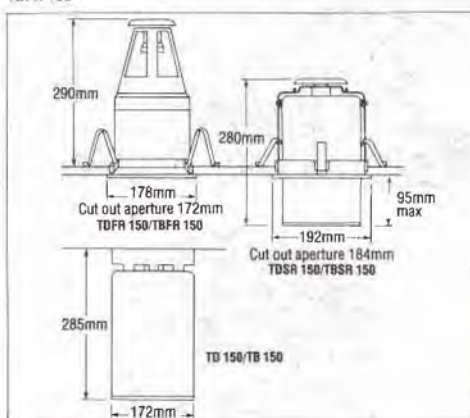
WALLWASHER: for use with the TBFR 150 only.



TBSR 150



TDFR 150



RANGE

Cat. no.	Description
TDSU	Suspension plate
TDSP	Metal support plates (set of 3)
TDPS	Wet plaster strap (set of 3)
TDUO	Hood
TDWW	Wallwasher attachment

SUITABLE LAMPS

Although specifically designed for use with 150W PAR 38, these fittings may also be used with:-

Cat. no.	150W ES† GLS lamp	100W ES† GLS lamp	150W ES Reflector lamp	100W ES Reflector lamp	150W ES PAR 38 coolray
TB/TD 150	*	*	*	*	*
TBFR/TDSR 150	*	*	*	*	*
TBFR/TDFR 150	*	*	*	*	*

* Indicates lamp is suitable

† In conjunction with TPA reflector (see page 137)

This product will also accept the low volt tungsten halogen adaptor - See page 144

POPULAR DOWNLIGHT



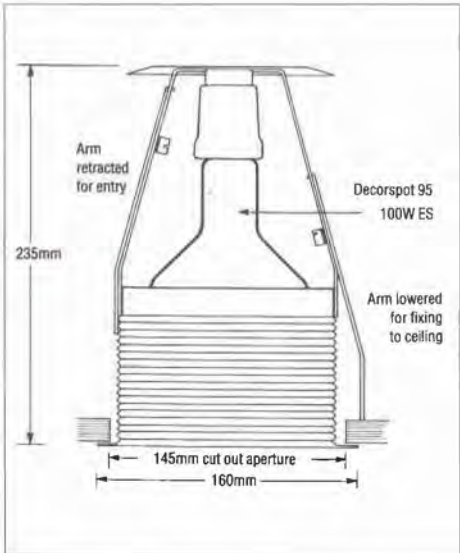
FULLY RECESSED LUMINAIRE

The Popular Downlight is a competitively priced recessed fitting supplied complete with a 100W Decorspot 95 lamp. It is double insulated Class 2, conforms to BS4533 and carries the BSI Safety Mark ensuring that operation is safe and efficient, while the lightweight design makes installation simple; two retractable locating arms secure the fitting neatly and positively into the ceiling (it can be used on a variety of false ceilings up to 50mm thick) while a void depth of only 250mm is required.

The fitting is finished in semi matt black, constructed of mild steel and supplied with 450mm of high temperature silicon rubber insulated twin cable. It will accept all types of ES reflector lamps up to and including 150W (exception Cool Ray) and also the low volt tungsten halogen adaptor — see page 144.

RANGE

Cat. no.	Description	Weight kg
T150	Downlight fully recessed luminaire c/w 100W ES Decorspot 95 lamp 240/250V	0.5

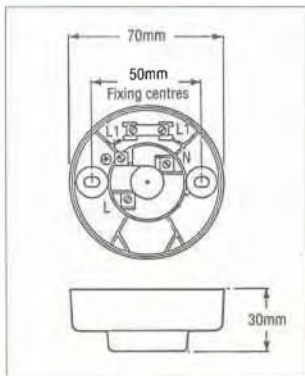



THORN EMI MASTER-SPOT ▲

A comprehensive range of display fittings suitable for interior commercial applications ranging from hotel to retail display lighting. Designed to be operated on mains voltage, the Master Spot range encompasses a variety of lamp types and can be either track or surface mounted.

All fittings are made of strong, durable materials and are available in at least two different finishes. They are BSI Safety Marked, are double insulated and are supplied complete with lamp.

All Master-Spot fittings are supplied with a track adaptor fitted (unless otherwise stated). The **SURFACE CONNECTOR PLATE** though allows any track luminaire to be surface mounted. Easy to install, the plate offers the versatility associated with track fittings, allowing the surface luminaire to be removed for cleaning or relamping, or replaced after years of service.



TCCP/AG ASHGREY

TCCP/B BLACK

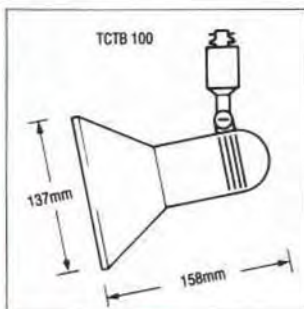
TCCP/GM GUNMETAL

4 terminals rated at 16A for 2 x 1.5mm loop connections.



**TCTB 100AG
RANGE**

Cat. no.	Cap	Watts	Fixing	Finish
TCTB 100AG	ES	100	Mastertrack	Ashgrey
TCTB 100GM	ES	100	Mastertrack	Gunmetal

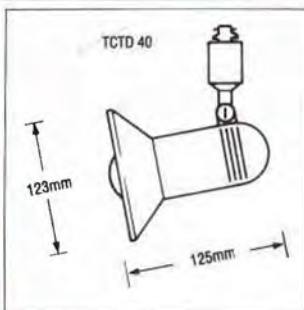


100W GLS REFLECTOR SPOTLIGHT
Packed complete with 100W GLS Pearl lamp.



**TCTD 40GM
RANGE**

Cat. no.	Cap	Watts	Fixing	Finish
TCTD 40AG	SES	40	Mastertrack	Ashgrey
TCTD 40GM	SES	40	Mastertrack	Gunmetal

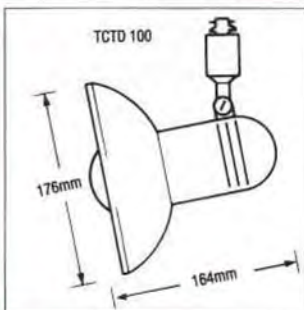


**40W CROWN SILVER REFLECTOR
SPOTLIGHT**
Packed complete with 40W SES Crown
silvered lamp.



**TCTD 100AG
RANGE**

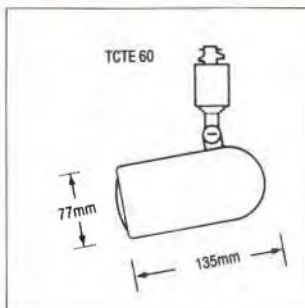
Cat. no.	Watts	Fixing	Finish
TCTD 100AG	100	Mastertrack	Ashgrey
TCTD 100GM	100	Mastertrack	Gunmetal



**100W CROWN SILVER REFLECTOR
SPOTLIGHT**
Packed complete with 100W ES Crown
silvered lamp.



TCTE 60BR



60W BULLNOSE SPOTLIGHTS

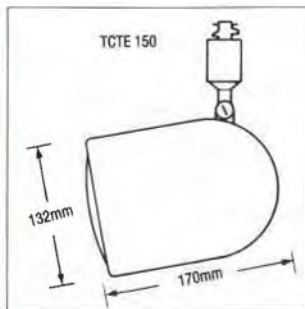
Available in a variety of finishes (see table) and packed complete with a 60W diffuse front Decorspot 63 lamp.

RANGE

Cat. no.	Watts max	Fixing	Finish
TCTE 60AG	60	Mastertrack	Ashgrey
TCTE 60BR	60	Mastertrack	Brass
TCTE 60GM	60	Mastertrack	Gunmetal
TCTE 60P	60	Mastertrack	Polished



TCTE 150P

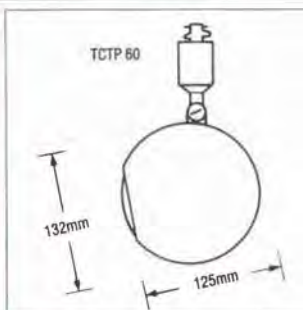


150W BULLNOSE SPOTLIGHTS

Available in a variety of finishes (see table) and packed complete with a 150W PAR 38 Spotlamp (not suitable for Coolray lamps). This luminaire will also accept 70W SON-R lamps (with remote control gear).

RANGE

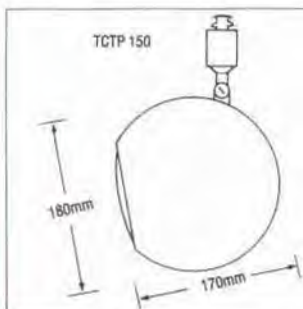
Cat. no.	Watts max	Fixing	Finish
TCTE 150AG	150	Mastertrack	Ashgrey
TCTE 150BR	150	Mastertrack	Brass
TCTE 150GM	150	Mastertrack	Gunmetal
TCTE 150P	150	Mastertrack	Polished


TCTP 60P

60W SPHERICAL SPOTLIGHTS

Available in a variety of finishes (see table) and packed complete with a 60W diffuse front Decorspot 63 lamp.

RANGE

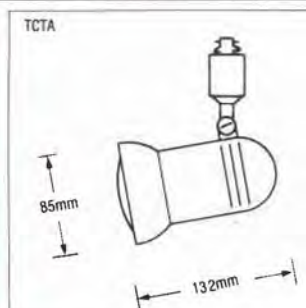
Cat. no.	Watts max	Fixing	Finish
TCTP 60AG	60	Mastertrack	Ashgrey
TCTP 60BR	60	Mastertrack	Brass
TCTP 60GM	60	Mastertrack	Gunmetal
TCTP 60P	60	Mastertrack	Polished


TCTP 150BR

150W SPHERICAL SPOTLIGHTS

Available in a variety of finishes (see table) and packed complete with a 150W PAR 38 Spotlamp (not suitable for Coolray lamps). This luminaire will also accept 70W SON-R lamps (with remote control gear).

RANGE

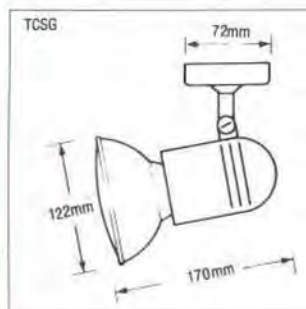
Cat. no.	Watts max	Fixing	Finish
TCTP 150AG	150	Mastertrack	Ashgrey
TCTP 150BR	150	Mastertrack	Brass
TCTP 150GM	150	Mastertrack	Gunmetal
TCTP 150P	150	Mastertrack	Polished


TCTA 60AG

60W DECORSPT 63 SPOTLIGHT

Supplied complete with a 60W diffuse front Decorspot 63 lamp.

RANGE

Cat. no.	Cap	Watts	Fixing	Finish
TCTA 60AG	ES	60	Mastertrack	Ashgrey
TCTA 60GM	ES	60	Mastertrack	Gunmetal


TCTG 150GM

150W PAR 38 SPOTLIGHT

An all purpose spotlight for 100/150W reflector lamps or GLS lamps with auxiliary reflectors. (Catalogue number TPA 100 or TPA 150). ES cap and packed c/w 150W PAR 38 spot lamp.

LAMPS

This luminaire accepts the full range of THORN EMI Decorspot 63, 80, 95 and 125 lamps plus PAR 38 (excluding 150W Cool-ray). Additionally up to 150W GLS lamps may be used, and 100W Cool-ray

RANGE

Cat. no.	Watts max	Fixing	Finish
TCSG 150AG	150	Surface	Ashgrey
TCSG 150GM	150	Surface	Gunmetal
TCTG 150AG	150	Mastertrack	Ashgrey
TCTG 150GM	150	Mastertrack	Gunmetal

AUXILIARY REFLECTORS

Cat. no.	Lamp watts	Length mm	Diameter mm	Weight kg
TPA 100	100	63	108	0.028
TPA 150	150	96	127	0.056

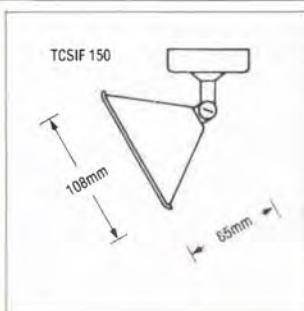
MASTER-SPOT



TCSIF 150B



TCTIF 150B



RANGE

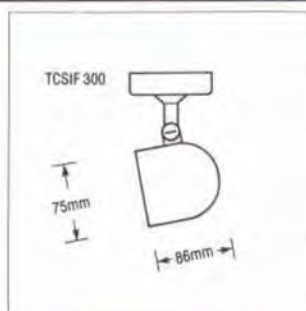
Cat. no.	Watts max	Fixing	Finish	Wt. kg
TCSIF 150AG	150 (K12)	Surface	Ashgrey	0.45
TCSIF 150B	150 (K12)	Surface	Black	0.45
TCTIF 150AG	150 (K12)	Mastertrack	Ashgrey	0.45
TCTIF 150B	150 (K12)	Mastertrack	Black	0.45

150W TUNGSTEN HALOGEN INDOOR FLOOD

Clear linear tungsten halogen lamp mounted in a stove-enamelled die-cast aluminium housing with a glass front. Supplied complete with a K 12 150W lamp.



TCSIF 300B



300W TUNGSTEN HALOGEN INDOOR FLOOD

Clear linear tungsten halogen lamp mounted in a black stove-enamelled die-cast aluminium housing. Can be used with barn door for maximum control, hood for general cut-off, or louvre for concealed lighting. A wire guard is available for bare lamp applications if required. Supplied c/w K11 200W lamp.

OPTIONAL ATTACHMENTS FOR 300W INDOOR FLOOD

Cat. no.	Description	Wt. kg
TCIFB	Barn door	0.30
TCIFH	Hood	0.10
TCIFL	Louvre	0.15
TCIGD	Wire guard	0.10



TCTIF 300B



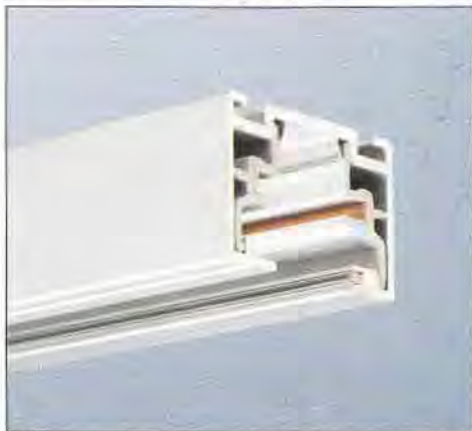
TCIFB



TCIFH, TCIFL, TCIGD

RANGE

Cat. no.	Watts max	Fixing	Finish	Wt. kg
TCSIF 300B	300 (K9)	Surface	Black	0.90
TCTIF 300B	300 (K9)	Mastertrack	Black	0.90


TKL

TKLC

A versatile, speedily erected single line track system housed in a high quality anodised aluminium extrusion. The 16 amps rated track may be conduit mounted, screwed directly to any mounting surface in any plane or mounted on a small clip designed for use on uneven surfaces.

The track is offered in 'starter packs' consisting of a length of track c/w with mains connector and end cap. Starter packs are available in 1.2 metres, 2.4 metres and 3.6 metres lengths. Additionally extension lengths are available separately in the same lengths for the longer scheme. Track may be obtained from stock in 4.5 metres lengths suitable for surface mounting or in a flanged section for incorporation into a suspended ceiling. The luminaires and components adaptor snaps quickly and positively into the track with a simple quarter turn – featured in the Master-spot display range which complements the track. The adaptor is available as a separate item either fused (5 amps) or unfused for those many applications for which track is so useful, e.g. power take off for cash registers, office equipment etc.

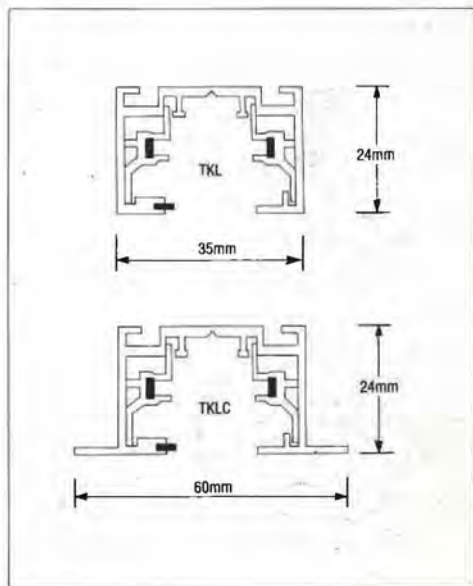
Note the versatility of the connectors. All are supplied pre-wired, all have ample loop-in/loop-out facilities, and may be easily rewired to permit separate supplies to be connected to *each* length of track. Master-track is the no-nonsense approach to a single track system with a flexibility and adaptability that is comparable to a multi-track system.

CONSTRUCTION

TRACK: PVC extrusion with rolled copper conductors housed in an anodised aluminium extrusion containing the separate earth strip.

COMPONENTS: high impact injection moulded plastic, colour grey except adaptors, colour black, ashgrey or gunmetal.

A comprehensive installer's guide is available without charge from THORN EMI Lighting Sales offices.





TK 8009



TK 8000/1



TK 8008



TK 8006/7



TK 8004/5



TK 8003

RANGE TRACK LENGTHS

Cat. no.	Description
TKL 1200	1-2m Starter track
TKL 2400	2-4m Starter track
TKL 3600	3-6m Starter track
TKLE 1200	1-2m Extension track
TKLE 2400	2-4m Extension track
TKLE 3600	3-6m Extension track
TKLL 4500	4-5m Extension track
TKLC 4500	4-5m Flanged track

Note: Starter tracks are complete with mains connector and end cap.

COMPONENTS

Cat. no.	Description
TK 8000	Connector mains LH
TK 8001	Connector mains RH
TK 8002	Coupler, non-modular
TK 8003	Coupler, modular straight
TK 8004	Coupler, modular 'L' outside earth
TK 8005	Coupler, modular 'L' inside earth
TK 8006	Coupler, modular 'T' LH earth
TK 8007	Coupler, modular 'T' RH earth
TK 8008	Coupler, modular '+'
TK 8009	End cap
TK 8015AG	Adaptor, ashgrey
TK 8015B	Adaptor, black
TK 8015GM	Adaptor, gunmetal
TK 8016AG	Adaptor, fused 5 amps, ashgrey
TK 8016B	Adaptor, fused 5 amps, black

Cat. no.	Description
TK 8016GM	Adaptor, fused 5 amps, gunmetal
TK 8017	Fluorescent mounting kit
TK 8020	Track mounting clip
TK 8025	Track cover strip 1m, grey
TK 8026	Connector, outlet, cover plate
TK 8027	Flanged trim, mains connector
TK 8028	Flanged trim, modular straight coupler
TK 8029	Flanged trim, end cap
TK 8030	Display hook
TK 8031	Conduit mount, mains connector and end cap
TK 8032	Conduit mount, straight coupler and intermediate fixing
TK 8033	Conduit mount '+'
TK 8034	Conduit mount 'L'
TK 8035	Conduit mount 'T'

LIGHTSTREAM DISPLAY HALOGEN LAMPS



Lightstream is the family name for the 12-75 watt 12 volt mirror halogen lamp range. Details for individual lamp types are shown on the adjoining table.

Lightstream lamps produce a strong, controllable beam of brilliant cool white light. They are the next generation display light source replacing the less efficient and inelegant conventional types that produce and reflect light and considerable quantities of heat. The new Lightstream range have dichroic mirrors, this means a more efficient reflector and 50% of the heat being transmitted through the reflector. The result is a far lower ambient temperature due to the lower lamp wattage and the 'cool beam' dichroic mirror. The effect creating abilities of these small lamps is only matched by the money saving potential from the extended life and reduced wattage.

The following table illustrates comparable Lightstream and conventional lamps.

COMPARABLE LAMPS

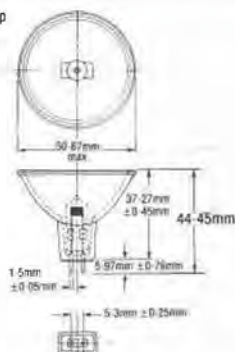
		Beam type	Lightstream equivalent	
PAR 38	150W	SPOT	M49/M50	50 watts
		FLOOD	M50/M58	50 watts
	100W	SPOT	M71	35 watts
		FLOOD	M70	35 watts
	75W	SPOT	M68	20 watts
		FLOOD	M69	20 watts
ISL	150W		M50	50 watts
	100W		M70/M71	35 watts
	40W & 60W		M68/M69	20 watts

75 Watt Lightstream Lamps reference M60 Spot, M61 Flood are also available. Due to the excellent beam control possible with the Lightstream lamp range comparisons against conventional lamp types are not always valid. For instance in some applications M69 (20W) has replaced 100W ISL. The above comparisons are therefore intended as a guide until experience in the use of Lightstream has been obtained. For further information see pages 274-275.

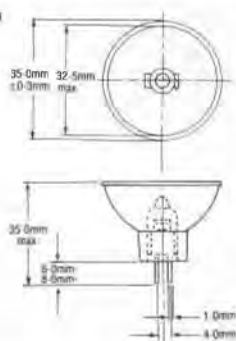
LAMP RANGE

The full Lightstream lamp range includes both 35mm and 50mm diameter reflectors with ratings from 12 through to 75 watts. The luminaire range shown in this publication includes the larger 50mm lamps. Observe the maximum wattage limitation marked on the luminaire. Lower wattages may be used but it is advisable not to underload transformers substantially otherwise lamp life may be reduced.

GX 5-3 cap



GZ 4 cap



RANGE - 35mm

Lamp watts	Beam	Lamp no.	Peak candelas	Beam angle
12W	Narrow	M64	6400	7°
20W	Narrow	M52	5500	10°
	Medium	M51	1760	17°
	Wide	M62	600	30°
35W	Narrow	M65	9000	8°
	Medium	M66	3000	20°

RANGE - 50mm

Lamp watts	Beam	Lamp no.	Peak candelas	Beam angle
20W	Narrow	M68	5000	11°
	Medium	M69	1000	24°
35W	Narrow	M71	9000	8°
	Medium	M70	3600	18°
50W	Narrow	M49	12000	10°
	Medium	M50	3700	21°
	Wide	M58	1550	38°
75W	Narrow	M60	16000	12°
	Wide	M61	2250	38°

Rated life = 3000 hours

LIGHTSTREAM ACCESSORIES

TRANSFORMERS

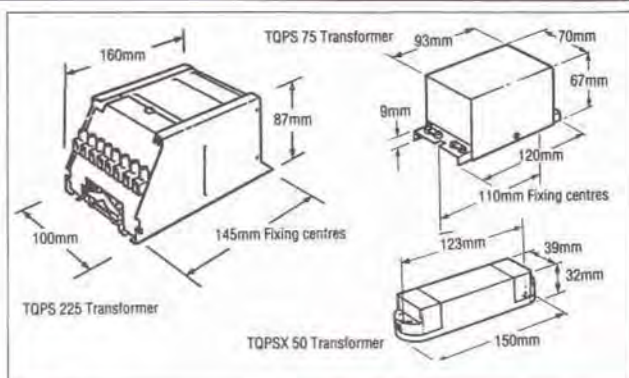
Three enclosed transformers are offered for use in conjunction with low voltage luminaires for mains operation. The smaller versions are suitable for loads between 20W and their maximum ratings i.e. 50W and 75W. The largest version is suitable for loads between 100W and 225W. Each transformer will operate any combination of lamp ratings within the above ranges.

These safety extra low voltage transformers are designed and manufactured to the highest standards and where relevant comply with IEC 742. They are insulated for safety and are suitable for direct mounting on normal interior flammable surfaces. In general, transformers should be mounted as close as is possible to the luminaires to minimise the voltage drop in the cable between the transformer and luminaire.

The unit can be mounted on any surface provided it can support the weight. Holes for mounting screws are provided. In normal operation the transformers will be warm so they should not be mounted in a totally enclosed space without adequate air flow for cooling, or where they are likely to be touched.

TQPSX 50 ELECTRONIC TRANSFORMER

Is suitable in those installations where its light weight (125g) and small size (39mm x 32mm x 150mm long) are an advantage. These transformers should not be mounted at distances greater than 1 metre from the lamp.



DIMMING

Conventional copper and iron transformers can be dimmed using a professional type dimmer incorporating a dc driven double thyristor circuit. At the moment electronic transformers cannot be dimmed by conventional means.

It is important that only THORN EMI transformers are used with our low voltage lighting equipment.

THORN EMI Lighting cannot accept any responsibility if transformers other than those shown above (which comply with the relevant international specifications) are used.



TF FILTER RANGE

Dramatic colour effects can be achieved with this range of very neat filters for lamps up to 50W with 50mm diameter reflectors. The filters are fixed in a high temperature plastic, fluted black ring which clips firmly over the front rim of the reflector.

The range consists of four high efficiency dichroic colour filters in green, red, blue and yellow. A fifth clear glass filter is recommended for use with subjects highly sensitive to ultra violet light. The filters are made of soda glass and, if used correctly, will not fade or crack.

TF 500 series - black

TF 600 series - ashgrey



TF FILTERS

	Cat. no.
Clear	TF 501C TF 601C
Green	TF 502G TF 602G
Red	TF 503R TF 603R
Blue	TF 504B TF 604B
Yellow	TF 505Y TF 605Y



LIGHTSTREAM TRACK TQT

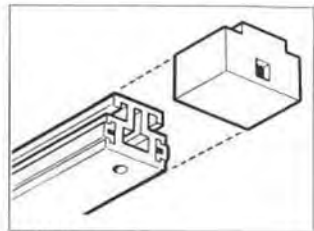
Mains voltage track is commonplace in the feature lighting scene of today.

However the need to ensure adequate electrical safety dictates the size of the track, which can become obtrusive for many applications.

Lightstream lamps operate at 12 volts and the ability to function at this intrinsically safe voltage enables an entirely new design of track to be produced.

All the features described below contribute to a new concept for display track lighting. The designer and user now has a compact, unobtrusive, flexible display lighting tool previously unobtainable.

The compact size of the track will be ideal for applications such as shop windows, shelves, mounting on beams, in display cases, hotels, libraries, galleries and museums, offices, exhibitions, display centres etc.



END CAP

Removable for attaching or changing luminaires.

TRACK

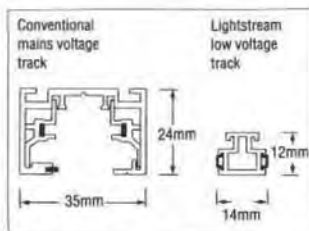
Operation at 12V gives complete electrical safety. No need to enclose conductors,

so rails are on outside for simplicity. Ultra slim size compared with mains track. High quality injection moulded plastics coloured ashgrey with plated copper rails.

Overall length 1.2m. Capacity 20A.

MOUNTING

Simple mounting to any convenient surface. 3 holes for screw fixing, 400mm centres. Ensure adequate clearance from the end cap so that luminaires can be attached. Lightstream Track lengths must be individually wired.

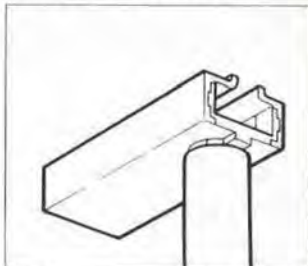


Cat. no.	Description	Weight kg
TQT 1200	Low voltage Lightstream Track	0.5

TRACK ADAPTORS

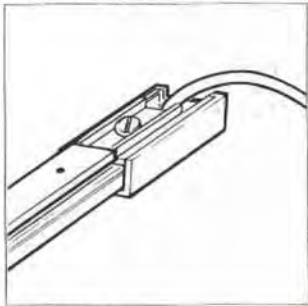
Adaptors slide onto the track after removing the end cap. Ensure that the post end of the adaptor is fed onto the track first. Luminaires can be moved to any

convenient position along the track or changed to achieve the required effect.



CABLE

Cable and end cover are permanently fixed to track. Cable 1.5m long, 2.5mm² twin PVC covered. To maintain correct voltage, cable length should not be changed.



TRANSFORMER

TQPS 225 transformer - see page 142.

LIGHTSTREAM DISPLAY HALOGEN – DOWNLIGHT ADAPTOR

DOWNLIGHT ADAPTOR TLVA (packed complete with lamp)

Downlights using conventional reflector lamps are in widespread use in hotels, offices, stores and restaurants. These unobtrusive luminaires create a pleasant and congenial atmosphere, but the PAR 38 lamps normally used, cause unnecessarily high running costs.

POWER SAVING

The THORN EMI Downlight adaptor is a direct replacement for conventional reflector lamps giving immediate and substantial power cost savings without the need to replace existing Downlight luminaires. The Downlight adaptor:-

- Replaces PAR 38 and blown glass lamps.
- Saves over 60% of energy costs.
- Reduces maintenance costs due to longer lamp life.
- Saves adaptor price in first year (3000 hours).

REDUCED HEAT

In addition to the substantial power cost savings, the Downlight adaptor's 50W Lightstream lamp brings another benefit.

The reduction in total power from 150 to 57W (including transformer) reduces the heating effect by over 60%. This will be of particular benefit to the occupants and will reduce the load on the air conditioning.

The dichroic reflector further reduces the heat in the beam which is beneficial to heat sensitive items such as food or plants and of course people.

COMPONENTS OF THE DOWNLIGHT ADAPTOR

The Downlight adaptor comprises:

- a: An ES cap
- b: An enclosed 240V/12V transformer
- c: A GX5.3 lampholder
- d: A Lightstream 12V 50W M50 tungsten halogen lamp with dichroic reflector. (Suitable for 50W lamps only. If lower wattages are used the life of the lamp may be affected.)

The ES cap is mounted on the top of the transformer and the GX5.3 lampholder on the underside (see diagram).

IMPORTANT

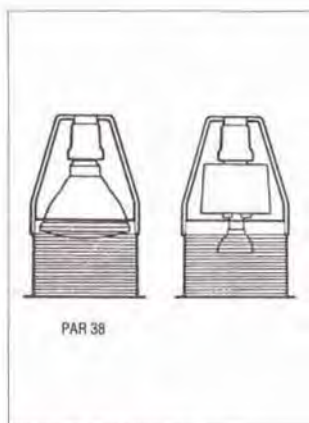
This adaptor is intended only for use in vertical cap up position in Downlights.

PRODUCT INFORMATION

Cat. no.	TLVA 50
Weight	1.0kg
Cap	ES (E27)
Lampholder	GL 1228
Circuit watts	57
Operating position	Vertical cap up
Lamp	M50
Max lamp watts	50



DOWNLIGHT ADAPTOR TLVA



MOUNTING IN DOWNLIGHT



LIMELIGHT

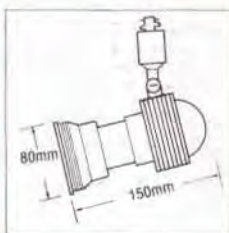
The 'Limelight' low voltage luminaire is manufactured in our factory at Neheim-Huston, West Germany — the birthplace of the German lighting industry — to very high standards and is part of their very successful range.

It is particularly appealing to those who like the 'Studio' look.

Maximum vertical and horizontal adjustment is possible. The housing, which is extruded aluminium contains both the lamp and the transformer and is connected to the mains supply by a plug and socket enabling this to be removed for maintenance or replacement.

The product is supplied in ashgrey and comes complete with a Lightstream M50 medium beam lamp. A clear glass front filter is provided as standard which is removable for lamp replacement.

Standard colour filters (TF series) can be used if the front glass is removed and discarded.



CAMERA '50' 50W LIGHTSTREAM

The Camera 50 is a 50 Watt Lightstream spotlight suitable for operation on either mains voltage Mastertrack or surface plate. It has a high grade pressure die cast aluminium body with injection moulded plastic components.

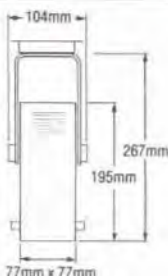
This efficient luminaire can reduce energy consumption by up to 65% and it has an extended average lamp life of 3000 hours. Other advantages are low heat output by using dichroic cool beam mirrors, robust filament construction, good colour rendering and small size. Applications will be for replacing conventional 150W reflector lamp luminaires.

The Camera 50 is available in two colours, gunmetal and ashgrey and is packed complete with the medium beam 50W Lightstream M50 lamp. (Suitable for 50W lamps only. If lower wattages are used, the life of the lamp may be affected.)

GLASS FILTERS: Clear and coloured soda lime glass dichroic filters are available for this range. See page 142.

RANGE

Cat. no.	Watts max	Fixing crs	Finish	Wt. kg
TCTTS 50 GM	50	Mastertrack	Gunmetal	1.5
TCTTS 50 AG	50	Mastertrack	Ashgrey	1.5
TCSTS 50 GM	50	Surface	Gunmetal	1.5
TCSTS 50 AG	50	Surface	Ashgrey	1.5



Cat. no. TOLM 50
Fixing crs 95
Weight kg 1.73

LIGHTSTREAM

LOW VOLTAGE SPOTLIGHTS FOR SURFACE OR LIGHTSTREAM TRACK MOUNTING

A range of exceptionally compact low voltage luminaires with attractive appearance. The designs are very stylish yet suitable for all types of interior from traditional to modern.

For all display and local lighting applications they provide effective but discreet lighting and wherever they are used can either be featured or hidden at will. This Lightstream luminaire range is available in either ashgrey or gunmetal finish, with surface mounting bases

or adaptors for Lightstream track described on page143. Each spotlight is supplied with a 12V 50W Lightstream M50 medium beam lamp (max lamp watts - 50). A transformer is required for mains operation — see page 142



MINI PAR TQSM, TQTM

The high quality pressure diecast Mini PAR is the most compact luminaire in the range and takes its name from the shape of the widely used PAR lamp. It is however considerably smaller, the whole unit being barely larger than the lamp itself. For surface or Lightstream track mounting, Mini PAR will accept filters from the TF range.



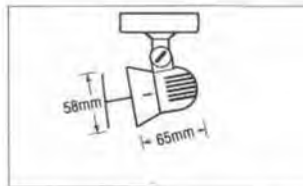
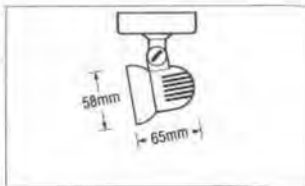
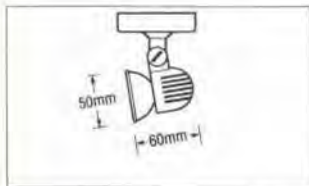
COWLSPOT

CowlsPOT features a profiled shield which follows the shape of the Lightstream lamp, so that all backward light is screened. Concealing the light source from the rear without affecting the precise optical control of the lamp allows maximum emphasis to be achieved.



CATCHLITE

The Catchlite is ideal for those installations where the lighting equipment features as part of the interior design. The disc which is in the beam can be rotated to reflect some of the light to produce a secondary beam for additional highlighting.



Cat. no.	Description	Weight kg
TQSM 50 AG	Mini PAR Ashgrey Surface mounting	0.15
TQSM 50 GM	Mini PAR Gunmetal Surface mounting	0.15
TQTM 50 AG	Mini PAR Ashgrey Lightstream track	0.15
TQTM 50 GM	Mini PAR Gunmetal Lightstream track	0.15

Transformer required - see page 142
Filters - see page 142
The above fittings are packed c/w M50 medium beam Lightstream lamp. Other 50mm diameter lamps from the Lightstream range are also suitable up to a maximum of 50 watts.

Cat. no.	Description	Weight kg
TQSM 50 AG + TQCS AG	CowlsPOT Ashgrey Surface mounting	0.2
TQSM 50 GM + TQCS GM	CowlsPOT Gunmetal Surface mounting	0.2
TQTM 50 AG + TQCS AG	CowlsPOT Ashgrey Lightstream track	0.2
TQTM 50 GM + TQCS GM	CowlsPOT Gunmetal Lightstream track	0.2

Transformer required - see page 142
Not suitable for filters

Cat. no.	Description	Weight kg
TQSM 50 AG + TQCL AG	Catchlite Ashgrey Surface mounting	0.2
TQSM 50 GM + TQCL GM	Catchlite Gunmetal Surface mounting	0.2
TQTM 50 AG + TQCL AG	Catchlite Ashgrey Lightstream track	0.2
TQTM 50 GM + TQCL GM	Catchlite Gunmetal Lightstream track	0.2

Transformer required - see page 142
Not suitable for filters

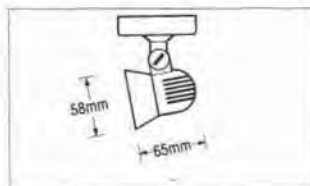
SPOTLIGHTS WITH CHARACTER

With a new range of neat attachments for the Mini PAR spotlight the customer choice is significantly extended. Whilst exploiting the small nature of the lamp to the full, these attachments enable the creation of spotlights of totally new character and poise.



CONELITE

This conical attachment flows smoothly into the body to create a clean modern appearance. It extends level with the front of the lamp to mask backlight without affecting the beam performance, making it eminently suitable for many interiors.



Cat. no.	Description	Weight kg
TQSM 50 AG + TQCN AG	Conelite Ashgrey Surface mounting	0.2
TQSM 50 GM + TQCN GM	Conelite Gunmetal Surface mounting	0.2
TQTM 50 AG + TQCN AG	Conelite Ashgrey Lightstream track	0.2
TQTM 50 GM + TQCN GM	Conelite Gunmetal Lightstream track	0.2

Transformer required - see page 142
Not suitable for filters

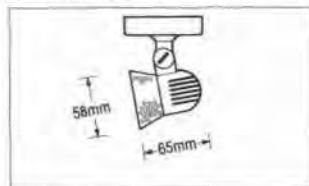
The above fittings are packed c/w M50 medium beam Lightstream lamp. Other 50mm diameter lamps from the Lightstream range are also suitable up to a maximum of 50 watts. Photographs show ashgrey fittings; gunmetal also available.

Wide range and versatility is essential for all interior lighting, whatever the application. Lightstream spotlights, with or without these new attachments, enable the mood and character of an interior to come to life without becoming intrusive.



MESHLITE

The perforated surface of Meshlite utilises the red light which is transmitted through the dichroic reflector of Lightstream lamps. The light pattern which is produced to the sides and rear gives an attractive and unique appearance to Meshlite without affecting the performance of the beam. Due to the open front of Meshlite, none of the sparkle from the lamp is lost but a pleasing degree of eye comfort is still achieved.



Cat. no.	Description	Weight kg
TQSM 50 AG + TQML AG	Meshlite Ashgrey Surface mounting	0.2
TQSM 50 GM + TQML GM	Meshlite Gunmetal Surface mounting	0.2
TQTM 50 AG + TQML AG	Meshlite Ashgrey Lightstream track	0.2
TQTM 50 GM + TQML GM	Meshlite Gunmetal Lightstream track	0.2

Transformer required - see page 142
Not suitable for filters

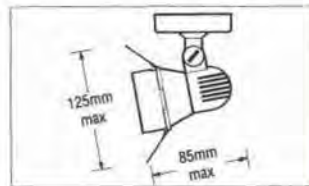
Alternative luminaire designs are now offered to produce the desired atmosphere with the addition of sparkle from the tiny but powerful lamps.

The luminaires shown on this page are all ordered in two parts, the required Mini PAR body and the matching attachment.



BARNLITE

Lightstream lamp types, because of the precise nature of their components and construction, inherently offer a well controlled beam of light. However, for those applications where restriction of the beam is required, Barnlite is the answer. The four adjustable 'barn doors' enable the lit area to be reduced for emphasis or comfort.



Cat. no.	Description	Weight kg
TQSM 50 AG + TQBL AG	Barnlite Ashgrey .. Surface mounting	0.2
TQSM 50 GM + TQBL GM	Barnlite Gunmetal Surface mounting	0.2
TQTM 50 AG + TQBL AG	Barnlite Ashgrey Lightstream track	0.2
TQTM 50 GM + TQBL GM	Barnlite Gunmetal Lightstream track	0.2

Transformer required - see page 142
Not suitable for filters

LIGHTSTREAM

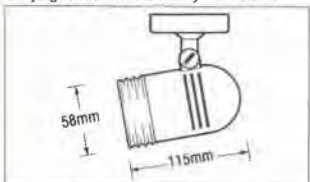
LIGHTSTREAM MAKES THE DIFFERENCE

The Lightstream range offers choice and versatility for traditional or modern applications.



BULLET TQSB, TQTB

The Bullet spot takes its name from its shape and provides a concealed light source. It is a similar shape to the conventional Bullnose mains luminaire but considerably smaller. The rolled aluminium baffle that pushes into the injection moulded body is removable to allow easy lamp replacement. This luminaire is particularly suitable for situations where no stray light can be tolerated by the viewer.



Cat. no.	Description	Weight kg
TQSB 50 AG	Bullet Ashgrey Surface mounting	0.2
TQSB 50 GM	Bullet Gunmetal Surface mounting	0.2
TQTB 50 AG	Bullet Ashgrey Lightstream track	0.2
TQTB 50 GM	Bullet Gunmetal Lightstream track	0.2

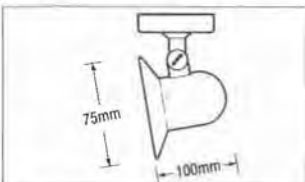
Transformer required - see page 142
Not suitable for filters

Open or enclosed luminaires with a totally new character give scope for the lighting designer to produce dramatic effects with considerable flexibility.



FLARE SPOT TQSF, TQTF

The appropriately named Flare Spot has a high quality pressure diecast aluminium body. Its special feature is the flared hood shielding the back of the reflector making it suitable for applications where all backlight must be eliminated. The attractive shape can be featured in displays without allowing sparkle to distract attention.



Cat. no.	Description	Weight kg
TQSF 50 AG	Flare Spot Ashgrey Surface mounting	0.25
TQSF 50 GM	Flare Spot Gunmetal Surface mounting	0.25
TQTF 50 AG	Flare Spot Ashgrey Lightstream track	0.25
TQTF 50 GM	Flare Spot Gunmetal Lightstream track	0.25

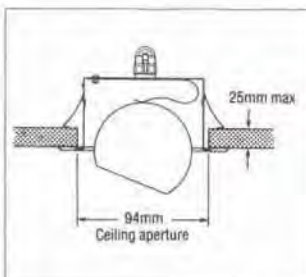
Transformer required - see page 142
Filters - see page 142



EYEBALL TQE

This flexible luminaire can either be used as a conventional flush downlight or a directional eyeball with up to 40° of adjustment. This facility is achieved by use of an adjustable aluminium sphere which clips into the ceiling ring and retains the lamp in position. The lamp direction is changed by simply gripping the reflector and moving the lamp.

For use when demand may vary from flush downlight to directional eyeball in order to illuminate the appropriate surface. It is ideal for situations where flush luminaires are required, but lighting flexibility must still be provided.



Cat. no.	Description	Weight kg
TQE 50	Eyeball Recessed	0.5

Transformer required - see page 142

Note: Unless otherwise stated the above fittings are packed c/w M50 medium beam Lightstream lamp. Other 50mm diameter lamps from the Lightstream range are also suitable up to a maximum of 50 Watts.

RECESSED LUMINAIRES

This range of luminaires provides unobtrusive ceiling lighting for offices, shops, hotels and many other situations.



RECESSED MINI PAR TQRM

The recessed Mini PAR comprises a ceiling ring and the Mini PAR unit together with its ribbed base. This base simply clips into the ceiling ring.

This luminaire provides fully adjustable spotlighting with the minimum projection from the ceiling.

Together with the low volt spots they provide a flexible range which gives designers the tools to design schemes for all kinds of interiors.



RECESSED FLARE SPOT TQRF

Similar in construction to the recessed Mini PAR but utilising the Flare Spot body to give a more distinctive appearance. Use of this shielded design gives a more unobtrusive effect by avoiding any distractions from backlight.

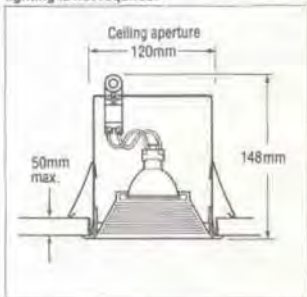
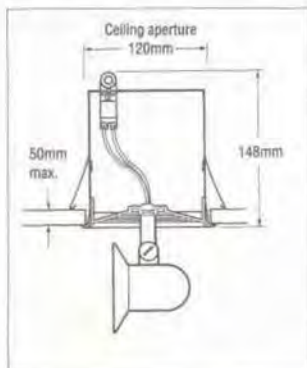
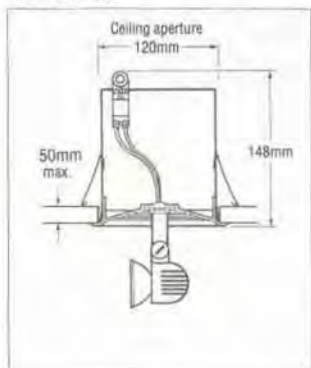
All these luminaires have a white ceiling ring for mounting and are supplied with a 12V 50W Lightstream lamp. A transformer is required for mains operation - see page 142.



MINI DOWNLIGHT TQD

This downlight can produce a lighting effect comparable to conventional 150W reflector lamp downlights but with over 60% energy saving and at least 50% longer lamp life. It comprises a high temperature injection moulded baffle housing a recessed lampholder. The baffle clips into the ceiling ring with a harness.

It is ideal for offices, hotels, restaurants etc, where the layout is fixed and adjustable lighting is not required.



Cat. no.	Description	Weight kg
TQRM 50 GM	Mini PAR Gunmetal Recessed	0.4

Transformer required - see page 142
Filters - see page 142

Cat. no.	Description	Weight kg
TQRF 50 GM	Flare Spot Gunmetal Recessed	0.5

Transformer required - see page 142
Filters - see page 142

Cat. no.	Description	Weight kg
TQD 50	Mini Downlight Recessed	0.4

M58 Wide beam lamp included
Transformer required - see page 142
Filters - see page 142

Note: Unless otherwise stated, the above fittings are packed c/w M50 medium beam Lightstream lamp. Other 50mm diameter lamps from the Lightstream range are also suitable up to a maximum of 50 watts.

LIGHTSTREAM LIGHTBAR AND CEILING LIGHT

In situations where a few spotlights are required in groups, an improved appearance can be achieved by the use of Lightbar or Ceiling Light rather than individual luminaires.



LIGHTBAR TQSF 250, TQSM 250.

Lightbar consists of a slim base on which is mounted either two Mini PAR or two Flare Spot luminaires.

The slender construction enables it to be used to advantage on narrow surfaces such as shelves.

An additional benefit is the saving of installation time by using multiway units in place of single points.

Both the 2 way Lightbars and the 3 way Ceiling Lights are offered in Mini PAR or Flare Spot options, colour ashgrey.



CEILING LIGHT TQSF 350, TQSM 350

The circular base of Ceiling Light carries three Mini PAR or three Flare Spot luminaires.

Ceiling Light offers great versatility from a single unit. All lamps facing the same direction create dramatic highlighting.

Alternatively, each one can be adjusted to accent individual points of interest and provide more general lighting.

RANGE

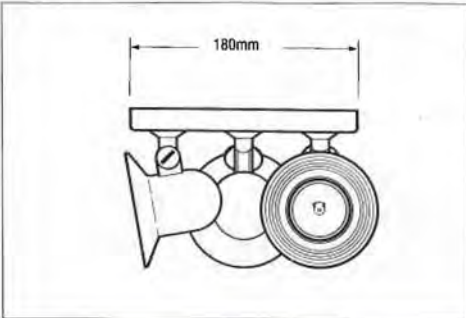
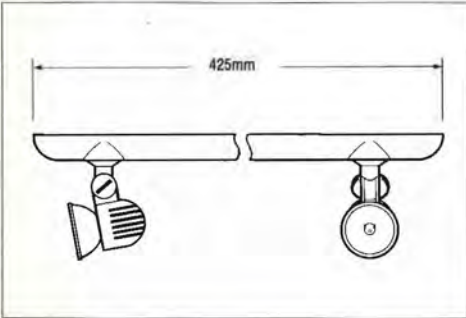
Cat. no.	Description	Weight kg
TQSF 250 AG	Lightbar – Flare Spot, Ashgrey, surface mounting	0.7
TQSM 250 AG	Lightbar – Mini PAR, Ashgrey, surface mounting	0.5

M50 Medium beam lamps included
Transformer required – see page 142
Filters – see page 142
Max lamp watts – 50

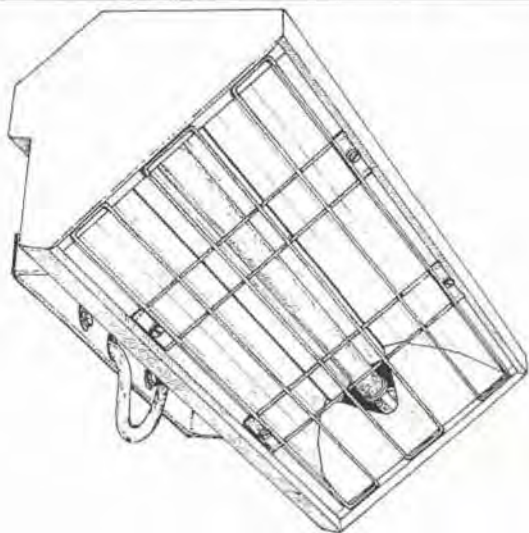
RANGE

Cat. no.	Description	Weight kg
TQSF 350 AG	Ceiling Light – Flare Spot, Ashgrey, surface mounting	1.2
TQSM 350 AG	Ceiling Light – Mini PAR, Ashgrey, surface mounting	0.9

M50 Medium beam lamps included
Transformer required – see page 142
Filters – see page 142
Max lamp watts – 50



HALOGEN HEATER (available from end 1986)



HS 1500

APPLICATIONS

For providing instant heat precisely where and when required. Ideal for meeting halls, churches and other buildings which have occasional occupancy patterns. Using the newly developed short wave infra-red linear tungsten halogen lamps, this fitting provides a practical and economical heating solution for premises which are, at the moment, difficult or expensive to heat by conventional methods.

DESCRIPTION (Provisional)

BODY: fabricated from sheet steel and finished in light grey powder coat enamel paint.

REFLECTOR: specular anodised aluminium.

LAMPS:

- (i) HH162 1500W infra-red linear tungsten halogen with ruby sleeve.
- (ii) HH163 1000W infra-red linear tungsten halogen with ruby sleeve.

For further details and availability of this fitting including applications and installation design data, please consult your nearest THORN EMI Lighting Sales office.

Hospital Lighting Introduction	154
Hospital Lighting for Reference A, B and N areas	155
Bedhead System	156

HOSPITAL LIGHTING

This section identifies the THORN EMI products which conform to the requirements of the DHSS publication 'Standard Reference Luminaires for Hospital and Health Care Building Use'. In addition other lighting products are recommended for areas within a health care complex not covered by the DHSS Standard Reference document. Detailed information on the products will be found in the appropriate section of this catalogue.

All THORN EMI Lighting fluorescent luminaires will accept Polylux 4000 energy-saving tubes in accordance with Health Notice HN(85)20.

LUMINAIRES FOR DHSS STANDARD REFERENCE 'A' FXJ SERIES HOSPITAL LUMINAIRES

A white surface mounted fluorescent luminaire with single or twin tube options supplied with gear mounted direct to the body. If a gear tray is required, specify FXH series luminaires. Covers types A1-A6 inc. and A1P-A6P inc. With fused terminal block as standard. See page 155.

DIFFUSER PACK

An all-in-one pack luminaire designed to take advantage of the considerable benefits of the latest developments in high-efficiency tubes. Switchstart and vivatronic start versions are available. See page 18.

POPULAR PACK

A wide range of battens and attachments that are useful for office and public areas. Not to be used in treatment areas. See page 8-17.

LUMINAIRES FOR DHSS STANDARD REFERENCE 'B' FXHP HOSPITAL LUMINAIRES

A white, single tube luminaire with acrylic prismatic controller conforming to DHSS Reference 'B' requirements for bedded areas and ward corridors. See page 155.

LUMINAIRES FOR DHSS STANDARD REFERENCE 'D' QUATTRO

Modular recessed luminaires 300mm or 600mm wide for general corridors, offices, pharmacy, etc according to diffuser or controller used. See pages 44-46.

LUMINAIRES FOR DHSS STANDARD REFERENCE 'L' DOWNLIGHTS

Use with 6-8W lamp for night light applications in bedded areas or ward corridors. See pages 131-132.

LUMINAIRES FOR DHSS STANDARD REFERENCE 'N'. Wall Mounted Bedhead Luminaire. See page 155.

LUMINAIRES FOR DHSS STANDARD REFERENCE 'O' DOWNLIGHT

A suitable luminaire for bedhead lighting in, eg. children's wards and psychiatric units. Available surface mounted, semi-recessed or fully recessed. See pages 131-132.

LUMINAIRES FOR DHSS STANDARD REFERENCE 'P'

A range of general purpose luminaires, wall or ceiling fixtures. Typical areas: common rooms, conference rooms, non-medical corridors, entrances/reception areas, etc. Practically all 2D fluorescent luminaires will be suitable, particularly the Unilite, Hyform and Supernova ranges. See page 87.

OTHER AREAS WITHIN A HEALTH CARE ENVIRONMENT

A fully comprehensive range of luminaires exists to cover other lighting requirements within a hospital/health care complex.

Requirement	Luminaire Type	Page
Corrosion resistant	LUV	99
Fluorescent wall light with shaver socket	FLS 13/FLST13	24
Floodlighting	OT. 70T	172
	OT. 150. 4	173
	OT. 250. 4	173
Precinct Lighting	QC 1070. T	194
Streetlighting	BETA 79	189
Low level lighting	2D Bollard	180
For patios/drives	P3IAM Bollard	193

HOSPITAL LIGHTING FOR REFERENCE 'A' AND 'B' AREAS

A surface mounted fluorescent luminaire with single or twin tube option. A four-way fused terminal block is supplied to allow each tube in the twin circuit to be switched separately for reduction in mains load and/or lighting levels.

Four attachments are available, retained by wishbone springs.

Opal Styrene : Reference 'A' General Use

Opal Acrylic : Reference 'A' General Use

Prismatic Styrene : Reference 'A' General Use

Prismatic Acrylic : Reference 'A' General Use
or Reference 'B' Bedded Areas
and Ward Corridors

The luminaires are supplied less tubes; either 26mm or 38mm diameter tubes may be used.

Standard circuit is switchstart, other circuits are available to order.

LUMINAIRES WITH STYRENE ATTACHMENTS

DHSS Reference	Cat. no. less gear tray	Cat. no. with gear tray
A1	FXJD 136	FXHD 136
A2	FXJD 236	FXHD 236
A3	FXJD 158	FXHD 158
A4	FXJD 258	FXHD 258
A5	FXJD 170	FXHD 170
A6	FXJD 270	FXHD 270
A1P	FXJP 136	FXHP 136
A2P	FXJP 236	FXHP 236
A3P	FXJP 158	FXHP 158
A4P	FXJP 258	FXHP 258
A5P	FXJP 170	FXHP 170
A6P	FXJP 270	FXHP 270

LUMINAIRES WITH ACRYLIC ATTACHMENTS

DHSS Reference	Cat. no. less gear tray	Cat. no. with gear tray
A1	FXJG 136	FXHG 136
A2	FXJG 236	FXHG 236
A3	FXJG 158	FXHG 158
A4	FXJG 258	FXHG 258
A5	FXJG 170	FXHG 170
A6	FXJG 270	FXHG 270
A1P	FXJC 136	FXHC 136
A2P	FXJC 236	FXHC 236
A3P	FXJC 158	FXHC 158
A4P	FXJC 258	FXHC 258
A5P	FXJC 170	FXHC 170
A6P	FXJC 270	FXHC 270
B1	—	FXHC 136
B2	—	FXHC 158
B3	—	FXHC 170

An extension box is available which increases the versatility of the lighting package. It is designed to fit at the end of the luminaire and blends in with its shape. The box may be used to house additional features such as energy management systems, emergency lighting and night lights.

EXTENSION BOXES

Cat. no.	Description
FXB	Extension box
FXB1	Extension box with Pygmy night light
FXB2	Extension box with 8W fluorescent light



HOSPITAL LIGHTING FOR REFERENCE 'N' AREAS

An adjustable arm bedhead luminaire with totally enclosed mechanism. The movement is restricted to the requirement of the DHSS to prevent glare to other patients sharing the area. The DHSS recommendation is to provide 150 lux at the bedhead. For minor medical examinations a 60W lamp may be fitted.

A compact fluorescent version is offered using the 16W 2D lamp for bedhead lighting and general purpose use where conventional on/off switching is used.

All versions of the luminaire are designed and manufactured to comply with the Safety and Performances Standard BS4533 and are rated IP 20, suitable for indoor atmospheres.

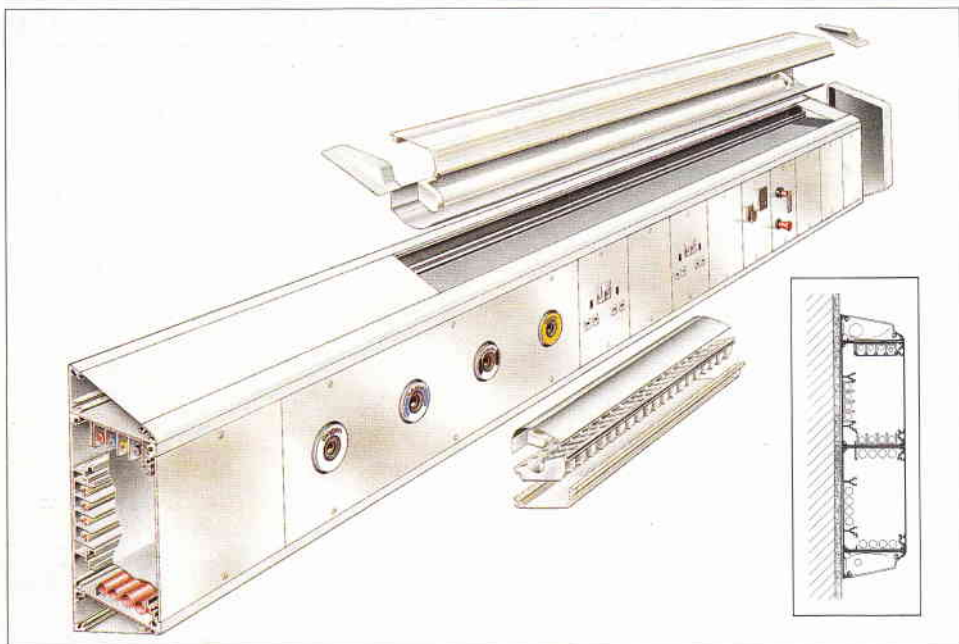


SUITABLE FOR BEDHEADS, DESK LIGHTING, BENCH LIGHTING, EXAMINATION ROOM COUCHES

DHSS Ref.	Cat. no.	Description
N1	HN 40	STD GLS head for 40W
N2	HN 60	STD GLS head for 60W
N1	2D HN 16	16W 2D head
N2	2D HNG 16	16W 2D head

MOUNTING OPTIONS

Cat. no.	Description
---/C	Table clamp
---/WS	Wall socket
---/WB	Wall box
---/WBS	Wall box Switched on/off
---/WBDS	Wall box with 2 light level & off Switching



TYPICAL CONFIGURATION OF THE BEDHEAD SYSTEM SHOWING A SAMPLE OF THE FACILITIES AVAILABLE AND (INSET) CROSS-SECTION OF A LIKELY ASSEMBLY IN AN INTENSIVE THERAPY UNIT.

BEDHEAD SYSTEM

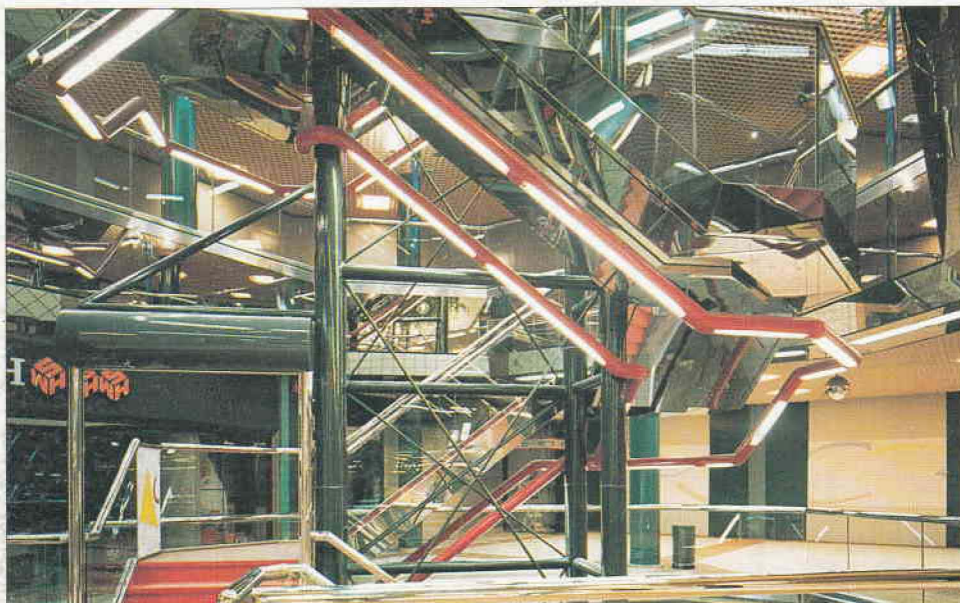
The THORN EMI Lighting Bedhead system is designed to provide all the necessary patient services in a single unit. Flexibility is its key. Each installation may be tailored to meet the specific needs of the area concerned, through the supply of lighting, both ambient and for the patient, medical fluids, low volt outlets and functional extra low volt services.

The system is based on an aluminium extrusion which carries each set of cables/pipes in complete mechanical and electrical isolation. Front panels are secured by quick-release screws and are of stainless steel with a brushed satin finish. The body is coated with a chemically resistant, easy to clean white paint (as standard — other colours may be supplied if required).

The benefits of the Bedhead system are considerable:

- *It brings all services in at one level — this both satisfies medical requirements and ensures fast, low-cost installation.
- *Maintenance costs are reduced and minimum patient disturbance is caused due to the ease of access.
- *The system can be extended for up to three bed units (six metres).
- *In situations where many services are required units may be supplied in a double version, one above the other.
- *Rails are available for the addition of inspection lamps, gas bottles, patient monitoring equipment etc.
- *The acrylic diffusers are designed to control the light and provide the necessary lighting levels without subjecting either patients or medical staff to discomforting glare.

PIPELINE



RIDINGS SHOPPING CENTRE, WAKEFIELD

Pipeline is a complete lighting system capable of an infinite number of design variations. The range consists of various aluminium sections with tough, chemically resistant epoxy paint coatings.

85MM DIAMETER:

Fluorescent modules with louvre or acrylic controller
Mastertrack modules
Fixed and flexible bends
Junction pieces

125MM DIAMETER:

Fluorescent modules with louvre or acrylic controller
Mastertrack modules
Integrated incandescent lamp fittings
Fixed and flexible bends
Junction pieces
Sign lights

160MM DIAMETER:

Fluorescent task-lights

OUTDOOR LIGHT POLES:

Incandescent pendants
SON and Mercury Vapour

INDIVIDUAL LIGHTS:

Incandescent pendants, ceiling lights, and wall lights



PM61 SIGN LIGHT



PM41 + 90° BENDS WITH FLANGE



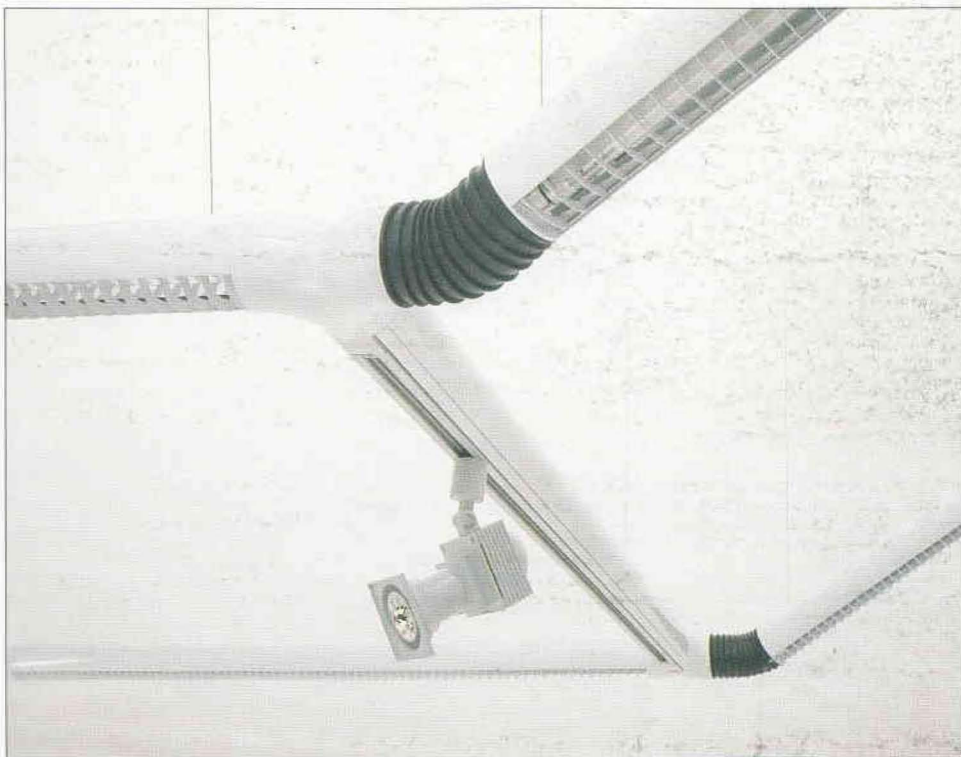
PM41 T-LIGHT

The inherent flexibility of Pipeline as a lighting solution will appeal strongly to interior designers, architects and others with a flair for individuality.

A feature of the system is its ability to provide continuous lines of light with almost imperceptible joints between adjacent fittings — and this can be used with great visual effect.

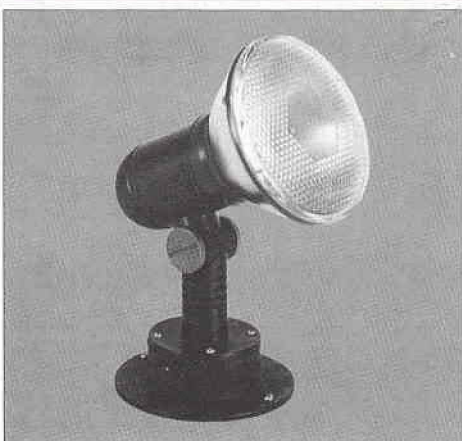
Standard colours are red, white and black for indoor versions, and red, white, black and aluminium for outdoor versions.

For full details, please see the THORN EMI Lighting Pipeline Catalogue.



AN EXAMPLE DESIGN USING PM40 Ø65MM PIPELINE

Miniflood	162
Sunflood	163
Haline 5/10	164
Haline 15	165
Sonline	166
Area Flood	167
OW Series Floodlights	168
M25 Junior	169
OQ 1000	170
Sunspot 500	171
SONPAK 7	172
SONPAK 15/25	173
Floodlighting Accessories	174
Escort Wellglass	176
SOXPAK	177
Escort OB Fluorescent Bulkhead	178
Escort OLG/OLV Tungsten Bulkhead	179
2D Bulkhead	180



ORB 1150

APPLICATIONS

A compact, low cost, outdoor floodlight for achieving decorative effects in parks, gardens etc. or illuminating signs and other features where an inconspicuous floodlight is required.

DESCRIPTION

MAIN BODY: injection moulded 30% glass filled black polyester.

ADAPTOR: injection moulded glass filled black nylon.

MOUNTING BASE/WIRING BASE: OR1, injection moulded glass filled black nylon.

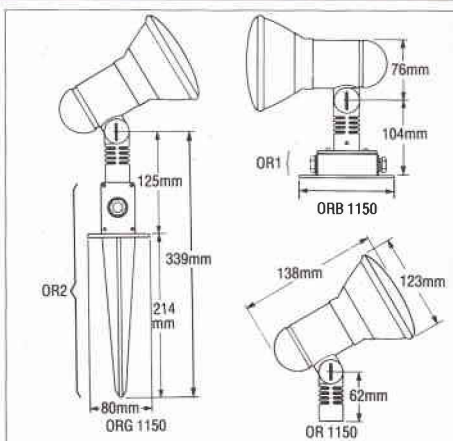
LAMPHOLDER: porcelain E.S. Catalogue number GL 1131.

MAINS TERMINAL BLOCK: 2 way. Catalogue number GT 1281/2. Each terminal will accept a 1 x 2.5mm² cable. (Housed within the OR1 and OR2).

WIRING ENTRY*: OR1* —via 2 M20 tapped holes. Each hole will accept cable 4mm to 7mm O/D.

OR2 (Garden Spike)* —via 2 Pg11 tapped holes. Each hole will accept cable up to 7mm O/D.

* Note that the OR 1150 is supplied with 2 x 1 metre flying leads.



MOUNTING: ORB 1150—via 1 hole and 1 key hole slot, both suitable for 4mm diameter screws, situated on the base of OR1.

OR 1150—Using a threaded length of 20mm conduit (maximum length 1 metre).

Using the EKB Wall Bracket or the EKC Corner bracket. See Floodlighting Accessories section for further information.

LAMP TO BODY SEALING RING: ORS, Black Silicone rubber.

LAMP TYPES:

PAR 38 150W Spotlamp

PAR 38 150W Floodlamp

PAR 38 100W Spotlamp

PAR 38 100W Floodlamp

PAR 38 100W Lacquered (Blue, Green, Yellow, Red)

CLASSIFICATION FOR PROTECTION IP54

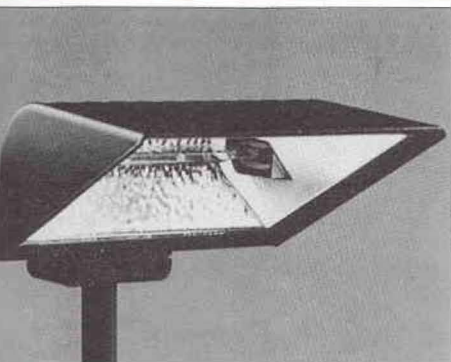
Against electric shock: Class II—double insulated (Earthing not required).

Against ingress of moisture or dust: IP54, Rainproof, Complies with BS4533:102.1

*Note that OR1 and OR2 are designed solely as spare items for ORB 1150 and ORG 1150. They are *not* to be used in the conversion of the OR 1150 to one of the other versions, since no locking screw is provided.

RANGE

Cat. no.	Description	Weight kg
OR 1150	Floodlight body c/w 2 single core high temperature cables each 1 metre in length	0.3
ORB 1150	Floodlight body c/w wiring box base and 150W PAR 38 floodlamp	0.7
ORG 1150	Floodlight body c/w garden spike and 150W PAR 38 floodlamp	0.73



SUN 500

APPLICATIONS:

Signed for outdoor use **only**, this low cost area floodlight is suitable for car parks, forecourts, security, gardens, patios, work areas, etc.

DESCRIPTION:

MAIN BODY: pressure die-cast aluminium alloy finished in black powder coat paint. All external screws/bolts are stainless steel.

REFLECTOR: hammer finish, chemically brightened and anodised aluminium.

LAMPHOLDER: GL 1208, single fine silver tipped plated copper contact with high temperature coil spring and ceramic body. (2 required per fitting.)

WIRING BOX: injection moulded black glass-filled polycarbonate. Uses 2 way terminal block. GT 1393/2 each terminal being suitable for 2.5mm² cable. Available as a replacement item under Catalogue number SUD.

WIRING ENTRY: via a 20mm threaded hole situated at the base of the wiring box.

WIRING: using conduit screwed into the wiring box, using 2 screws through the holes provided in the wiring box or any of the other recognised methods.

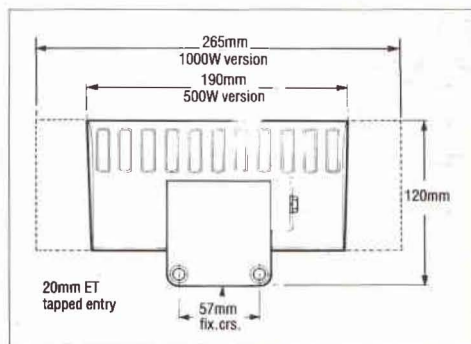
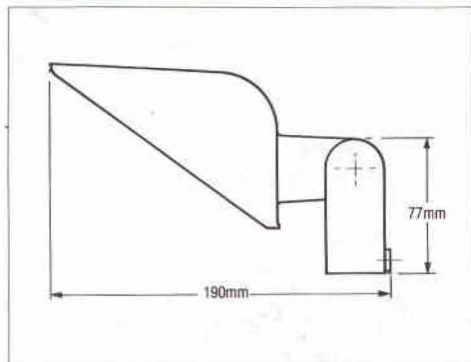
See Floodlighting Accessories section for further information.

LAMP TYPES: linear tungsten halogen 200W to 1000W with R7s caps.

SUN 500: 200W, 300W, 500W. SUN 1000: 750W, 1000W.

RANGE (Lamp supplied with luminaire)

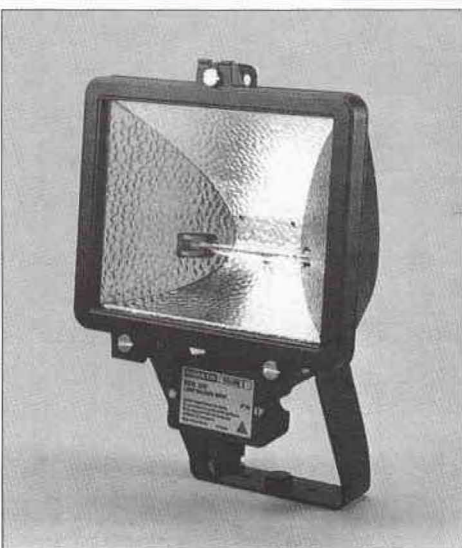
Cat. no.	Description	Weight kg	Projected area m ²	Lamp type
SUN 500	Sunflood luminaire packed with 240V 500W lamp	0.68	0.015	K1
SUN 1000	Sunflood luminaire packed with 240V 1000W lamp	0.85	0.02	K4



CLASSIFICATION FOR PROTECTION IP23 ▲

Against electric shock: Class 1 earthed metalwork.

Against ingress of moisture or dust: IP23, rainproof. Complies with BS 4533:102-5.



ODW 500 (HALINE 5)

APPLICATIONS

Area lighting for sports halls, security applications, building sites, car parks, advertising hoardings, etc.

DESCRIPTION

MAIN BODY: pressure die-cast aluminium alloy finished in black powder coat paint. All external screws/bolts are stainless steel.

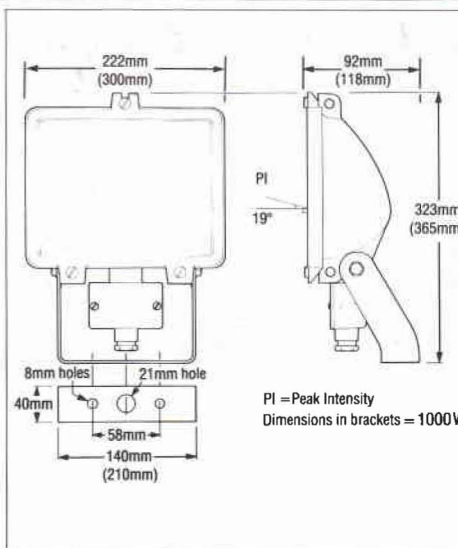
REFLECTOR: hammer finish, chemically brightened and anodised dimpled aluminium. Available as replacement items under Catalogue numbers ODR 500 (Haline 5) and ODR 1000 (Haline 10). Note that specular reflectors are available to achieve narrow beam performance under Catalogue numbers ODS 500 (Haline 5) and ODS 1000 (Haline 10).

LAMPHOLDER: GL 1208. Single fine silver tipped plated copper contact with high temperature coil spring and ceramic body.

WIRING BOX BASE/COVER: injection moulded black polyester PBT. Houses 3 way terminal block. GT 1393/3 each terminal being suitable for 2-5mm² cable. Available as a replacement item under Catalogue number ODA.

WIRING BOX GASKET: closed cell sponge.

FRONT FRAME AND GLASS: pressure die-cast aluminium alloy finished in black powder coat paint hinged and secured by swivel bolts. Weather proofing provided by a silicone rubber gasket between main body and toughened soda lime front glass. Available as replacement items under catalogue numbers ODF 500 (Haline 5) and ODF 1000 (Haline 10).



WIRING ENTRY: via a moulded cable gland suitable for 8-12mm O/D cable.

MOUNTING: at any angle (bearing in mind the lamp type used) via the black powder coat painted stirrup or the stirrup used together with one of the standard mounting accessories. Note that pendant mounting is possible by stirrup reversal to an angle of 30° relative to the vertical. To avoid overheating under no circumstances should the wiring box be mounted above the luminaire body. See *Floodlighting Accessories* section for further information. Note that 2 and 3 ODW 500's may be respectively mounted to a 5 metre column using QFB2 and QFB3 SC (in conjunction with QCS 76) mounting brackets.

LAMP TYPES: * Linear tungsten halogen 200W to 1000W with R7s caps.

ODW 500 : 200, 300, 500W

ODW 1000: 750, 1000W

CLASSIFICATION FOR PROTECTION IP54

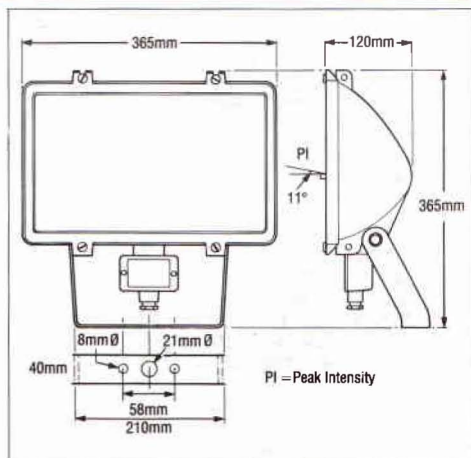
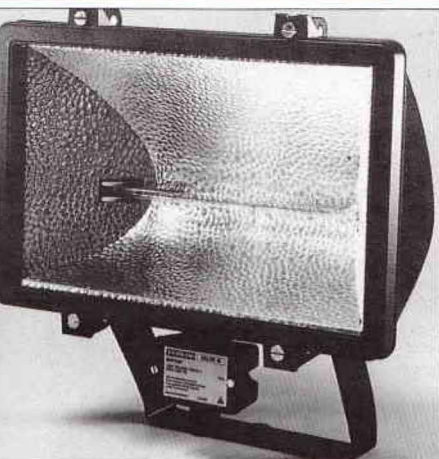
Against electric shock: Class 1—earthed metalwork.

Against ingress of moisture or dust: IP54 dustproof and splashproof. Complies with BS4533:102-5.

*The ODW 1000 is unsuitable for use with 250W SON-TD lamps. For further information on these luminaires please request data sheet 3:ODW.1 from your local THORN EMI Sales Office.

RANGE (Lamp supplied with luminaires)

Cat. no.	Description	Weight kg	Projected area m ²	Lamp type
ODW 500	'Haline' 5 luminaire packed with a 240V 500W lamp	2.1	0.048	K1
ODW 1000	'Haline' 10 luminaire packed with a 240V 1000W lamp	3.1	0.079	K4



APPLICATIONS

Area lighting for sports halls, security applications, building sites, car parks, advertising hoardings, etc.

DESCRIPTION

MAIN BODY: pressure die-cast aluminium alloy finished in black powder coat paint. All external screws/bolts are stainless steel.

REFLECTOR: hammer finish, chemically brightened and anodised tempered aluminium. Available as a replacement item under Catalogue number ODR 1500.

Note that a specular reflector is available to achieve narrow beam performance under catalogue number ODS 1500.

LAMPHOLDER: GL 1229. Single fine silver tipped plated copper contact with high temperature coil spring and ceramic body.

WIRING BOX BASE/COVER: injection moulded black polyester PBT, houses 3 way terminal block. GT 1393/3 each terminal being suitable for 2.5mm² cable. Available as a replacement item under catalogue number ODA.

WIRING BOX GASKET: closed cell sponge.

RANGE (Lamp supplied with luminaire)

Cat. no.	Description	Weight kg	Projected area m ²	Lamp type
ODW 1500	'Haline 15' luminaire packed with a 240V 1500W lamp	3.4	0.094	K5

FRONT FRAME AND GLASS: pressure die-cast aluminium alloy finished in black powder coat paint hinged and secured by swivel bolts. Weather proofing provided by a silicone rubber gasket between main body and toughened soda lime front glass. Available as a replacement item under catalogue number ODF 1500.

WIRING ENTRY: via a moulded cable gland suitable for 8-12mm O/D cable.

MOUNTING: via the black powder coat painted stirrup or the stirrup used together with one of the standard mounting accessories. Note that pendant mounting is possible by stirrup reversal to an angle of 30° relative to the vertical. To avoid overheating under no circumstances should the wiring box be mounted above the luminaire body. See Floodlighting Accessories section for further information.

LAMP TYPES:

1500W linear tungsten halogen with R7s caps.

400W SON-TD (see SONLINE page 166 for further information)

CLASSIFICATION FOR PROTECTION IP54

Against electric shock: Class 1—earthed metalwork. Against ingress of moisture or dust: IP54 Dustproof and Splashproof. Complies with BS4533:102-5.



OHA 4615 WITH ODW 1500

APPLICATIONS

This composite arrangement comprising a SON-TD lamp, a Haline floodlight (ODW 1500) and a control gear box (integral with the luminaire or remotely mounted) is suitable for use in a wide range of exterior lighting situations particularly where economy of operation is essential e.g. public lighting, area lighting, building lighting etc.

DESCRIPTION:

LUMINAIRE: (ordered separately) Haline 15 (ODW 1500) see page 165 for details.

CONTROL GEAR BOX: (Ordered separately)

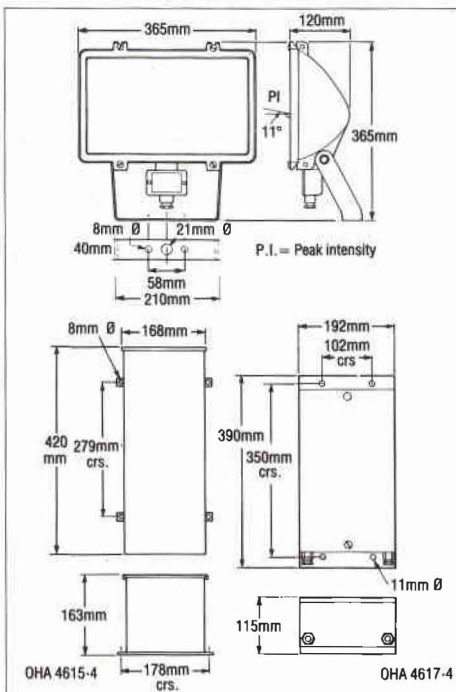
(i) **Cast aluminium type** (illustrated - Catalogue number OHA 4615.4): This gear box supplied complete with stirrup fixing bolt and washer for luminaire mounting, is rated IP 24 splashproof and contains one set of fully wired HPF 400W SON control gear. Mains entry is provided through 2 tapped 20mm holes and cable glands are provided which are suitable for 8-12mm O/D 3 core cable. Exterior finish is black powder coat paint.

(ii) **Sheet steel type** (catalogue number OHA 4617.4): This gear box which is suitable for remote mounting is manufactured from zinc coated sheet steel with stove enamelled acrylic finish and rated IP23 rainproof. As with (i) above a set of fully wired HPF 400W SON control gear is contained within. Two 20mm diameter holes are provided in one end of the box for supply and lamp connections. Cable glands are provided which are suitable for 8-12mm O/D 3 core cable.

Exterior finish is black powder coat paint.

RANGE of control gear boxes. (Lamp and luminaires ordered separately)

Cat. no.	Description	Weight kg
OHA 4615-4	400W SON control gear box (aluminium), complete with gear for operation on 240V 50Hz	9.5
OHA 4617-4	400W SON control gear box (steel), complete with gear for operation on 240V 50Hz	9.4



MOUNTING: luminaire mounted to cast gear box (OHA 4615)

(i) Floor — using bolts through the four 11mm holes on 102 x 350mm centres.

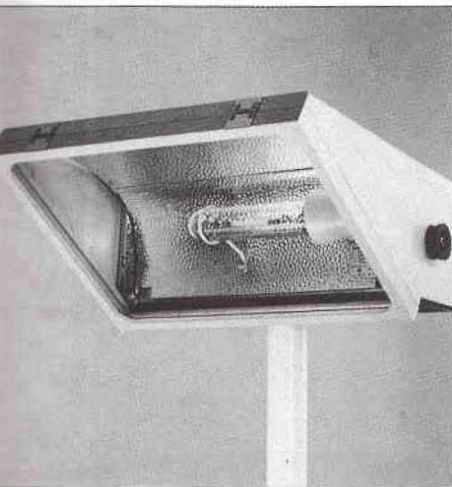
(ii) Wall — using bolts through the four 11mm holes on 102 x 350mm centres.

(iii) Pole — using 2 OHA 4613 pole clamps through the holes provided on the gear box.

LAMP TYPES: 400W SON-TD tubular double ended high pressure sodium.

IMPORTANT

If the luminaire is sited remote from the control gear box MICC cable must *not* be used for the electrical connection. Furthermore the maximum capacitance of the cable used for this connection is limited on 240V supplies to 2000pf. Information on cable capacitance can be obtained from the cable manufacturer.



APPLICATIONS

General area lighting of car-parks, forecourts, swimming pools, industrial areas, etc.

DESCRIPTION

BODY: one piece glass reinforced plastic (GRP) moulding.

SUPPORT CASTING: aluminium alloy casting with spigot entry sealed with body with silicone rubber adhesive and incorporating integral control gear.

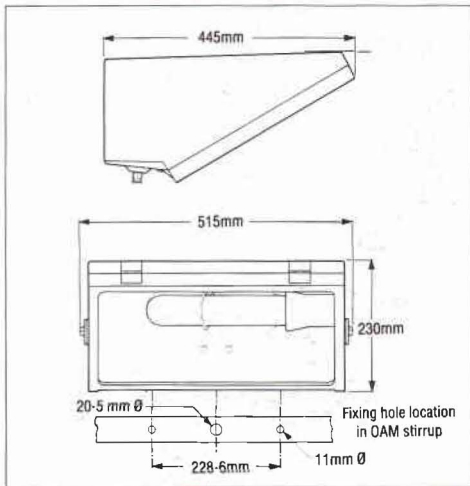
FRONT GLASS ASSEMBLY: toughened flat glass secured in GRP frame. Hinged at the top using two stainless steel hinges and fastened along the bottom edge using two captive stainless steel slotted head screws. Silicone rubber gaskets ensure efficient sealing between glass and frame, and frame and main body. Available as a replacement item under catalogue number OAF.

REFLECTOR ASSEMBLY: one piece dimpled anodised aluminium.

LAMP HOLDER: GES porcelain, skirted E40 Catalogue number GL 196.

MAIN TERMINAL ASSEMBLY: 4 way terminal block (maximum terminal capacity 1 X 6mm²) (3 way on MBF versions), mounted on a removable bracket and housed within the spigot entry hole on the main casting.

RANGE (Packed complete with lamp)



MOUNTING:

- (i) Via wall brackets OAB 36 or OAB 310, both of which locate directly in the spigot entry hole
 - (ii) On 50mm and 76mm O/D poles. Note that OASA spigot adaptor is required for 50mm poles
 - (iii) On 5, 8, 10 and 12 metre columns. See page 198 for further details
 - (iv) Using the stirrup mounting kit OAM (ordered separately). Kit contains hot dipped galvanised steel stirrup and plug assembly c/w cable gland for blanking off spigot entry hole.
- See *Floodlighting Accessories* section for further information.

LAMP TYPES: 250/400W MBF/MBIF

150W SON-T*/SONDL-T

250/400W SON-T*/SONDL-T

*SON-T lamps are supplied as standard with the OAST 150-4/OAST 250-4/OAST 400-4 versions of the luminaires. Where alternative lamp types are required this must be specified when ordering. In cases where luminaires are required for operation with elliptical SON lamps (SON-E) the following order numbers should be used — OASE 150-4, OASE 250-4 OASE 400-4. These versions are available to order only.

CLASSIFICATION FOR PROTECTION IP44

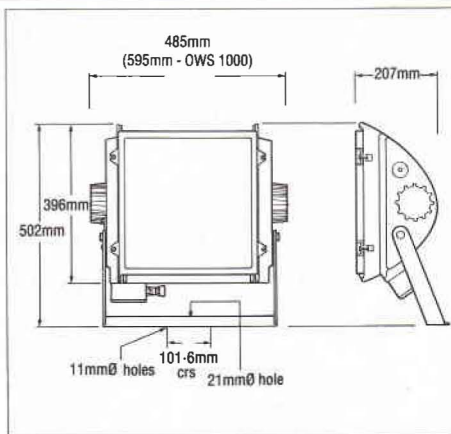
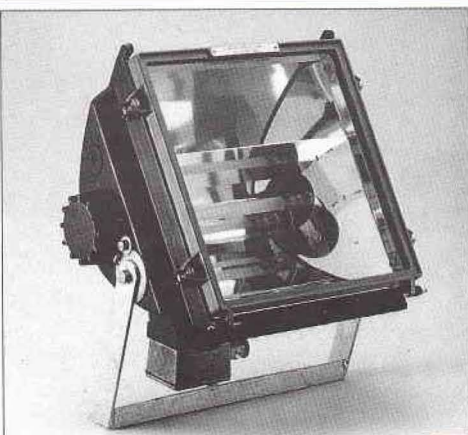
Against electric shock: Class 1

Against ingress of moisture or dust: IP44, rainproof.

Complies with BS 4533:102.5. For further information on these luminaires please request data sheet 3:0A.1 from your local THORN EMI Lighting Sales Office.

Cat. no.	Description	Weight kg	Projected area m ²
OAC 250	Area flood c/w 250W MBIF control gear and lamp for operation on 240V 50Hz	14.5	0.21
OAC 400	Area flood c/w 400W MBIF control gear and lamp for operation on 240V 50Hz	15.0	0.21
OAK 250	Area flood c/w 250W MBF control gear and lamp for operation on 240V 50Hz	13.6	0.21
OAK 400	Area flood c/w 400W MBF control gear and lamp for operation on 240V 50Hz	14.5	0.21
OAST 150-4	Area flood c/w 150W SON-T control gear and lamp for operation on 240V 50Hz	12.5	0.21
OAST 250-4	Area flood c/w 250W SON-T control gear and lamp for operation on 240V 50Hz	14.5	0.21
OAST 400-4	Area flood c/w 400W SON-T control gear and lamp for operation on 240V 50Hz	16.5	0.21

OW SERIES FLOODLIGHTS



APPLICATION

Large area lighting with low glare and excellent colour rendering and high efficiency e.g. sports stadia, club pitches, construction sites, marshalling yards, shipping terminals, buildings etc.

LAMP TYPES: 750W, 1500W MBIL or 400W SON-TD versions also available for 400W SON-T 1000W SON-T.

DESCRIPTION

Body constructed from a polished reflector held and sealed between black powder coated aluminium alloy end castings. The front glass is mounted in cast aluminium frame held to the body by 4 stainless steel swivel bolts. Faceted reflectors and baffle control the beam (removable for narrow distribution with linear lamps).

MOUNTING: direct mounting on headframe or wall. Pendant mounting possible using the alternative stirrup mounting position provided. An aiming stop is provided to enable the luminaire be swung for maintenance and then returned to its aimed position.

CONTROL GEAR: to be ordered separately for remote mounting.

CLASSIFICATION FOR PROTECTION IP54

Against electric shock: Class 1 — earthed metalwork.

Against ingress of moisture: IP54, Dustproof, splashproof.

RANGE (Lamps ordered separately)

Cat. no.	Description	Weight kg	Projector area m ²
OWA 1500	Floodlight for MBIL also for 400W SON-TD	6.5	0.16
OWS 400	Floodlight for 400W SON-T narrow beam	6.5	0.16
OWS 1000	Floodlight for 1000W SON-T narrow beam, including ignitor	11	0.2


M25 FD 500

APPLICATIONS

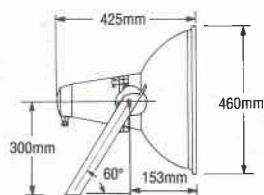
Major floodlighting situations e.g. railway marshalling yards, airfield aprons, sports grounds, buildings etc.

DESCRIPTION

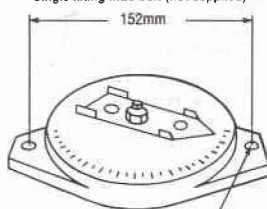
REFLECTOR: super purity spun aluminium, polished and anodised (available in specular or diffuse finishes), which is secured internally to the aluminium alloy ring casting with stirrup fixing. The heat resisting, clear toughened front glass (Catalogue number GLA 5275) is sealed into the reflector by a silicone rubber gasket and retained by a stainless steel visor band. Gasketed and fastened to body casting by stainless steel studs and wing nuts.

AUXILIARY REFLECTOR: polished aluminium.

LAMPHOLDER HOUSING: pressure die-cast aluminium having a detachable end cap for access to the terminal block via a cable gland suitable for 7–11mm O/D cable. The GES skirted lampholder (Catalogue number LH 5498) is adjustable to cater for the different lamp types that can be used with this luminaire.



Single fixing M20 bolt (not supplied)


M25 BPJ BASE PLATE

2 x 9-5mm holes

MOUNTING: (i) Using the galvanised steel 60° cranked stirrup with an M20 bold (not supplied). An aiming quadrant marked $\pm 60^\circ$ is provided which ensures accurate aiming in the vertical plane and spun galvanised locking bolts/handles enable the luminaire to be rigidly fixed in position.

(ii) Using the galvanised steel 60° cranked stirrup and the baseplate, M25 BPJ, (available as an optional extra), which bolts directly to the stirrup.

NOTE: maximum downward inclination of luminaire is 60° .

LAMP TYPES: 250/400W MBF, 250/400W MBI/MBIF, 150/250/400W SON/SON-T, 300/500W GLS

CLASSIFICATION FOR PROTECTION IP54 ▲

Against electric shock: Class 1 earthed metalwork. Against ingress of moisture or dust: IP 54 dustproof and splashproof. Complies with BS4533:2-5.

For details of the control gear to be used with this luminaire see relevant catalogue section.

RANGE (Lamps and gear ordered separately)

Cat. no.	Description	Weight kg	Projected area m ²
M25 FS 500	Specular reflector projector floodlight	9.07	0.16
M25 FD 500	Diffuse reflector projector floodlight	9.07	0.16
M25 BPJ	Base plate (optional extra)	0.36	—



OQ 1000 WITH OQA

APPLICATIONS

Primarily designed for high tower installations where good illumination with excellent colour rendering is required. In cases where instant lamp restrike is essential the OQ 1000 HR version of the luminaire should be specified.

DESCRIPTION

MAIN BODY: constructed of a two part aluminium casting with mounting lugs on the front section. The rear section which houses the lampholder is removable for re-lamping without disturbing the aiming angle. Both sections are secured by three equally spaced stainless steel toggles.

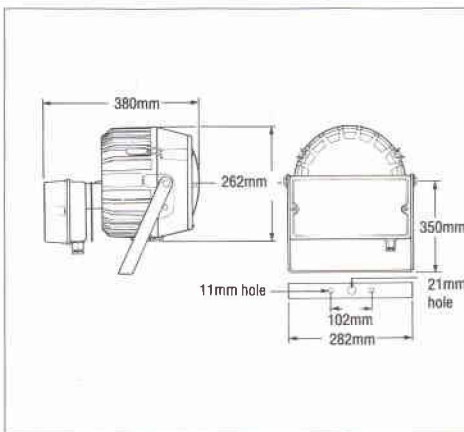
FRONT GLASS: a range of 5 is available. An aluminium retaining ring secured to the front section of the main body by three screws holds the glass in position. *Glasses should be ordered separately.*

IGNITOR HOUSING/WIRING BOX: fixed to rear section of main casting and contains the ignitor. Cable entry is provided through a cable gland suitable for 8–12mm O/D cable and connections from ballast, mains etc. are made to a terminal block, GT 1364 (each terminal capacity being 1 x 6mm²) which is used on both ignitors.

LAMPHOLDER: GL 1198.

RANGE (Lamps ordered separately)

Cat. no.	Description	Weight kg	Projected area m ²
OQ 1000	1kW CSI floodlight c/w standard ignitor, less glass	8.0	0.07
OQ 1000 HR	1kW CSI floodlight c/w hot restart ignitor, less glass	8.0	0.07



MOUNTING: using the stirrup OQA (ordered separately) or the OQB-4 4 way bracket (also ordered separately).

See Floodlighting Accessories section for further information.

LAMPS

(i) 1000W CSI PAR 64 sealed beam discharge lamp ref: 99-1222 which should be used only in the OQ 1000 luminaire.

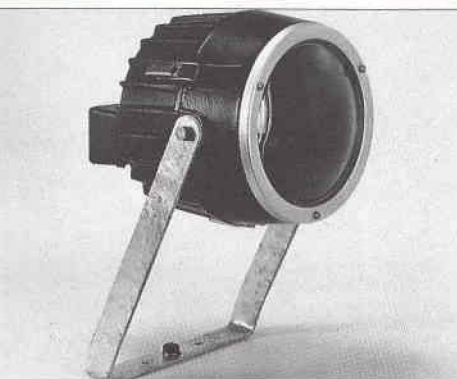
(ii) 1000W CSI PAR 64 sealed beam hot restrike discharge lamp ref: 99-1422 which should be used only in the OQ 1000 HR luminaire.

CLASSIFICATION FOR PROTECTION IP54 ▲

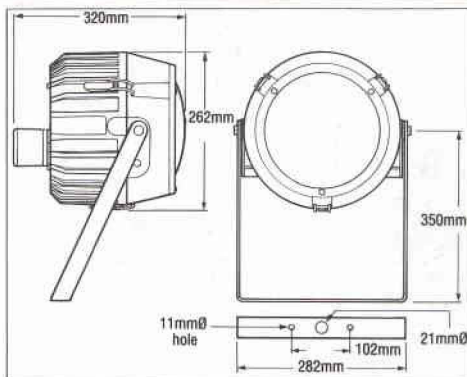
Against electric shock: Class 1 earthed metalwork. Against ingress of moisture or dust: IP54, splashproof and dust-proof, ta 35°C. Complies with BS4533:102-5

CONTROL GEAR

Details of control gear to be used with this luminaire can be obtained from the relevant catalogue section.



OSQC 500



APPLICATIONS

Specialist floodlighting installations where a tungsten halogen lamp is preferred and a long, narrow beam pattern is required.

DESCRIPTION

MAIN BODY: constructed of a two part aluminium casting with mounting lugs on the front section. The rear section which houses the lampholder is removable for re-lamping without disturbing the aiming angle. Both sections are secured by three equally spaced stainless steel toggles.

FRONT GLASS: narrow beam angle glass supplied with the fitting. 4 other front glasses of progressively wider beam angles are available as optional extras.

WIRING BOX: injection moulded black polyester PBT. Houses 3 way terminal block GT 1393/3 each terminal being suitable for 2.5mm² cable. Available as a replacement item under Catalogue number ODA.

WIRING BOX GASKET: closed cell sponge.

WIRING ENTRY: via a moulded M20 cable gland suitable for 8 - 12 mm o/d cable.

LAMPHOLDER: GL 1177

MOUNTING: using the stirrup supplied with the fitting (Catalogue number OQA) or the OQB4 four-way bracket (ordered separately). See *Floodlighting Accessories* section for further information.

LAMPS: (ordered separately)

- (i) M40 500W tungsten halogen lamp
- (ii) M38 300W tungsten halogen lamp

CLASSIFICATION FOR PROTECTION IP54

Against electric shock: Class 1 earthed metalwork.

Against ingress of moisture or dust: IP54, splashproof and dustproof to 35°C.

Complies with BS4533:102-5.

RANGE (lamps ordered separately)

Cat. no.	Description	Weight kg	Projected Area m ²
OSQC 500	Narrow beam floodlight with clear front glass and OQA stirrup	7.2	0.07



SONPAK 7

APPLICATIONS

A low cost discharge floodlight complete with integral control gear and 70W SON-T lamp, particularly suited for security applications, car parks, loading areas, building perimeters, precinct areas etc. where long burning hours are required with economical running.

DESCRIPTION

MAIN BODY: white, one piece glass re-inforced plastic (GRP) moulding, with integral control gear.

REFLECTOR: diffuse aluminium with end reflectors.

LAMPHOLDER: GL 1194 E.S. - porcelain

FRONT VISOR: clear injection moulded polycarbonate hinged to main body by a single stainless rod. Available as a replacement item under Catalogue number OTV.

CABLE ENTRY: via a combined 20mm cable gland/clamp positioned at the base. Gland capable of accommodating cable 8-13mm in diameter.

MAINS TERMINAL BLOCK: GT 1364/3 situated on gear tray. Maximum cable capacity 1 x 6mm² per terminal.

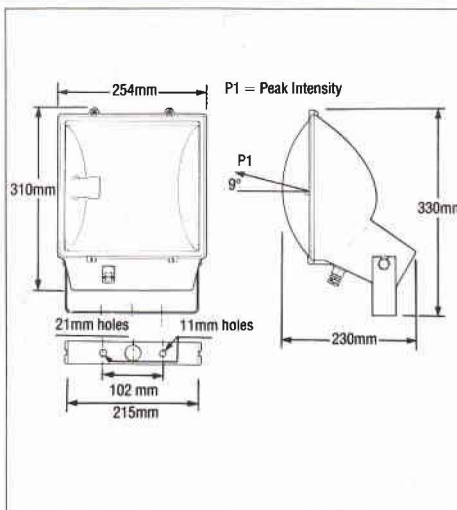
STIRRUP: 3mm Zintec finished with powder coat black paint.

MOUNTING: direct stirrup mounting or in conjunction with the mounting accessories shown in the Floodlight or Column Accessories sections. Note that 2 and 3 luminaires may be respectively mounted to a THORN EMI 5 metre column (Catalogue Number QCO) using QFBOT, QF B2 and QFB 3SC (in conjunction with QCS 76) mounting brackets.

RANGE (Lamp supplied with luminaire)

Cat. no.	Description	Weight kg	Projected area m ²
QT 70-T	SONPAK 7 floodlight complete with 70W SON-T lamp and pre-wired for 240V 50Hz operation.*	5.25	0.075

*Other voltages and frequencies to special order.



LAMP TYPE: 70W SON-T see page number ●● for further details.

CLASSIFICATION FOR PROTECTION IP65

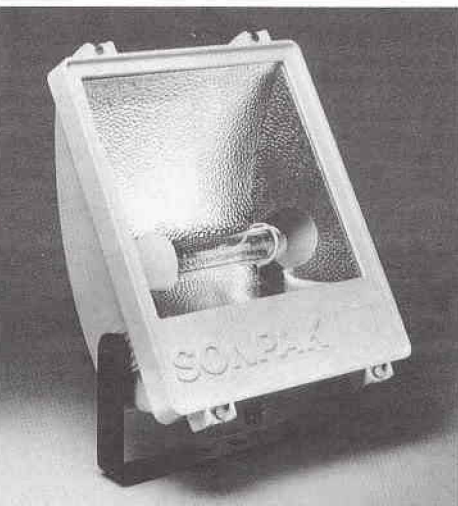
Against electric shock: Class 1 - earthed metalwork.

Against ingress of moisture or dust: IP65, dust-tight and jetproof.

Complies with BS 4533:102-5. For further information on this luminaire please request data sheet 3:0T1 from your local THORN EMI Lighting Sales Office.



QCO, QCBOT, QT 70-T



OT 250(SONPAK 25)

APPLICATIONS

General floodlighting of car parks, industrial areas, etc.

DESCRIPTION

BODY: white one piece glass reinforced plastic (GRP) moulding, with integral control gear.

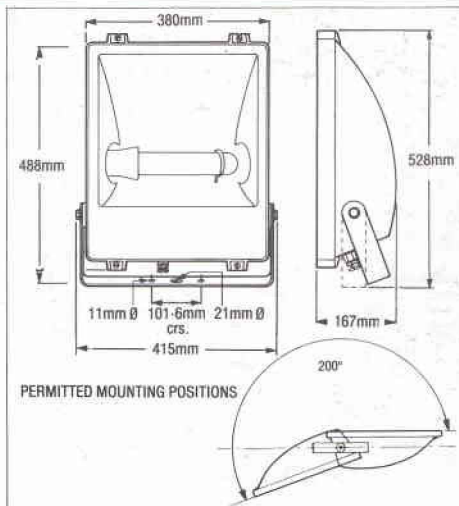
FRONT FRAME ASSEMBLY: 4mm toughened soda lime flat glass secured in GRP frame hinged and secured to main body by four stainless steel slotted head swivel bolts. Weather proofing is provided by a silicone rubber gasket between main body and front frame assembly. Available as a replacement item under Catalogue number OTF.

REFLECTOR ASSEMBLY: dimpled anodised aluminium. Note that a specular reflector is available to achieve a narrow beam performance under Catalogue number OTS.

LAMPHOLDER: GES, porcelain, skirted, E40. Catalogue number GL 1196

CABLE ENTRY: via a combined 20mm cable gland/cord grip. Gland capable of accommodating cable 8 - 13mm in diameter.

TERMINAL BLOCK: Situated on gear tray. Maximum cable capacity 1 x 6mm² per terminal Catalogue number GT 1364/4.



STIRRUP: manufactured from 5mm zinc plate and passivated mild steel, finished with powder coat black paint.

MOUNTING: direct stirrup mounting or in conjunction with the mounting accessories shown in the *Floodlighting accessories* section. Note: suitable 5, 8, 10 and 12 metre columns and brackets shown in *Column* section. Note that stirrup is not removable. Permitted mounting positions are according to the diagram above.

LAMP TYPE: 150/250W SON-T/SONDL-T/SONS-T. Note that it is not possible to use elliptical lamps of equivalent ratings for replacement purposes.

CONTROL GEAR: These 2 luminaires use special cool running ballasts. If replacements are required only original types should be used. For further details see the *Discharge Gear* Section.

CLASSIFICATION FOR PROTECTION IP65 ▲

Against electric shock: Class 1 earthed metalwork.

Against ingress of moisture or dust: IP65 dust-tight and jetproof. Complies with BS4533:102.5.

For further information on these luminaires please request data sheet 3:OT.2 from your local THORN EMI Lighting sales office.

RANGE

Cat. no.	Description	Weight kg	Projected area m ²
OT 150-4	SONPAK 15 floodlight c/w 150W SON-T lamp for operation on 240V 50Hz	11	0-175
OT 250-4	SONPAK 25 floodlight c/w 250W SON-T lamp for operation on 240V 50Hz	12-75	0-175

FLOODLIGHTING ACCESSORIES

RANGE

Cat. no.	Description	Figure (See overleaf)	Weight kg
OHA 4600*	51mm O/D spigot cap	1	0.24
OHA 4601*	Multi-use mounting bracket	2	0.34
OHA 4602†	Pair of 'U' clamps for use with OHA 4601	3	0.11
OHA 4603	Cross-arm bracket for 51mm O/D pole	4	1.3
OHA 4604	Floor bracket and spigot	5	0.48
OHA 4612*	76mm O/D spigot cap	1	0.35
OHA 4613	Universal pole clamp for 48-89mm O/D poles	6	0.48
SUB‡	Wall mounting support bracket	13	0.2
SUP‡	Pole clamp for 51mm O/D poles	10	0.15
SUC	Corner wall bracket	8	0.34
OAB 36	76mm dia. spigot/bracket with 152mm projection	12	13.4
OAB 310	76mm dia. spigot/bracket with 254mm projection	12	17.6
OAM	Stirrup assembly comprising stirrup, blanking plate and gland for 8-12mm O/D cable	16	1.87
OASA	Adaptor for 51mm spigot poles	17	0.46
OQA	Stirrup assembly	15	1.0
OQB4	Mounting bracket for up to 4 floodlights	14	2.49
M25 BPJ	Base plate	11	0.36
EKB	Flat wall bracket	9	0.1
EKC	Corner wall bracket with 89mm outreach	7	0.3
QFBOT	Direct mounting floodlight to THORN EMI GpB column shaft	Page 202	
QFB2	Direct mounting 2 floodlights on THORN EMI GpB column shaft	Page 202	

RANGE

Cat. no.	Miniflood	Sunflood	Haline 5/10/15	Sonline 400	SONPAK 7	SONPAK 15/25	Area flood	OQ 1000	M25 'Junior
OHA 4600*		•	•		•				
OHA 4601*			•		•				
OHA 4602†			•		•				
OHA 4603		•	•		•				
OHA 4604			•		•				
OHA 4612*		•	•		•				
OHA 4613				•	•	•		•	
SUB‡		•	•						
SUP‡		•	•						
SUC	•	•	•		•				
OAB 36							•		
OAB 310							•		
OAM							•		
OASA							•		
OQA								•	
OQB 4								•	
M25 BPJ									•
EKB	•	•							
EKC	•	•	•		•				
QFBOT			•		•	•§			
QFB2			•		•§				

For further details on luminaires on this page please refer to the relevant data sheets which are available on request from your local THORN EMI Lighting office.

* Pack includes Hex head steel bush, washer and nut.

† Pack includes 2 bushes, washers, nuts and a pair of OHA 4602 clamps.

• Indicates that the luminaire may be used with the mounting accessory.

‡ Pack includes 20mm combined cable gland/clamp.

The SUB may be used in conjunction with SUA pole clamp for mounting luminaires to 60 mm diameter poles
§ QCO shaft only

OHA 4600 12
51 x 51mm spigot cap
OHA 4612
76 x 76mm spigot cap



Fig. 1

OHA 4601
Wall-floor-pole
mounting bracket

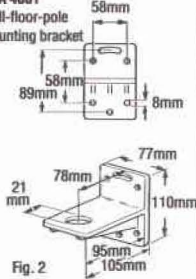


Fig. 2

OHA 4602 1/4in BSW
Pair of clamps
for 51mm
O/D pole

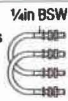


Fig. 3

OHA 4603
Cross arm
mounting

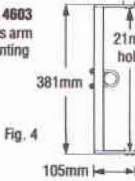


Fig. 4

OHA 4604
Floor mounting
with azimuth
adjustment

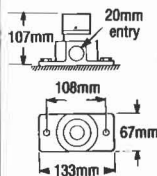


Fig. 5

OHA 4613
Universal
pole clamp

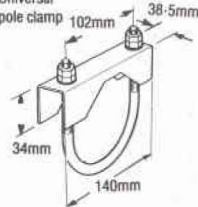
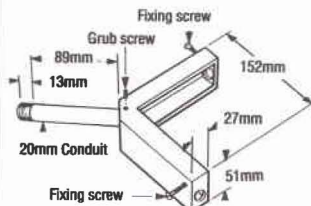
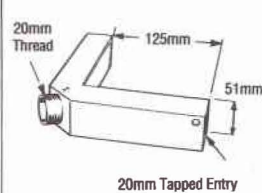


Fig. 6



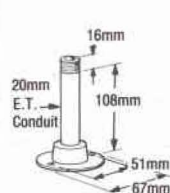
EKC corner bracket

Fig. 7



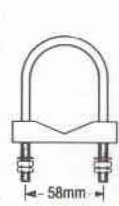
SUC corner wall bracket

Fig. 8



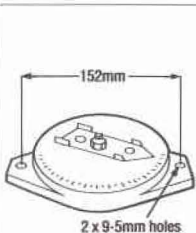
EKB wall bracket

Fig. 9



SUP pole clamp

Fig. 10



M25 BPJ base plate

Fig. 11

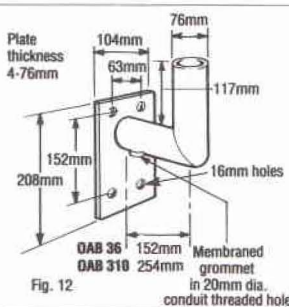
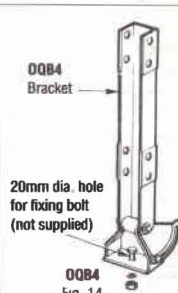


Fig. 12



SUB mounting bracket

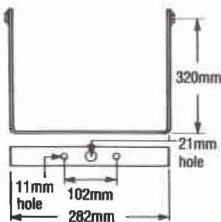
Fig. 13



**OQB4
Bracket**

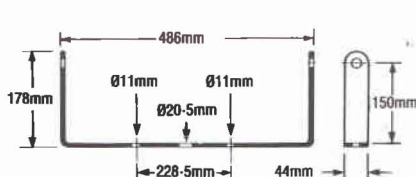
OQB4

Fig. 14



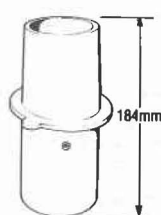
OQA

Fig. 15



OAM

Fig. 16



OASA (Spigot adaptor)

Fig. 17



EMF 1200 TOP ENTRY WITH EKR 200 REFLECTOR AND EKB BRACKET

APPLICATIONS

General or localized lighting in outdoor industrial situations.

DESCRIPTION

SCREW NECK GALLERY: aluminium alloy, for top or side entry, also top BESA box mounting.

GLASS: two sizes for a) 100W version and b) 200W version. Common screw neck detail to match galleries. Internally etched and fitted with a weatherproof seal.

REFLECTOR: optional. White nylon which fits over screw neck. Available in both sizes.

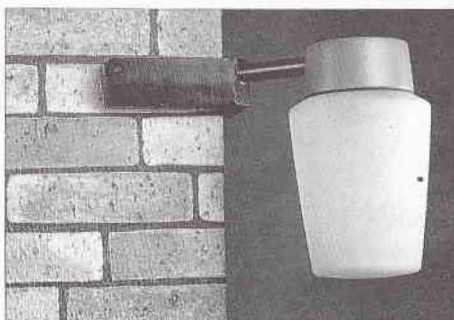
MOUNTING: wall or corner brackets, or direct to BESA box.

LAMPS: 60W — 200W GLS; 50W and 70W SON; 80W and 125W MBF (with appropriate control gear — see **Control gear and accessories** section).

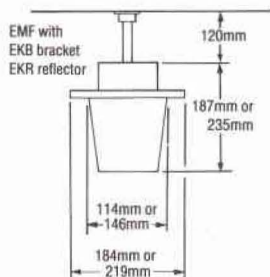
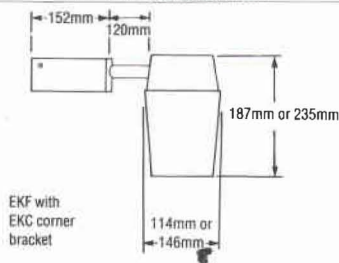
CLASSIFICATION FOR PROTECTION IP23 ▲

Against electric shock: Class 1 — earthed metalwork. Against ingress of moisture: IP23, rainproof. Complies with BS 4533:101-4.

RANGE Lamps ordered separately



EKF 100 SIDE ENTRY USING EKC CORNER BRACKET



Cat. no.	Description	Weight kg
EKF 1100	Wellglass, side entry with BC lampholder for 60/100W GLS	0.90
EMF 1100	Wellglass, top entry with BC lampholder for 60/100W GLS	0.90
EKF 1200	Wellglass, side entry with ES lampholder for 150/200W GLS, 80/125W MBF and 50/70W SON	1.02
EMF 1200	Wellglass, top entry with ES lampholder for 150/200W GLS, 80/125W MBF and 50/70W SON	1.02
EKR 100	Reflector for EKF/EMF 1100	0.06
EKR 200	Reflector for EKF/EMF 1200	0.09
EKB	Wall bracket	0.13
EKC	Corner bracket	0.34
EKG 100	Replacement glass for EKF/EMF 1100	0.57
EKG 200	Replacement glass for EKF/EMF 1200	0.90

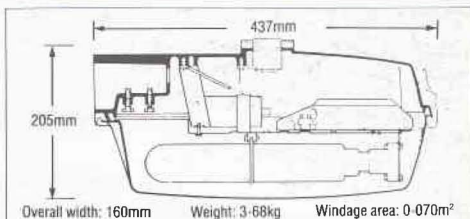


SOXPAK 35

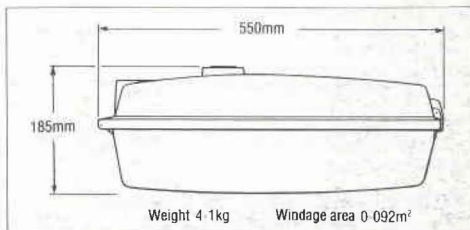
deal for all night security lighting, these kits are one box packs containing wall bracket (suitable for flat wall or corner mounting), photocell, lamp and luminaire complete with ignitor gear and socket or photocell. SOXPAK 35 has the 35W SOX lamp and SOXPAK 55 the 55W SOX lamp.

RANGE

Cat. no.	Description
OK 35	SOXPAK 35 containing luminaire, bracket, photocell, 35W SOX lamp and gear
OK 55	SOXPAK 55 containing luminaire, bracket, photocell, 55W SOX lamp and gear

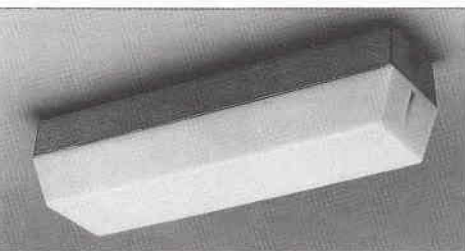


SOXPAK 35



SOXPAK 55

ESCORT BULKHEAD



OB2008/3008 FLUORESCENT BULKHEAD

OB2008/3008 FLUORESCENT BULKHEAD

BODY: pressure die-cast aluminium alloy with hammer grey stove enamelled finish. 20mm tapped entry conduit in each end, supplied with plugs. Suitable for through wiring. Centre knock-out in back for conduit, and drill locations for fixing holes.

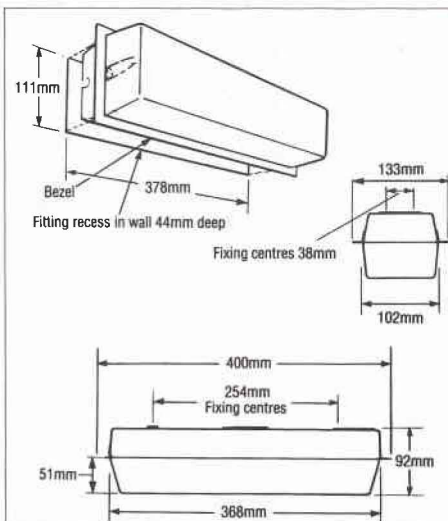
DIFFUSER: OBD type acrylic and OBV type vandal-resistant. Secured by two captive screws. A bezel trim is available for recessed applications.

CONTROL GEAR: switchstart for 2 or 3 fluorescent tubes.
(HPF 2 - lamp versions available to special order.)

CLASSIFICATION FOR PROTECTION IP23

Against electric shock: Class 1-earthed metalwork.

Against ingress of moisture or dust: OB-IP23, rainproof. Complies with BS 4533:2-2.

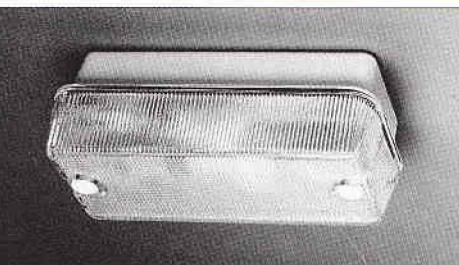


LAMPHOLDER: GB 1598

LAMPS: supplied with 300mm 8W T5 fluorescent tubes

RANGE

Cat. no.	Description	Weight kg
OB2008	Escort fluorescent bulkhead, acrylic diffuser c/w 2 x 8W tubes	2.03
OB2008	Escort fluorescent bulkhead, acrylic diffuser c/w 3 x 8W tubes	2.26
OBV2008	Escort fluorescent bulkhead, vandal resistant diffuser c/w 2 x 8W tubes	2.03
OBV2008	Escort fluorescent bulkhead, vandal resistant diffuser c/w 3 x 8W tubes	2.26
OB2008	Spare acrylic diffuser	0.68
OBV2008	Spare vandal resistant diffuser	0.68
OB/FV	Spare key	0.01



APPLICATIONS

Outdoor amenity lighting of public, commercial and industrial premises.

OLG/OLV 1100 TUNGSTEN BULKHEAD

BODY: Pressure die-cast aluminium alloy with white stove enamelled finish, 21mm knock-out for conduit entry at one end and provision for BESA box and conduit entry at the back. Gasket seals to glass for weatherproofing.

DIFFUSER: Either glass OLG or vandal-resistant OLV retained by two captive vandal-resistant nylon screws. Special key supplied

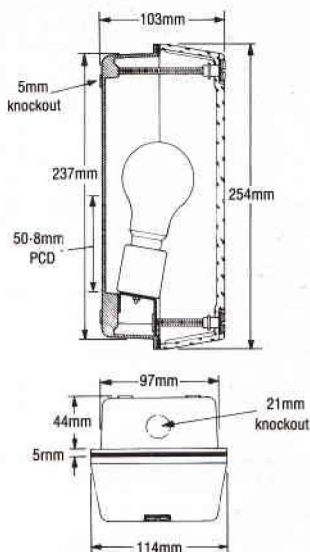
LAMPHOLDER: BC version GL 1159, ES version GL 1131.

LAMPS:

10W to 100W GLS (order separately).
60W max. in case of OLV 1100)

CLASSIFICATION FOR PROTECTION IP65

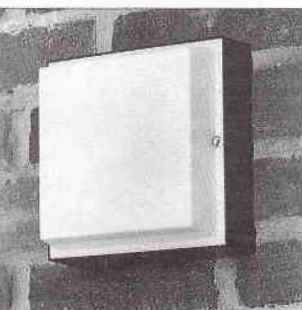
Against electric shock: Class 1 —earthed metalwork. Against ingress of moisture or dust: IP65, rainproof. Complies with BS 4533:102-1.



RANGE

Cat. no.	Description	Weight kg
OLG 1100 BC	Escort tungsten bulkhead with BC lampholder	1.13
OLG 1100 ES	Escort tungsten bulkhead with ES lampholder	1.13
OLV 1100 BC	Escort tungsten bulkhead with vandal resistant diffuser	0.65
OLG 4800	Spare glass diffuser (c/w fixing screws and key)	0.75
OLG 4801	Spare set of fixing screws and sealing washers for OLG 1100	0.02
OLV 4800	Spare vandal resistant diffuser	0.15

2D BULKHEAD 16W ▲



BULKHEAD LUMINAIRE IP65 ▲

For internal or external applications with long life and low energy consumption. Has an injection moulded black polycarbonate body and opal diffuser secured by two special retaining screws with a triangular head (a special key is provided). Packed with 16W 2D lamp. Suitable for wall or ceiling mounting. Complies with BS4533:102.1 (IP 65 dustproof and jet proof).

A prismatic diffuser version of the 16W bulkhead is also available (Catalogue number 2D FC 16).

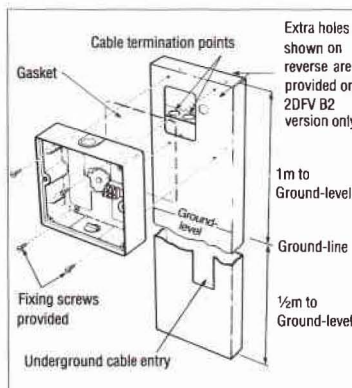
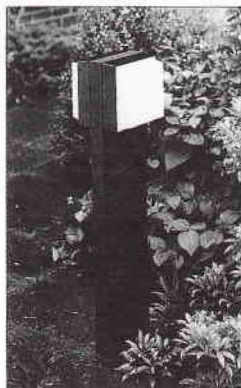
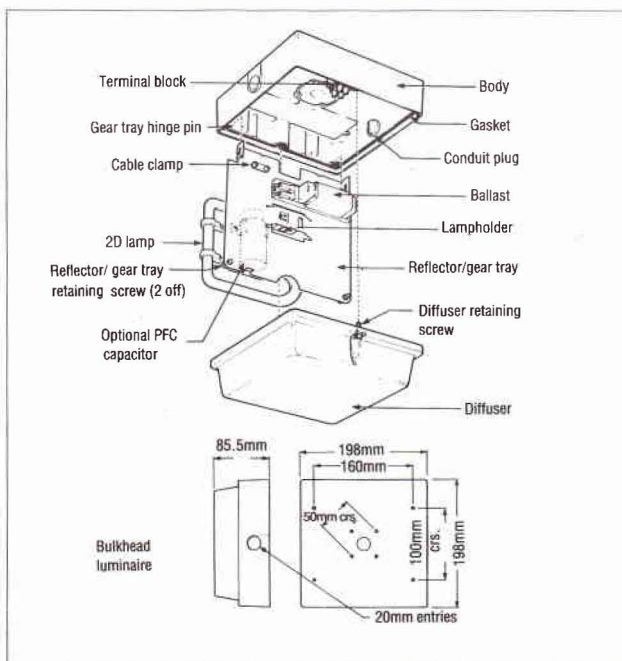
FIXING/CABLE ENTRY: side entries are 20mm threaded, supplied with flush finish tamper resistant screw-in blanking plugs. Provision at back for BESA fixing or cable entry with alternative fixing centres.

BOLLARD

A special bollard is available for mounting the bulkhead 1 metre above ground on pathways etc. Made from heavy duty aluminium extrusions finished in black polyester paint.

PHOTOCELL BULKHEAD

A bulkhead 16W which automatically switches on at dusk and off at dawn (Catalogue number 2D FVP 16).



RANGE

Cat. no.	Description	Lamp watts	Weight kg
2D FV 16	Bulkhead c/w 16W 2D lamp and gear	16	1.10
2D FV 16 HPF	Bulkhead c/w 16W 2D lamp and HPF gear	16	1.12
2D FV B1	Bollard for single 2D bulkhead		
2D FV B2	Bollard for twin 2D bulkhead		
2D FV P16	2D vandal resistant bulkhead with integral photocell (L.P.F. only)		
0BFV	Replacement security key		

Road Lighting Numbering System	184
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Alpha Nine SOX	187
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Beta Four SON/MBF	188
Beta Five SOX/SON	189
Beta Seventy-nine SON/MBF	189
Gamma Three SON/MBF	190
Gamma Four SON/MBF Multi-lamp	190
Gamma Five SON/MBF	191
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Floodlighting brackets for Group A Aluminium Lighting Columns	198
Group B Leader and Lucerna Aluminium Columns	199
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Brackets and Spigot castings for Group B columns	202
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ROAD LIGHTING NUMBERING SYSTEM

BASIC PRINCIPLE

1. All items of road lighting equipment are catalogued with prefix Q. This automatically locates the whole range in the same section of the Comprehensive Price List for easier location. It also gives an immediate statement of equipment type.

2. Second and third digits are initial letter and number of the lantern in the range description, e.g. A3=Alpha 3, B4=Beta 4, G3 = Gamma 3 etc.
Alpha—Group A lighting, side entry.
Beta—Group B lighting, side or top entry.
Gamma—Post-top lanterns.

3. A standard vocabulary of suffix letters, indicative of type detail, with or without gear, accessories or attachments etc., is included as appropriate in the Catalogue number. See below secondary ref.

4. A system of four-digit numbers indicating no. of lamps and maximum wattage. (see below).

5. Where components making up a lantern are supplied as separate packages, each package has a Catalogue number.

6. When producing a complete luminaire Catalogue number, separate packages are indicated by an oblique stroke/. An example would be the Gamma Six lantern.
Gamma Six base casting with integral 125W QG6B1125-4
240V gear: Gamma Six 20in. dia canopy QG6W.
Gamma Six vandal resistant bowl QG6V.
The complete Gamma Six lantern becomes: QG6V/W/B1125-4

SECONDARY REFERENCES:

- B. With gear
- C. Cut off
- D. Acrylic bowl/diffuser/cylinder— clear or semi-obscured with or without refractor plates.
- E. Support assembly
- F. Small canopy
- G. Glass flat or bowl— clear or refractor
- H. Bowl ring (replacement items only)
- I. Kolorarc (MBIF)
- J. Canopy with lugs—enclosed type.
- L. Lampholder/bracket assembly—GL, lampholder only
- M. Bowl—stippled, pinspot or special
- N. High pressure sodium (SON)
- O. Bowl or cylinder—opal
- P. PE cell socket
- S. Semi cut-off
- T. Top entry
- V. Vandal resistant bowl—clear, opal or prismatic
- W. Large canopy or canopy and bowl now packed separately
- X. Refractor ring, symmetric
- Y. Refractor ring, asymmetric—glass or plastic

SUFFIX NUMBERS—LAMPS AND WATTAGES

- 1028—1 x 28W
- 1035—1 x 35W
- 1050—1 x 50W
- 1055—1 x 55W
- 1070—1 x 70W
- 1080—1 x 80W
- 1090—1 x 90W
- 1100—1 x 100W
- 1125—1 x 125W
- 1135—1 x 135W
- 1140—1 x 140W
- 1150—1 x 150W
- 1200—1 x 200W
- 1250—1 x 250W
- 1400—1 x 400W
- 2240—2 x 600mm 40W tubes

Where more than one lamp is available for a luminaire, the largest wattage is used for the reference number.

SUFFIX NUMBERS—CONTROL GEAR

- .4—240V 50Hz
- .T—Tapped (supplied tapped for 240V)
- .A—Ignitor circuit

SUFFIX NUMBERS—LAMP HOLDERS

- B22—2BC
- E27—ES

Mainly for reference information only.

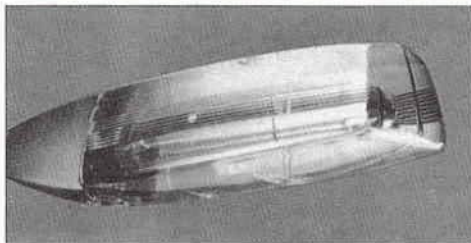
NOTE: The above vocabulary is provided for reference information only. When ordering please refer to Catalogue numbers given on appropriate lantern page.

ALPHA ONE

SEMI-CUT-OFF SOX

ALPHA THREE

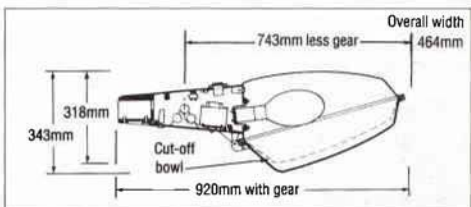
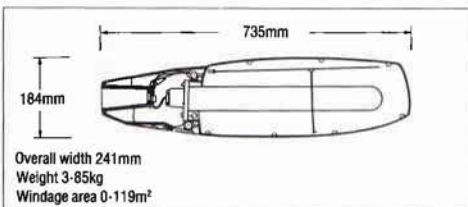
SON/MBF



QA1 E/D 1090



QA3 D/WS 1400



LAMPS
55W or 90W SOX.

DISTRIBUTION
Semi Cut-off DLORL 70%

SPECIFICATION IP23/54 ▲
To BS 4533, Safety Marked, Kite Marked, DTP and Design Council approved. IP54 optics. Die-cast aluminium alloy end support with injection moulded clear acrylic and hermetically sealed 'opticell' enclosure. Other external components are stainless steel or aluminium. Control gear is mounted remotely.

MOUNTING
Side entry for 42mm dia. x 110mm (1 1/4 in BSP) spigot. Recommended for mounting height: nominal 6-8m. Recommended column: QCB. Average spacing/height ratio: 4:1.

PACKAGES
End support and opticell make complete lantern.

RANGE	
Cat. no.	Description
QA1 E	End support assembly
QA1 D 1055	55W SOX opticell
QA1 D 1090	90W SOX opticell
QA1 PE	End support c/w photocell socket

Control gear/circuit data see control gear and accessories section.



QCB, QCB 1125,
QA1 D 1090,
QA1 E + gear

LAMPS
400W SON-E or 400W MBF

DISTRIBUTION
(a) Cut-off (b) Semi-cut-off

SPECIFICATION ▲
To BS 4533, Safety Marked, Kite Marked, DTP and Design Council approved. Aluminium canopy. Die-cast aluminium end support/gear slipper. Clear UV stabilised acrylic bowls.

MOUNTING
Side entry for 42mm dia. x 110mm (1 1/4 in. BSP) spigot. Recommended for mounting height: 10-12m. Recommended columns: QC10 or QC12. Average spacing/height ratio: 4.5:1 (SCO) 3:1 (CO).

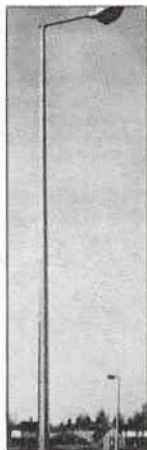
CATALOGUE NUMBER
All lanterns comprise fully assembled canopy with bowl in separate pack. For lanterns with 3 pin photocell socket add P after C or S in Catalogue number of canopy.

BOWLS	
QA3 DS	Bowl for SCO Alpha 3
QA3 DC	Bowl for CO Alpha 3

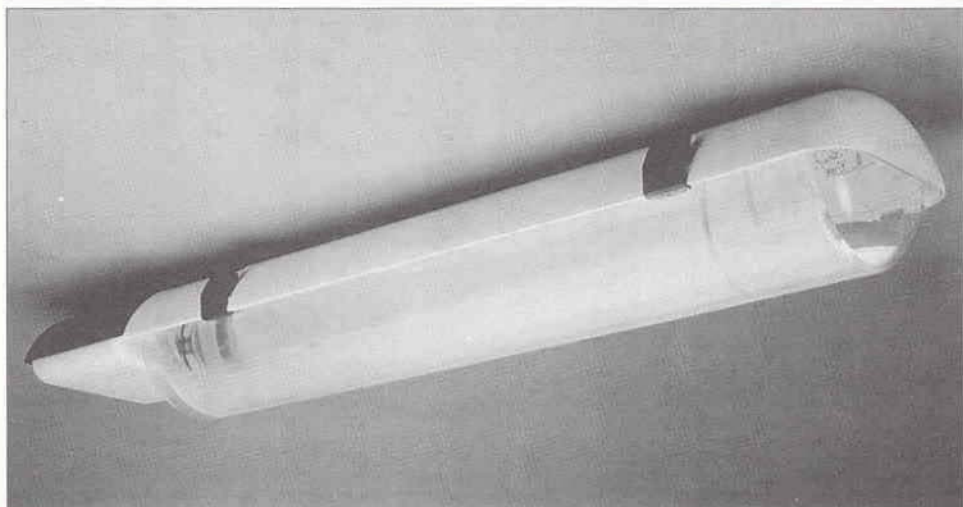
CANOPIES LESS GEAR

Cat. no.	Description	Windage area m²	Weight kg. inc. bowl
QA3 WS 1400	SCO canopy	0.17	5.44
QA3 WC 1400	CO Canopy	0.162	4.76
Canopies with gear			
QA3 WSB 1400-4	SCO 400W MBF	0.198	12.56
QA3 WSNB 1400-T	SCO 400W SON	0.198	14.4
QA3 WCB 1400-4	CO 400W MBF	0.189	11.88
QA3 WCNB 1400-T	CO 400W SON	0.189	13.72

Canopy and separate bowl make complete lantern. Other versions available.



QC10, QCB 1125,
QA3 WS 1400,
QA3 DS + gear



QA4S 1135

LAMPS

90W or 135W SOX

SPECIFICATION

Complies with BS 4533 'Safety Mark'; Kitemark. Canopy moulded in glass re-inforced plastic (GRP) with aluminium ie cast spigot entry in versions for remote or integral control gear. Injection moulded acrylic bowl.

MOUNTING

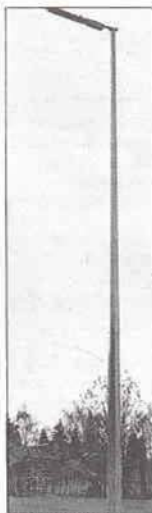
Side entry for 42mm dia. x 100mm (1 1/4 in. BSP) spigot. Recommended mounting height: 10 or 12m. Suitable columns: QC 10 and QC 12.

PACKAGES

Complete lantern in one pack.

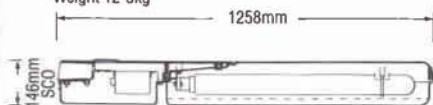
CONTROL GEAR/CIRCUIT DATA

See control gear and accessories section.

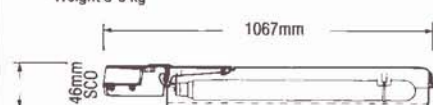


QC10, QCB 1075,
QA 4SB 1135-4

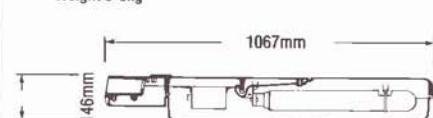
- 1 Windage area 0-17m²
Weight 12-5kg



- 2 Windage area 0-14m²
Weight 5-0 kg



- 3 Windage area 0-14²
Weight 5-0kg



RANGE

Cat. no.	Description	Weight kg
QA4 S 1135	Lantern, SCO c/w bowl	5-0
QA4 SB 1090-4	Lantern, SCO c/w bowl and 90W SOX gear	10-4
QA4 SB 1135-T	Lantern, SCO c/w bowl and 135W SOX gear	12-5
QA4 C 1135	Lantern, CO c/w bowl	5-0
QA4 CB 1135-T	Lantern, CO c/w bowl and 135W SOX gear	12-5

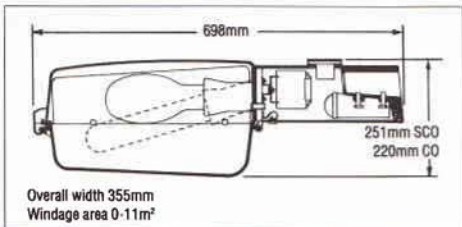
Note: For versions wired complete with photocell socket insert 'P' in cat. no. e.g. QA4 SP 1135.

RANGE

Spares	Description
QA4DS	Spare bowl SCO
QA4DC	Spare bowl CO



QA8 WNB 1150.T & QA8 DS



LAMPS

150W or 250W SON-T
150W or 250W SON-E
250W MBF

DISTRIBUTION

Semi Cut-off DLORL 81%
Cut-off DLORL 81%

SPECIFICATION IP23/54

Complies with BS 4533:2-7, Safety Marked, Kite Marked. Complete with integral control gear. Clear injection moulded acrylic bowl. Optical compartment IP54.

MOUNTING

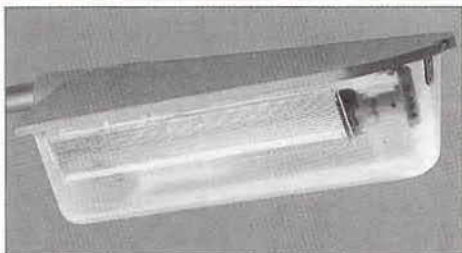
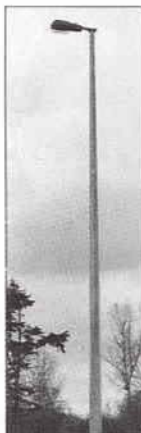
Side entry for 42mm dia. x 100mm (1 1/4 in. BSP). Recommended for mounting height: 8, 10 or 12m. Suitable columns: QC8, QC 10, QC 12.

PACKAGES

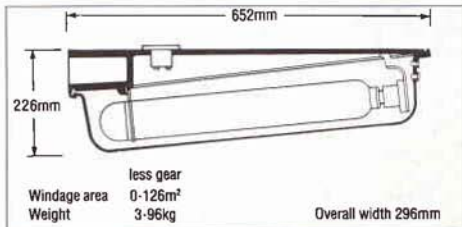
Canopy assembly and separate bowl make complete lantern.

CONTROL GEAR/CIRCUIT DATA

See control gear and accessories section.



QA9 D/W 1090



LAMP

90W SOX

DISTRIBUTION

Semi-cut-off DLORL 74%

SPECIFICATION

To BS 4533, Safety Marked, Kite Marked, DTP approved. Aluminium alloy canopy and impact resistant bowl.

MOUNTING

Side entry for 42 x 100mm spigot. Recommended mounting height: 8m. Recommended column: QC8. Average spacing/height ratio: 4-5:1

PACKAGES

Canopy assembly and separate bowl make complete lantern.

CONTROL GEAR/CIRCUIT DATA

See control gear and accessories section.



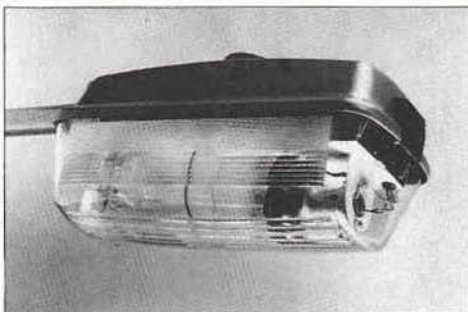
RANGE

Cat. no.	Description	Weight kg
QA8 WNB 1150.T	Canopy, c/w 150W SON gear SCO	8-5
QA8 WCNB 1150.T	Canopy, c/w 150W SON gear CO	8-5
QA8 WNB 1250.T	Canopy, c/w 250W SON gear SCO	9-5
QA8 WCNB 1250.T	Canopy, c/w 250W SON gear CO	9-5
QA8 WB 1250.4	Canopy, c/w 250W MBF gear SCO	9-3
QA8 WCB 1250.4	Canopy, c/w 250W MBF gear CO	9-3
QA8 DC	Bowl for Alpha 8 lantern CO	0-9
QA8 DS	Bowl for Alpha 8 lantern SCO	1-0

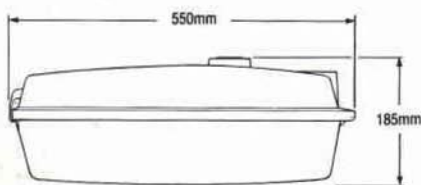
For versions wired complete with photocell socket insert 'P' in cat. no. e.g. QA8 WPNB 1150-T.

RANGE

Cat. no.	Description
QA9 W 1090	Canopy assembly (less gear).
QA9 WB 1090-4	Canopy assembly (with gear).
QA9 D	Bowl for less gear lantern.
QA9 DWB	Bowl for QA9 WB 1090.
QA9 DB	Replacement bowl for obsolete QA9 B 1090.



QB2V/B 1055.4A



Windage area 0.092m²
Weight 4.1kg

LAMP 55W SOX.

SPECIFICATION ▲

To BS 4533. Pressure die-cast aluminium alloy canopy/gear housing and injection moulded vandal-resistant bowl. Lanterns complete with low loss ignitor circuit. Sealed to IP54.

MOUNTING

Side entry for 34mm dia. x 80mm spigot. Recommended mounting height: 5m or 6m. Recommended column: QC3 with QCBS 534 bracket. Average spacing/height ratio: 6:1.

PACKAGES

Canopy and separate bowl make complete lantern. For lanterns with 3-pin photocell socket, add P after 2 in Catalogue number of canopy.

CONTROL GEAR/CIRCUIT DATA

See control gear and accessories section.

RANGE

Cat. no.	Description
QB2B 1055-4A	Side entry canopy with gear
QB2 V	Vandal resistant bowl

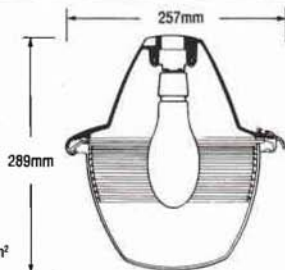
NOTE: SOXPAK 55 - one box containing wall bracket, photocell, lamp and Beta 2.



QC3, QCBS 534,
QB2B 1055-4A,
QB2V



QB4V/1200/E27



Windage area 0.047m²
Weight 1.70 kg

LAMPS 50W or 70W SON-E 80W MBF

SPECIFICATION ▲

Aluminium alloy canopy and UV stabilised vandal resistant refractor bowl. Control gear for SON and MBF lamps mounted remotely.

MOUNTING

Top entry for 3/4 BSP thread x 18mm. Recommended mounting height: 5m. Recommended column: QC3 with QCBT 226 bracket. Average spacing/height ratio: 6:1.

PACKAGES

Canopy and bowl make complete lantern.

CONTROL GEAR/CIRCUIT DATA

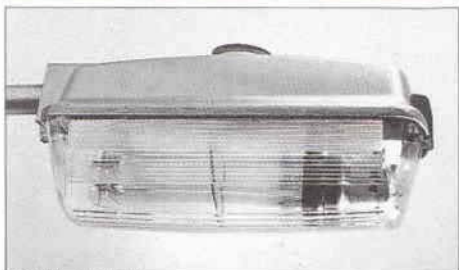
See control gear and accessories section.

RANGE

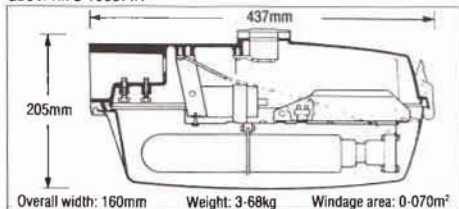
Cat. no.	Description
QB4 1200 E27	Canopy assembly
QB4 V	Vandal resistant refractor bowl
GL 1194-1	Spare lampholder (ES)



QC3, QCBT 226,
QB4 1200, QB4V
PLUS GEAR



QB5V/1in B 1035.4A



LAMPS

35W or 18W SOX
50W SON

SPECIFICATION

Safety Marked to BS 4533. Pressure die-cast Aluminium alloy canopy/gear housing and injection moulded vandal-resistant bowl. Sealed to IP 54. Gear can be mounted remotely. Note: 'With gear' lanterns complete with low loss ignitor circuit.

MOUNTING

Side entry for 34mm dia. x 80mm spigot. Top entry for 3/4 in BSP threaded. Also available to order 27mm side entry and 1in BSP top entry. Recommended mounting height: 5m. Recommended column: QC3 with QCBS 534 bracket. Average spacing/height ratio: 6:1.

PACKAGES

Canopy and separate bowl make complete lantern. For lanterns with 3-pin photocell socket, add P after 1in or 3/4in., in catalogue number.

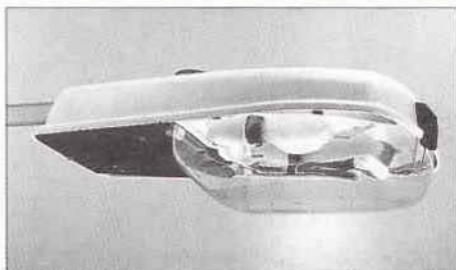
NOTE:

SOXPAK 35: Box containing wall bracket, QB51 in PB1035.4A, QB5V, 35W SOX lamp and QP photocell.

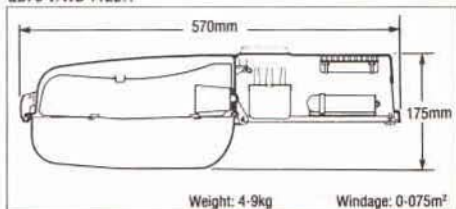
RANGE

Cat. no.	Description
QB5 1in 1035	Side entry canopy (less gear)
QB5 1in B1035-4A	Side entry canopy (with gear)
QB5T 3/4in B1035-4A	Top entry canopy (with gear)
QB5 1in NB 1050-T	Side entry canopy (with 50W SON gear)
QB5V	Vandal resistant bowl

Also available as 18W version Catalogue number QB5 1in B1018-4.



QB79 V/WB 1125.T



LAMPS

80W or 125W MBF
50W or 70W SON

SPECIFICATION

Safety Marked to BS4533. GRP canopy and injection moulded vandal resistant bowl. Control gear integral or remote. IP54 Optical compartment.

MOUNTING

Side entry for 34mm dia. x 110mm spigot.

PACKAGES

Complete lantern in one pack. For lanterns supplied with photocell socket add P after W in Catalogue no. All supplied complete with ES lampholder.

CONTROL GEAR/CIRCUIT DATA

See control gear and accessories section.



RANGE

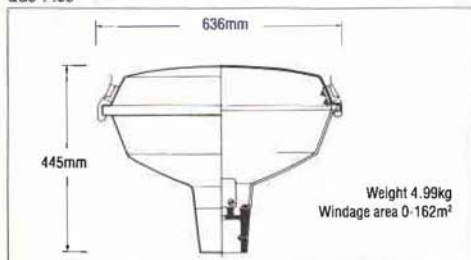
Cat. no.	Description
QB79V WNB 1050-T	Lantern and gear for 50W SON-E
QB79V WNB 1070-T	Lantern and gear for 70W SON-E
QB79V WB 1080-4	Lantern and gear for 80W MBF
QB79V WB 1125-T	Lantern and gear for 125W MBF
QB79V W 1200	Lantern without gear for use with remote gear
QB79V	Spare vandal resistant bowl

GAMMA THREE SON/MBF

GAMMA FOUR SON/ MBF MULTI-LAMP



QG3 1400



LAMPS
150W, 250W or 400W SON
250W or 400W MBF

SPECIFICATION

Design council approved. Aluminium alloy base, stove enamelled spun aluminium canopy and opal acrylic bowl with stainless steel toggle catches. Control gear mounted remotely.

MOUNTING

Post top mounting for 76 X 76mm spigot. Recommended mounting height: 8m.

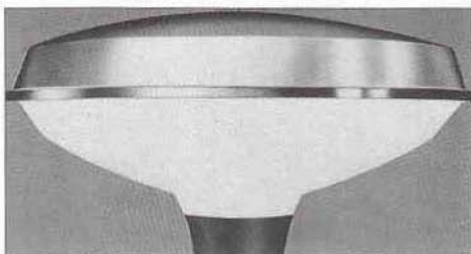
RANGE

Cat. no.	Description
QG3 1400	Complete lantern
Replacement packages	
QG3 0	Opal bowl
QG3 F	Canopy assembly

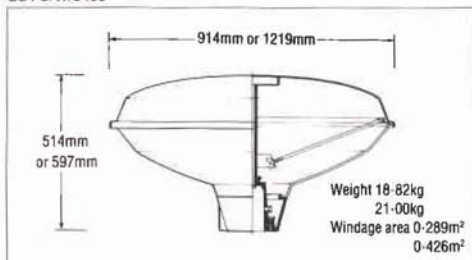


QC8/QFS1
QG3 1400 + GEAR

CONTROL GEAR/CIRCUIT DATA
See control gear and accessories section



QG4 0/W/3400



LAMPS
Two or three 150W, 250W or 400W SON
Two or three 250W or 400W MBF
Two or three 400W MBF

DISTRIBUTION

Symmetrical

SPECIFICATION

Design council approved. Two alternative widths of sheet aluminium canopy attached by stem to base casting assembly. Acrylic bowl. Control gear mounted remotely.

MOUNTING

Post top mounting for 76 X 130mm spigot. Recommended mounting height: 8m or 10m for 900mm lantern; 10m or 12m for 1200mm version.

Max. column diameter 113mm for a distance 300mm below spigot. Provide column with three radial pegs at this point.

Recommended column:
8m QC8G4, 10m QC10G4, 12m QC12G4

RANGE

Cat. no.	Description
900mm version	
QG4 3400	2 or 3 lamp stem assembly
QG4 F	900mm canopy
QG4 036	900mm bowl
1200mm version	
QG4 W3400	2 or 3 lamp stem assembly
QG4 W	1200mm canopy
QG4 0	1200mm bowl

Three packages for complete lantern.

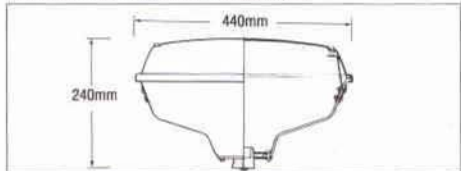
CONTROL GEAR/CIRCUIT DATA
See control gear and accessories section



QG4W 3400, QG4W
QG40 Q10G4



QG5 JD 1200/E27 WITH QCX BASE SUPPORT



LAMPS: 50W or 70W SON
80W or 125W MBF
DISTRIBUTION: symmetrical

SPECIFICATION: Design Council approved.
Acrylic enamelled spun aluminium canopy
with high impact acrylic bowl. Control gear
for discharge lamps mounted remotely.

MOUNTING: on QC3 (or other THORN EMI
Group B column) with QCX base support.
Recommended mounting height 5m.
Alternatively on columns having 76mm x
76mm spigot using QG5 E3X3 adaptor.

PACKAGES: body assembly, lampholder and
support casting make complete lantern.

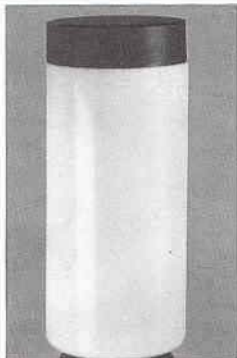
RANGE

Cat. no.	Description
QG5 JD1200	Body, lampholder support and clear bowl
QG5 E3 x 3	Support casting for 76mm x 76mm spigot
QCX	Support casting for THORN EMI column
GL 1194-1	Lampholder ES (E27)

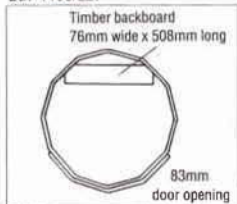
REPLACEMENTS

Cat. no.	Description
QG5 D	Clear bowl
QG5 J1200	Canopy

QC3, QCX, QG5 JD
1200 PLUS
LAMPHOLDER PLUS
GEAR



QG7 1100/E27



SECTION THROUGH COLUMN

Door opening length 457mm
Depth in ground 610mm
Cable entry 100mm x 50mm
situated 305mm below ground
level

LAMPS: 50W or 70W SON
80W MBF

SPECIFICATION: Design Council approved.
Aluminium alloy base casting and acrylic bowl
with spun aluminium top cap. Control gear
for discharge lamps mounted remotely.

MOUNTING: a) Pole top on QCG7 column
specially designed for this lantern. Nominal
column height 5m.
b) Wall bracket QPRK 1100.

RANGE

Cat. no.	Description
QG7 1100 E27	Complete lantern
QCG7	Aluminium column

REPLACEMENTS

Cat. no.	Description
QG7 O	Spare bowl
QG7 F	Spare top cap

Complete luminaire in one pack
CONTROL GEAR/CIRCUIT DATA: See Control
gear and accessories section.



SECTION THROUGH
LANTERN



QG7 1100 E27
LANTERN PLUS
GEAR ON QCG7
COLUMN

GAMMA SIX SON/GLS/MBF/SOX



QG6 V/F/PNB 1070.TC/W QP



QG6 V/W/NB 1070 T



Weight: 6.79kg
Windage area: 0.104m²



Catalogue number combinations for complete lanterns.

BASE CASTING ASSEMBLY



QG6 1200

Post-top base casting assembly, Less gear

QG6 B 1125.4

Post-top base casting assembly 125W MBF geared.

QG6 B 1080.4

Post-top base casting assembly 80W MBF geared.

QG6 NB 1050.T

Post-top base casting assembly 50W SON geared.

QG6 B 1035.4A

Post-top base casting assembly 35W SOX geared.

QG6 NB 1070.T

Post-top base casting assembly 70W SON geared.

CANOPIES



QG6 W

20in dia canopy



QG6 F

10.5in dia canopy

BOWL



QG6 V

Vandal-resistant bowl

REPLACEMENTS



GL 1085

2BC lampholder



GL 1194-1

ES lampholder



QP 1

Twist and lock photocell socket

QG 6T

Top cap

QG6T PT

Top cap for photocell version

QG6 PT

Top cap for pre-1983 photocell versions having metal bridge between support rods.

For lanterns requiring a photocell socket add P to base Catalogue number after QG6

LAMPS

50W or 70W SON
80W or 125W MBF
35W SOX

SPECIFICATION

Conforms to BS 4533 'Safety Mark'. Aluminium alloy case and aluminium alloy canopies with injection moulded vandal resistant bowl. Control gear for 'with gear' lanterns mounted in base castings.

MOUNTING

Post top mounting for 76x 76mm spigot. Recommended mounting height: 5m. Recommended columns: QC3 with QCS 76 spigot.

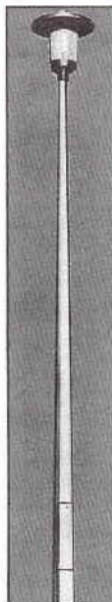
CONTROL GEAR/CIRCUIT DATA

See control gear and accessories section.

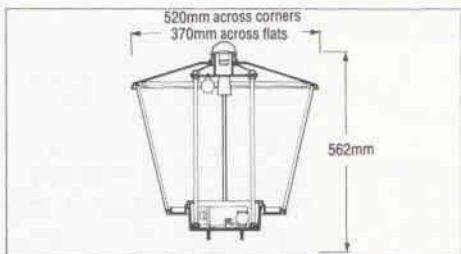
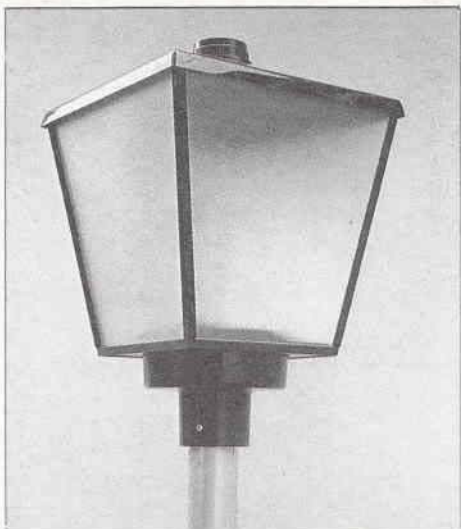
PACKAGES AND SPARES

Cat. no.	Description
QG6 1200.E27	Base assembly less gear ES
QG6 1200.B22	Base assembly less gear BC
QG6 B 1035-4A	Base assembly with 35W SOX gear
QG6 B 1080-4	Base assembly with 80W MBF gear
QG6 B 1125-4	Base assembly with 125W MBF gear
QG6 NB 1050-T	Base assembly with 50W SON gear
QG6 NB 1070-T	Base assembly with 70W SON gear
QG6V	Bowl (vandal resistant)
QG6 W	Large canopy
QG6 F	Small canopy
GL 1085	Lampholder (2BC-B22)
GL 1194-1	Lampholder (ES-E27)

NB: Each lantern requires: 1) A base casting assembly, 2) A bowl, 3) A canopy. For lanterns requiring a photocell socket add letter P to base cat.no after QG6 e.g. QG6PNB 1070.T.



QC3, QCS 76,
QG6 B 1125.4,
QG6 W, QG6 V.



LAMPS

50W or 70W SON
80W or 125W MBF to order

SPECIFICATION

Conforms to BS 4533 'Safety Mark'. Aluminium alloy base castings and high impact acrylic diffuser/canopy. This version of Gamma Six has slightly larger supports than others in the range.

MOUNTING

Post top mounting for 76mm x 76mm spigot.
Recommended mounting height: 5m.
Recommended columns: QC3 with QCS 76 spigot.

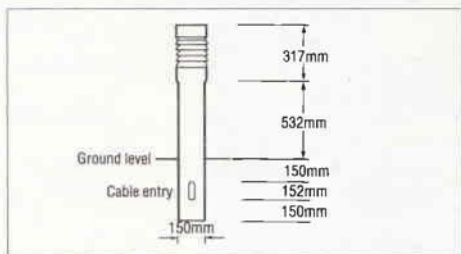
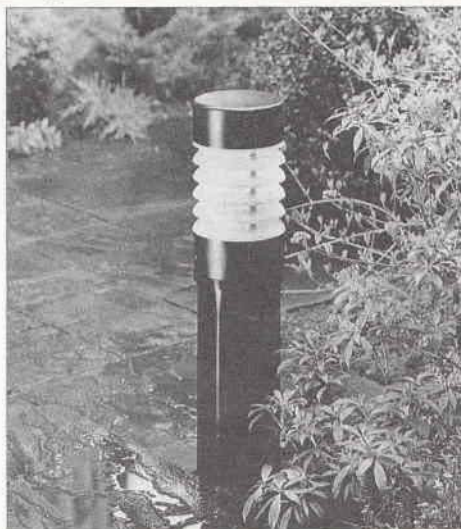
PACKAGES

Box contains complete luminaire, lamp and integral control gear.

RANGE

QG 6GNB 1050.T	Traditional Gamma Six lantern 50W lamp
QG 6GNB 1070.T	Traditional Gamma Six lantern 70W SON
QG 6GB 1080	80W MBF/U Traditional Gamma Six lantern 80W MBF
QG 6GB 1125	125W MBF/U Traditional Gamma Six lantern 125W MBF

For lanterns with socket for photocell add P after second G.



VANDAL RESISTANT LOW LEVEL LIGHTING

LAMPS

50W or 70W SON
80W MBF

SPECIFICATION

Thick section robust alumination shaft finished black polyester powder coated. Head section cast aluminium with polycarbonate louvres. Lamp additionally protected by polycarbonate sleeve. No door to be vandalised. Access for cabling and gear by removing head. Head retained by socket head screws. Gear and cable terminations compartment separated from lamp compartment by plate. Two 20mm clearance holes provided in termination bar to allow for looping cables.

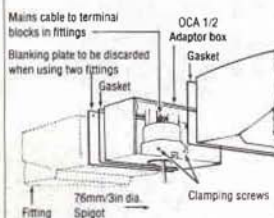
RANGE

P31 AM	Bollard complete excluding gear
QT NB 1070-T	Prewired gear tray for 70W SON
QT NB 1050-T	Prewired gear tray for 50W SON
QT B1080-4	Prewired gear tray for 80W MBF

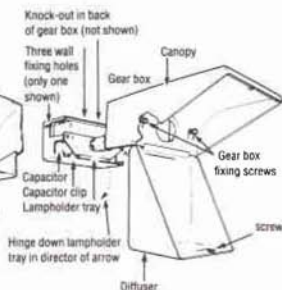
PRECINCT BULKHEAD SON/MBF



POLE MOUNTING



WALL MOUNTING



LAMPS
50W or 70W SON
80W MBF

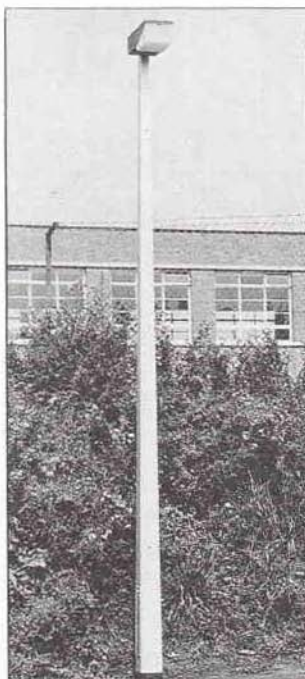
SPECIFICATION

Wall mounted bulkhead luminaire with adaptor box for column mounting either singly or in pairs. Pressure die-cast aluminium canopy with integral cast reflector housing separate gear tray with 240V gear and ES lampholder. Opal vandal resistant diffuser. Complies with BS 4533 'Safety Mark'.

POLE MOUNTING ADAPTOR

For one or two luminaires as shown in diagram. Blanking-off plate used only when one luminaire is installed. Recommended mounting height: 3-6m. Recommended column: QC4 or QC3 both with QCS 76 spigot and OCA 1/2.

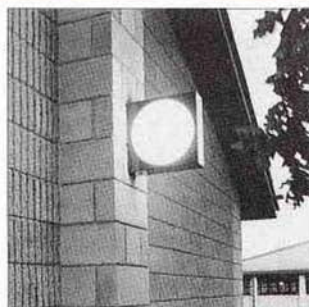
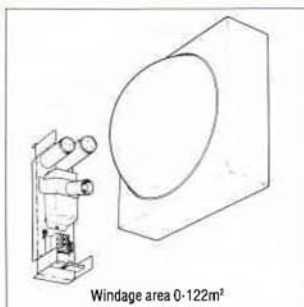
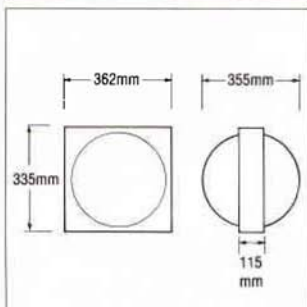
DIMENSIONS



QC4, QCS 76, OCA 1/2,
OC 1070-T

RANGE Packed complete with lamp

Cat. no.	Description	Windage area m ²	Weight kg
OC 1080-4	80W MBF Precinct c/w gear + lamp	0.046	4.1
OC 1070-T	70W SON Precinct c/w gear + lamp	0.046	4.9
OC 1050-T	50W SON Precinct c/w gear + lamp	0.046	4.9
OCA 1/2	Adaptor mounting		1.59
OCV	Spare vandal-resistant bowl		0.23



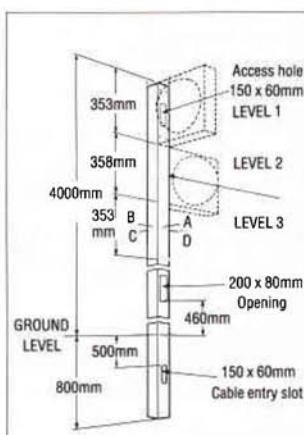
LAMPS

50W or 70W SON, or 28W 2D. Also made to order 80W MBF.

SPECIFICATION

Wall mounted luminaire that is also suitable for direct mounting onto special square section column. Various arrangements around the column are possible. The gear tray fits directly to the wall or column and then the injection moulded polycarbonate diffuser (white) and surround (black), which are factory fitted together, slide over the tray and are retained by special quarter turn socket head fastenings.

Matching black aluminium column available.



RANGE Packed complete with lamp

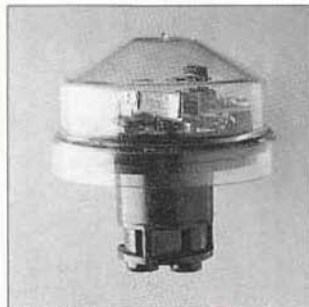
Cat. no.	Description	Weight kg
OCSN 1050	50W SON precinct sphere	4.54
OCSN 1070	70W SON precinct sphere	4.54
2D OCS 1028	28W 2D precinct sphere	3.32
QCPS 4/1†	4m above ground square section column for 1 precinct sphere.	
QCPS 4/2†	4m above ground square section column for 2 precinct spheres.	

† First numeral is height in metres, second is number of spheres to be fitted

PHOTOCELL



QPK PHOTOCELL KIT



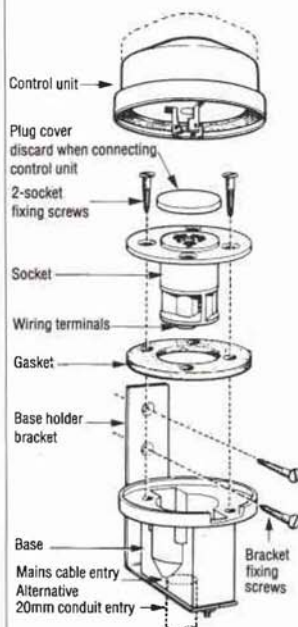
QP PHOTOCELL

PHOTOCELL CONTROL UNIT

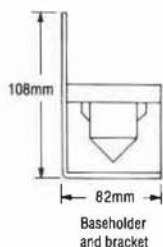
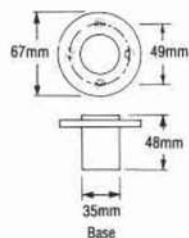
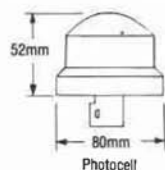
This control is designed to switch a lighting load on and off automatically at dusk and dawn. This unit is pre-calibrated to switch at light levels which ensure that outdoor lighting is on when required, allowing for a 10 minute warm-up period for sodium or mercury discharge lighting. It is, however, suitable for use with all types of lighting, i.e. tungsten, fluorescent or discharge.

PART NIGHT PHOTOCELL

Available only c/w socket and bracket, this unit additionally switches off at approx. midnight, and if still dark, on again, approx. 6 a.m. Use of dedicated integrated circuit means there is no clock requiring setting, time being calculated from dusk and dawn.



The kit consists of 3 parts – control unit, socket and baseholder/ bracket.



Versions available:

QP – Photocell. Fits directly into road lighting luminaires that have been fitted with a NEMA type socket at the factory. This is designated by the letter 'P' in the Catalogue number of the lantern.

QPK – Photocell kit. Photocell packed with base, baseholder and bracket for mounting on walls, fascias, etc.

QPK PN – Part night photocell kit. As QPK but photocell contains pre-programmed integrated circuit as stated.

The calibration is fixed in the factory and is not variable.

The unit switches with a ratio of 1:1.5 i.e. the switch on level is 70 lux and the switch off level is 105 lux.

DATA

Components	Weight kg
Photocell	0.114
Base	0.064
Baseholder	0.241

Voltage:	240 volts 50Hz
Rating:	1500 VA – maximum 1000 watts discharge lighting load (note – max. 1 lamp if ignitor is in circuit)
Switch on:	70 lux
Ratio:	1:1.5

GROUP A ALUMINIUM LIGHTING COLUMNS

INTRODUCTION

8, 10 and 12m versions with a range of single and double outreach arm brackets for roadlighting lanterns, and a number of standard mountings for floodlights. Low weight for simplified erection and increased safety. No maintenance required. Approved by the DTP. Approved by the Design Council. Designed to BS 3989.

GENERAL COLUMN SPECIFICATIONS

MATERIAL:

SHAFT: aluminium sheet BS 1470: NS4-H6 (Renumbered Alloy 5251).

TOP CASTING: supplied as standard welded to column top, LM6-M alloy.

OUTREACH BRACKET ARMS: aluminium tube BS 1471. Single and double arms give 5° uplift for road lighting.

BACKBOARD: Timber 914mm X 152mm

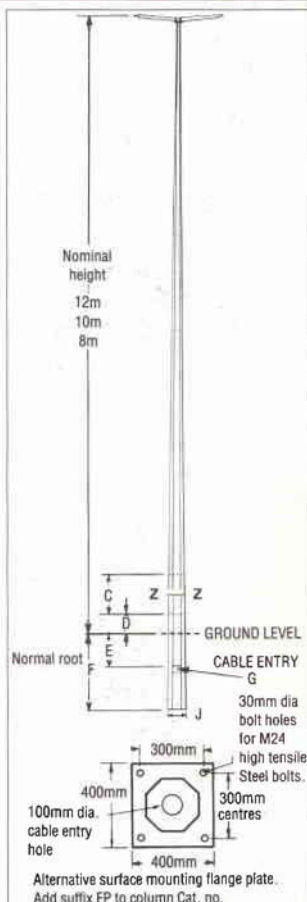
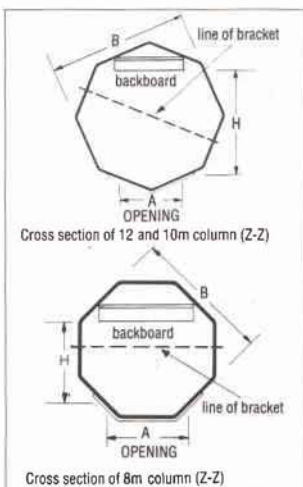
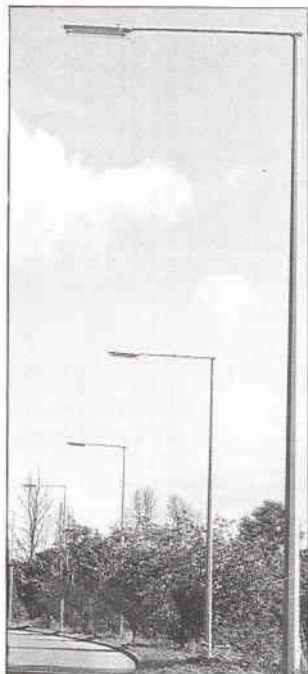
DOOR OPENING: 610mm X 130mm.

Earth connection: Stainless steel.

Column Section: Octagonal.

Spare Door Key: Catalogue no. QCKT.

Bracket arms are normally supplied with spigot 42mm dia. x 110mm. For post top lanterns, see under Floodlighting range. 8, 10 and 12m columns are delivered direct to site within mainland UK.



COLUMN DIMENSIONS MM

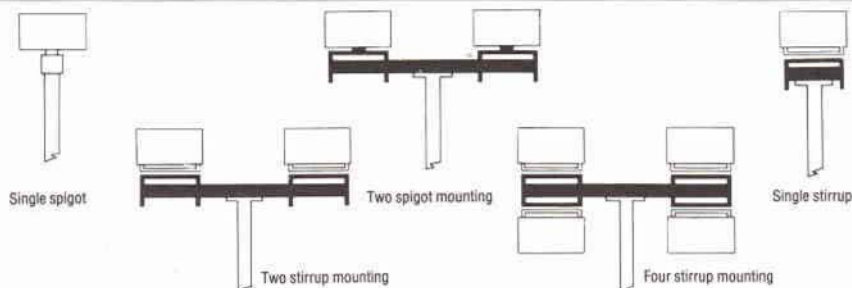
Cat. no.	Nominal height	A	B	C	D	E	F	G	H	J	Wt kg
QC 12	12 metre	136	305	610	457	305	1500	152 x 76	230	375	113
QC 10	10 metre	136	249	610	457	305	1500	152 x 76	173	310	79
QC 8	8 metre	128	219	610	457	305	1219	152 x 76	130	270	62

ROADLIGHTING BRACKET ARMS All THORN EMI Roadlighting luminaires are suitable for use where marked *

Cat. no.	Description	12m	10m	8m
QCB 1075	Single arm, 0-75m outreach	*	*	*
QCB 1125	Single arm, 1-25m outreach	*	*	*
QCB 1200	Single arm, 2-0m outreach	*	*	*
QCB 1300	Single arm, 3-0m outreach	*	*	*
QCB 2150	Double arm, 1-5m span	*	*	*
QCB 2250	Double arm, 2-5m span	*	*	*
QCB 2400	Double arm, 4-0m span	*	*	*
QCB 2500	Double arm, 5-0m span	*	*	*


When ordering state the type of lantern(s) or floodlight(s) to be used with the column and site address for direct delivery in UK (excluding N. Ireland)

FLOODLIGHTING BRACKETS FOR GROUP A ALUMINIUM LIGHTING COLUMNS



STANDARD FLOODLIGHTING MOUNTING ARRANGEMENTS






RANGE

	Cat. no.*	Floodlight mounting	No. of luminaires	Type	Additional items required	Column 12m	10m	8m
	QFS 1	Single spigot luminaire	1	Sunflood/Sunspot	OHA 4612	•	•	•
	QFS 1 A	(a) 76 x 76mm (b) 152 x 76mm	1	Area flood	—	•	•	•

Above two Catalogue nos. for specification purposes only; column will be supplied with fixing arrangement as one complete unit.

Example of order reference — QC8/QFS1A.

For those listed below, the bracket fixes to the standard road light shaft by means of U-bolts supplied in base of shaft.

	QFS 2	Two spigot mounting luminaires	2	Area flood	—	•	•	•
	QF 1	Single stirrup mounted luminaire— platform mounting to stirrup	1	SONPAK	—	•	•	•
	QF 1		1	Haline	—	•	•	•
	QF 1†		1	Area flood	OAM	•	•	•
	QF 1		1	ON 1500 flood M25J	—	•	•	•
	QF 2	Two stirrup mounted luminaires— platform mounting to stirrup	2	SONPAK	—	•	•	•
	QF 2		2	Haline	—	•	•	•
	QF 2†		2	Area flood	2 x OAM	•	•	•
	QF 2†		2	ON 1500 flood M25J	—	•	•	•
	QF 3†	Three stirrup mounted luminaires— platform mounting to stirrup	3	SONPAK	—	‡	‡	‡
			3	Haline	—	•	•	•
	QF4†	Four stirrup mounted luminaires— platform mounting to stirrup	4	Haline	—	•	•	•

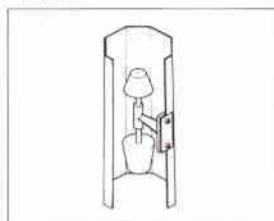
Adaptors for most floodlights not listed in the range table can be supplied to order. Special brackets are available to order for mounting up to eight Sunfloods.

* When specifying columns for use with the floodlight arrangements listed, both column and fixing references should be given. eg. QF 4 with 12 metre column—thus QC 12/QF4.

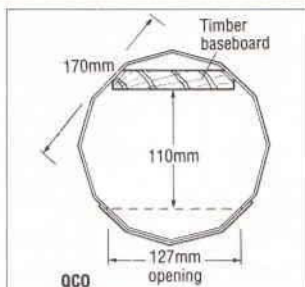
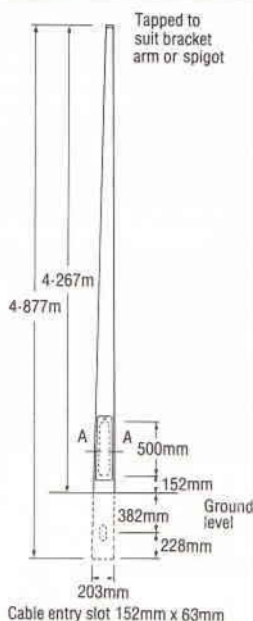
† In some cases where floodlights require separate control gear, it may be necessary to locate gear remotely from the column.
‡ Three SONPAK 15/25 are only suitable for certain geographical areas.

ANTI VIBRATION DAMPER

Irrespective of form, material or construction, columns in certain locations may be subject to wind induced vibration. Damage to lamps and luminaires can occur due to air turbulence generated by peculiar geographical features or building formations. While it is not possible to predict where such extreme situations may occur, any resultant vibration can be controlled with a multi-frequency damper. This device (catalogue reference QCM) is easily fitted inside the column or, if required, columns c/w fitted dampers can be supplied.



LEADER AND LUCERNA ALUMINIUM COLUMNS

**LUCERNA COLUMN QCO**

Twelve-sided section in 5251 aluminium alloy. Control gear mounted on timber baseboard in base compartment.

CATALOGUE NUMBER

QC 0	Column with tapped top casting for use with bracket or spigot
------	---

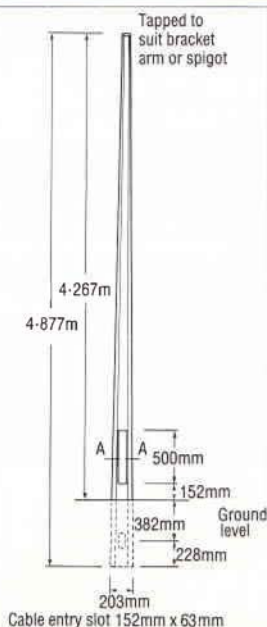
For surface mounting versions to special order add suffix 'FP'
See overleaf for floodlighting brackets.

DATA

Weight	14.5kg
--------	--------

BASE COMPARTMENT**NOMINAL DIMENSIONS**

Door opening	500 x 127mm
Depth	110mm
Baseboard dimensions	610 x 114mm
Clearance dimension at base of root	215mm

**LEADER COLUMN QC1**

Triangular section in aluminium alloy 5251. Control gear mounted on timber baseboard in base compartment.

CATALOGUE NUMBER

QC 1	Column with tapped top casting for use with bracket or spigot
------	---

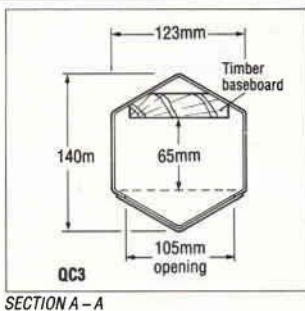
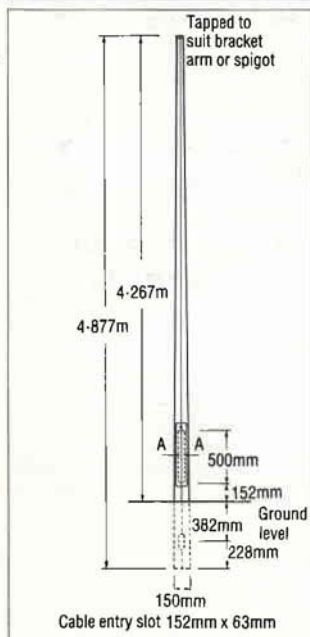
DATA

Weight	13.6kg
--------	--------

BASE COMPARTMENT**NOMINAL DIMENSIONS**

Door opening	500 x 90mm min.
Depth	90mm
Baseboard dimensions	609 x 67mm
Clearance dimension at base of root	185mm

GROUP B SHEERLINE AND CLASSIC ALUMINIUM COLUMNS



SHEERLINE COLUMN QC3
Hexagonal section in aluminium alloy 5251. Control gear mounted on timber baseboard in base compartment.

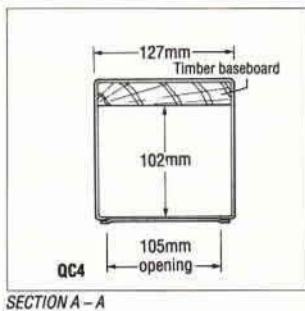
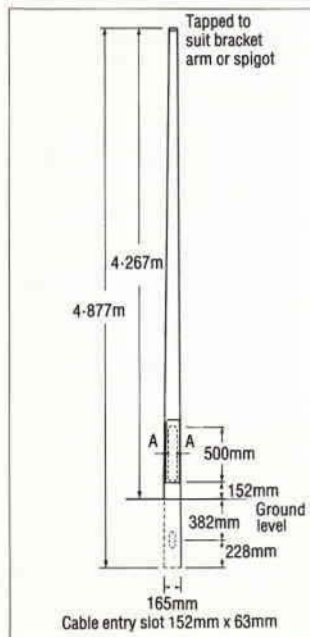
BS 3989:1966

CATALOGUE NUMBER

QC 3	Column with tapped top casting for use with bracket or spigot
------	---

For columns with surface mounting flange plate add suffix 'FP' to Catalogue number

DATA	
Weight	13.2kg
BASE COMPARTMENT NOMINAL DIMENSIONS	
Door opening	500 x 105mm
Depth	65mm
Baseboard dimensions	623 x 89mm
Clearance dimension at base of root	175mm



CLASSIC COLUMN QC4
Square section in aluminium alloy 5251. Control gear mounted on timber baseboard in base compartment.

BS 3989:1966 

CATALOGUE NUMBER

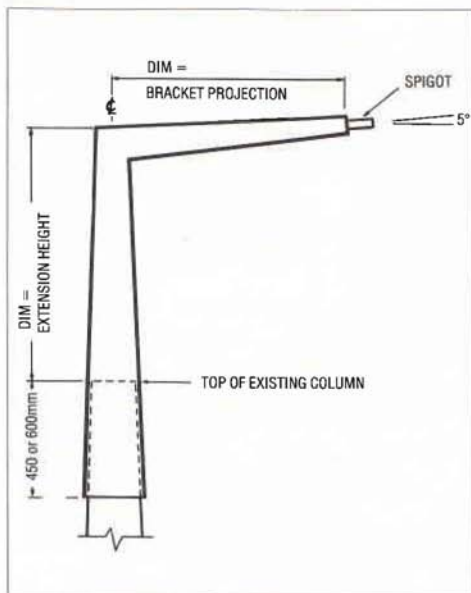
QC 4	Column with tapped top casting for use with bracket or spigot
------	---

For columns with surface mounting flange plate add suffix 'FP' to Catalogue number.

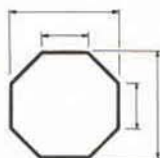
DATA	
Weight	14.5kg
BASE COMPARTMENT NOMINAL DIMENSIONS	
Door opening	500 x 105mm
Depth	102mm
Baseboard dimension	623 x 114mm
Clearance dimension at base of root	230mm

REPLACEMENT AND EXTENSION BRACKETS FOR CONCRETE COLUMNS

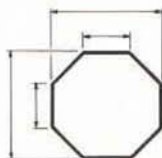
With ageing concrete columns it is often more economical to consider replacing the bracket arm than to consider a complete new column. This is particularly true where large costs are involved in moving the underground service. THORN EMI Lighting offers a range to suit most column shafts, both replacement and extension, for use where a higher mounting height is required. They are manufactured from galvanised steel or aluminium. It is generally sufficient to quote the shaft type, mounting height and outreach required, together with weight and windage of the proposed lantern. If not sure of existing column, give the following details:



TYPICAL COLUMN SECTION - PLEASE INDICATE EXACT SHAPE



TOP OF EXISTING SHAFT



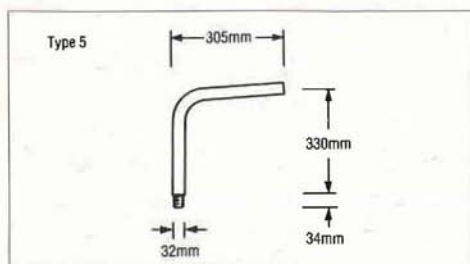
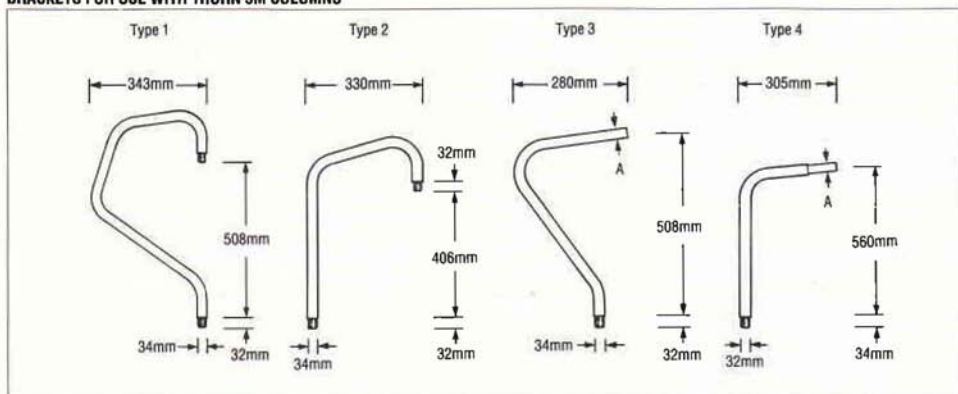
450 DOWN SHAFT

INDICATE DIRECTION OF OUTREACH THUS.



BRACKETS AND SPIGOT CASTINGS FOR GROUP B COLUMNS

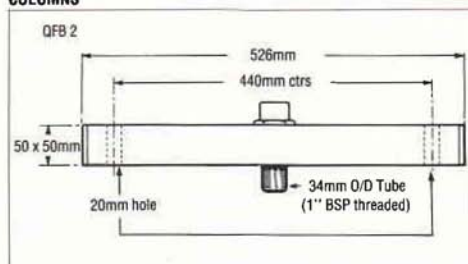
BRACKETS FOR USE WITH THORN 5M COLUMNS



Type	Cat. no.	Dimension	A
1	QCBT 126	Threaded	26mm (3/4in BSP)
2	QCBT 226	Threaded	26mm (3/4in BSP)
3	QCBS 326		26mm
3	QCBS 334		34mm
3	QCBS 342		42mm
4	QCBS 426		26mm
4	QCBS 434		34mm
4	QCBS 442		42mm
5	QCBS 526		26mm
5	QCBS 534		34mm
5	QCBS 542		42mm

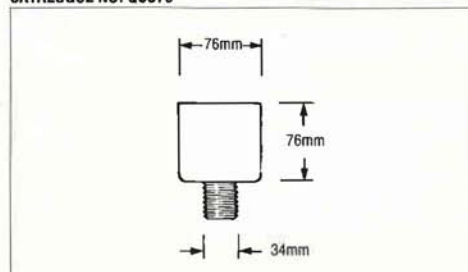
Note: Brackets are supplied threaded 34mm (1 in BSP) to screw into the standard column top of THORN EMI 5m aluminium columns: QCO, QC1, QC3, and QC4. Brackets can also be supplied to special order with a spigot cap to convert columns fitted with 3in x 3in spigots into bracket arm types. When ordering please quote suffix (e.g. QCBS 334/SC).

FLOOD LIGHTING BRACKET FOR USE WITH THORN EMI 5M COLUMNS



Note: QFB2 - For mounting two Sunfloods on QC3, QC4 or QCO or two Haline or two SONPAK 7 floodlights on QCO
 QFB3SC - For mounting three OT 70 or three Haline on QCO with QCS76.
 QFBOT - For mounting one SONPAK 15/25 on QCO or one SONPAK 7 or Haline on QCO or QC3.

SPIGOT CASTING FOR USE WITH THORN EMI 5M COLUMNS CATALOGUE NO. QCS76



Note: Spigot castings are threaded 34mm (1 in BSP) to screw into the standard column top when required for post-top lantern mounting.

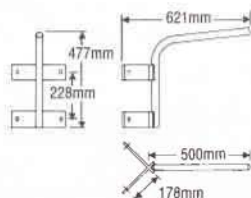
ALUMINIUM WALL BRACKETS AND BOXES

WALL BRACKETS

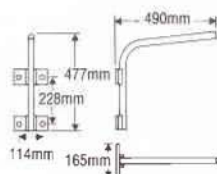
In HT9 aluminium alloy tube for flat wall or corner mounting. For 34mm or 42mm side entry lanterns.

RANGE

Cat. no.	Description
QWB 34	Flat wall mounting for 34mm side entry
QWB 42	Flat wall mounting for 42mm side entry
QWBC 34	Corner wall mounting for 34mm side entry
QWBC 42	Corner wall mounting for 42mm side entry



Corner wall brackets
QWBC 34 QWBC 42



Flat wall brackets
QWB 34 QWB 42

OUTDOOR LIGHTING BOX

MATERIAL: aluminium alloy NS4

BRACKETS: HE9-P extruded tube, outreach 304mm

BACKBOARD: timber 610 x 89mm

LOCK: triangular headed bolt lock

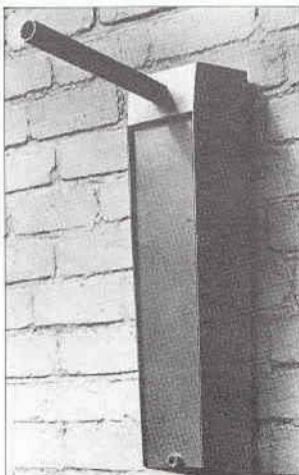
KEY: type QCKT

BASE COMPARTMENT: 533 x 102 x 99mm deep

WEIGHT: 5kg

Suitable for control gear up to and including 400W SON.

Suitable for lanterns up to and including Alpha three.



RANGE

Cat. no.	BSP	Bracket outside Diameter	Entry
QWGB 26	3/4in	26mm	Top
QWGB 34	1in	34mm	Side
QWGB 42	1 1/4in	42mm	Side

SPARE DOORS AND KEYS FOR THORN EMI 5M ALUMINIUM COLUMNS

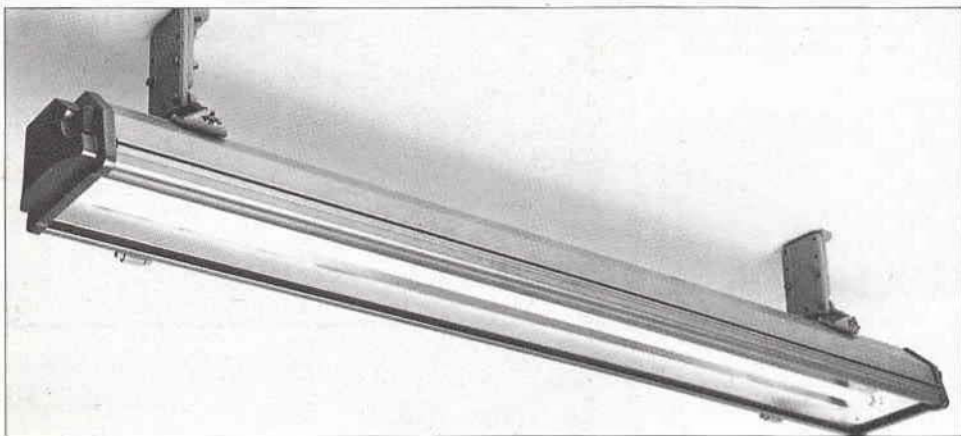
DOORS

Replacement Door fitted with:			
Column type	L and F lock	DZUS lock	Triangular lock
QC0	QCD0	—	QCD0T
QC1	—	QCD1	QCD1T
QC3 (or QLC3)	QLCD3	QCD3	QCD3T
QC4	QCD4	—	QCD4T

KEYS

Cat. no.	Description
QCK	Spare key DZUS
QCK LF	Spare key for QC0 and QC4 only. Tumbler
QCKT	Spare key triangular

TUNNEL LIGHTING



THE PRINCIPLES OF TUNNEL LIGHTING

The main problem with a road tunnel is the effect on the driver's vision of the sudden change from daylight to tunnel surroundings. The aims of tunnel lighting are to maintain the driver's visibility during this transition and then to provide a reasonable standard of lighting in the main body or central zone of the tunnel. Thus in the entrance or threshold zone of the tunnel a very high level of lighting is required which reduces through transition zones as a driver progresses into the tunnel until the steady central zone level is reached.

It is also necessary that the lighting levels adjust automatically according to the outside ambient lighting. Thus at night a single line of fluorescent tubes throughout the tunnel is usually sufficient, but on the brightest day twin fluorescent tubes over the whole length are necessary, plus about four rows of 400W SON-T luminaires in the threshold zone. Further transition zones would require fewer SON-T luminaires.

For more detailed information on planning, installation and maintenance please contact your local THORN EMI Lighting Office.

THORN EMI SYSTEM

THORN EMI Lighting have developed and supplied a system for lighting tunnels. The range is based on an extrusion with easily sealed removable end caps. A range of purpose designed slide in reflectors and gear trays make it suitable for mounting in different positions dependent upon tunnel design (eg cornice or central mounting) and for the various lamp types mentioned. This system also ensures the high IP rating (excess of IP65) can be maintained throughout the life of the installation, an essential feature of tunnels where cleaning is necessary to maintain illumination in the tunnel. To simplify maintenance in long rows of luminaires an easy method has been developed to drop the luminaire out of line. The luminaires are tested in accordance with BS 4533 specification in THORN EMI's BSI approved Test House. The luminaires are approved to Ta 35°C and starting is dependent upon lamp type, -5°C for fluorescent, -20°C for SOX and -40°C for SON-T.

CHOICE OF LIGHT SOURCE

Because each tunnel is different — in construction, dimensions, usage etc. and because different Zones require a different lighting performance it is not possible to restrict choice to a single light source. But three of the most efficient light sources available today, can between them meet these needs with high efficacy and economy of performance.

LOW PRESSURE SODIUM LAMPS

This is the most efficient light source with luminous efficacies up to 160 lumens per watt. The lamps enjoy long life, but have a characteristic monochromatic amber appearance which gives a very poor colour rendering. Lamps conform to BS 3767 and IEC 192.

HIGH PRESSURE SODIUM LAMPS (SON-T)

With luminous efficacies of 120 lumens per watt SON-T lamps are almost as efficient as SOX but without the drawback of monochromatic light. The colour appearance of SON-T is a golden white light. SON-T lamps are also very long lived, up to twice the life of SOX and are physically smaller. Lamps conform to IEC 662.

PLUSLUX AND POLYLUX FLUORESCENT TUBES (MCAFA).

These are a new generation of slim (26mm diameter) fluorescent tubes 7-10% more efficient than their 38mm diameter predecessors, with the Polylux version giving excellent colour rendering due to the use of recently developed narrow band phosphors, achieving efficacies approaching 90 lumens per watt but with the same life as standard fluorescent tubes. Tubes conform to BS 1853. Fittings are suitable for either diameter.

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Standard 26mm and 38mm diameter fluorescent tubes	
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Miscellaneous fluorescent tubes	
General information	215
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Compact fluorescent lamps	220

BRITISH STANDARDS

Fluorescent tubes described in this catalogue conform to British Standard 1853 and International Standard IEC81 where applicable.

THORN EMI Lighting holds Licence no. 5247 for the manufacture of fluorescent tubes to BS 1853.

MARKING OF RATED WATTAGE ON TUBES

The wattage dissipated by any discharge lamp, including a fluorescent tube, depends mainly on the characteristics of the ballast with which the particular lamp is operated and on the mains supply voltage at any given time.

Because of this the marking of a rated wattage on any given fluorescent tube does not necessarily indicate the wattage which the tube is intended to dissipate in any given circuit arrangement.

The appropriate fluorescent tube and associated ballast specifications list the rated or nominal wattage of any given tube type and also the 'objective wattage' which is the actual target wattage the tube should dissipate when operated under prescribed conditions in association with a mid-point reference ballast.

ELECTRICAL DATA

This is given for standard control gear operated in 240V 50Hz tube circuits. Average performance is determined at 25°C in accordance with BS 2818. The circuit watts quoted may be reduced by up to 5% when operating in some luminaires because circuit watts reduce as the lamp operating temperature rises.

TUBE GRADES

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

STANDARD 26MM AND 38MM DIAMETER TUBES

All standard THORN EMI 26mm and 38mm diameter argon filled tubes are for use in all luminaires. For switchless start circuits the metal chassis must extend the full length of the tube, be not more than 20mm from it, and be bonded to earth. Switchless start circuits must be used only on 200-250V 50Hz supplies where the neutral conductor is at earth potential. 26mm diameter Power Saver tubes are suitable for switchstart, Vivatronic or electronic ballast start only.

MISCELLANEOUS TUBES

METAL STRIP TUBES (MCFA/U)

These are supplied for use where earthed metalwork is not adjacent to the tube. A metallic conducting strip is cemented to the outside of the tube, connected to both caps, which must be earthed. A limited range of the more popular tubes in 600 - 1800mm lengths, can be supplied with metal strip.

COLOURED TUBES

Red and Gold tubes are only for use on starter switch circuits and not switchless-start circuits.

COLOUR TEMPERATURES FOR FLUORESCENT TUBES

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

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

SPECTRAL DISTRIBUTION

Spectral distribution data is given in the following pages in graphical form. Horizontal scales are wavelengths in nanometres (10^{-9} metres).

Vertical scales are power in milliwatts per 5 nanometre band width per 1000 lumens for a 1500mm tube at 58W or 65W as appropriate.

LUMEN OUTPUTS

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

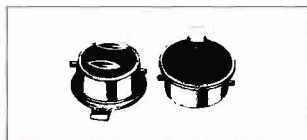
Note that lumen outputs of individual tubes are within the limits specified in BS 1853 according to rating.

INITIAL LUMENS

Initial lumens are measured after 100 hours operation.

LUMENS DURING LIFE

Lamp outputs at 2000 hours are also included as a guide to lighting engineers planning scheme layouts. Lumen output beyond 2000 hours decreases by 2% to 4% per 1000 hours use according to the colour and loading (see curves on following pages).



BI-PIN/BC ADAPTOR GB 1515

Adaptor converting bi-pin lamp cap to BC. The overall length of a 1500mm bi-pin tube with these adaptors does not exceed the length of a BC tube.

STANDARD 26MM AND 38MM DIAMETER FLUORESCENT TUBES

GENERAL INFORMATION

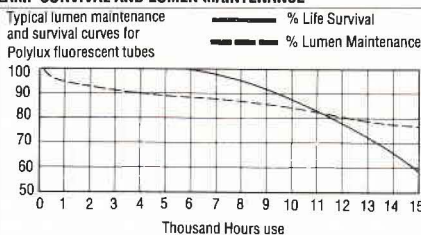
POLYLUX POWER SAVER TUBES

THORN EMI Power Savers now provide energy saving alternatives to argon-filled 38mm diameter tubes. By adding krypton to the gas and reducing the tube diameter to 26mm a new family of energy-saving tubes is available which consume about 8% less energy than their traditional counterparts. Due to the presence of krypton in the gas filling these tubes are restricted to operation on switchstart and approved electronic start circuits or with electronic ballasts.

Polylux tubes have a very high colour rendering factor and, in addition, provide 10% more light output than conventional high efficacy tubes such as White, Warm White etc.

Polylux tubes are the first choice tubes for all new installations.

LAMP SURVIVAL AND LUMEN MAINTENANCE

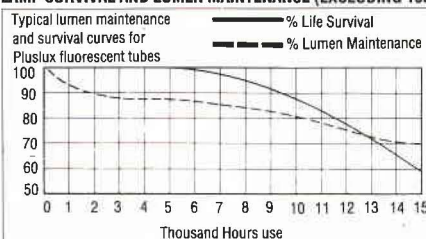


PLUSLUX POWER SAVER TUBES

Pluslux tubes offer all the economy of operation of Polylux tubes but with the same colour properties and light output values as the previously used White, Warm White and Cool White 38mm diameter argon-filled tubes.

In existing installations with switchstart circuits Pluslux tubes can be used for replacement purposes — 18W tubes are suitable only for 20W circuits, 36W tubes are suitable only for 40W circuits, 58W tubes are suitable only for 65W circuits, 70W tubes are suitable only for 75W circuits and 100W tubes are suitable only for 125W circuits. 100W tubes are 38mm diameter only and have similar lumen maintenance to Argon tubes.

LAMP SURVIVAL AND LUMEN MAINTENANCE (EXCLUDING 100W)



SPECIALIST PHOSPHORS IN ARGON-FILLED TUBES

Tubes coated with phosphors for specialist applications are available for use wherever accurate colour matching is required or where good colour rendering is important. They are suitable for switchstart and switchless start circuits.

"KOLOR-RITE" — a tube with excellent colour rendering properties for use where an intermediate colour appearance is required. "Kolor-rite" was recommended by the DHSS for use in clinical, laboratory and associated areas of health buildings but the DHSS has now specified Polylux 4000 for use in these areas of all new health buildings and major extensions to existing ones.

NORTHLIGHT — a cold colour appearance tube with excellent colour rendering properties. This tube is ideal for use in shops and commercial premises where a wintry effect or an impression of coolness is required e.g. furriers.

DE LUXE NATURAL — a tube of intermediate colour appearance with colour rendering properties that are ideally suited to the display of meats, fish and flowers in butchers, fishmongers and supermarkets etc.

ARTIFICIAL DAYLIGHT — this tube colour is an illuminant representing a phase of daylight and complies with BS 950 Part 1 "Specification for Artificial Daylight for the assessment of colour". It is suitable for colour matching and colour appraisal.

ORDINARY PHOSPHORS IN ARGON-FILLED TUBES

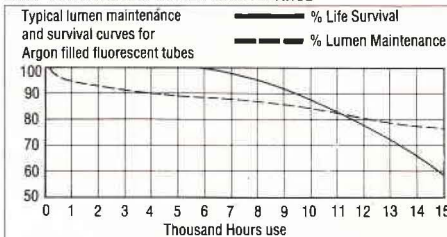
Argon-filled tubes were the principal fluorescent lamps for lighting installations until the advent of the 100W krypton-filled tube in 1975 and the 26mm diameter Polylux power saver tubes in 1979.

These argon-filled tubes are retained primarily for use in obsolete starterless circuits such as SRS and QS circuits in which Polylux and Pluslux power saver tubes will not operate. Their use is still recommended for low-temperature applications.

For new lighting installations Polylux power saver tubes will provide a more sound economic proposition.

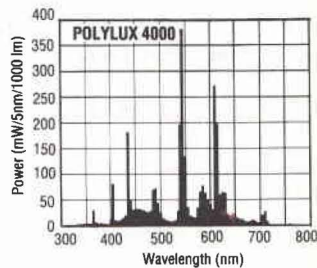
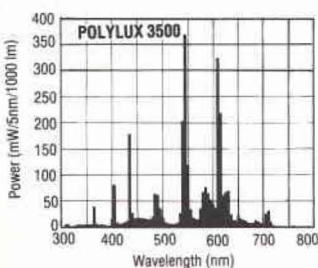
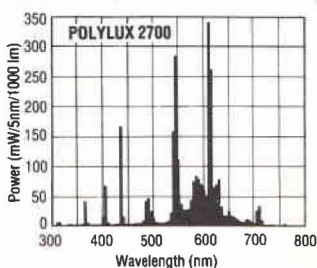
In existing installations with switchstart circuits Pluslux power saver tubes can be used for replacement purposes and will result in an 8% power saving.

LAMP SURVIVAL AND LUMEN MAINTENANCE

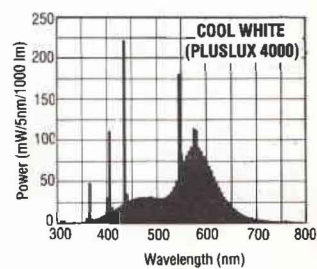
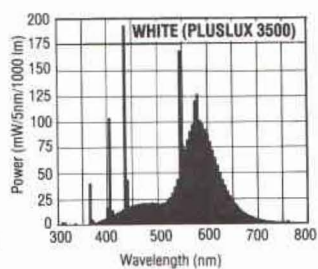
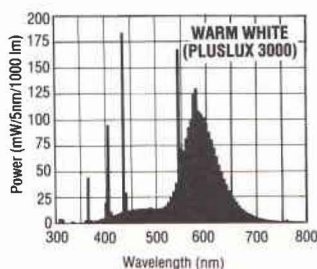


STANDARD 26MM AND 38MM DIAMETER FLUORESCENT TUBES - COLOUR DATA

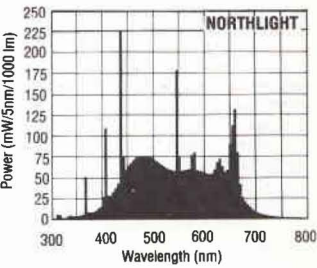
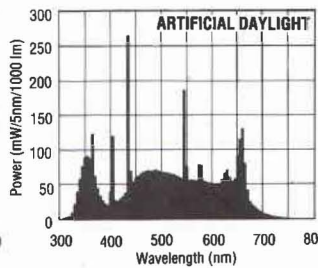
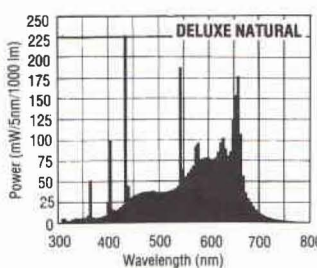
POLYLUX POWER SAVER TUBES



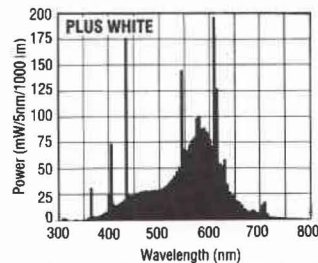
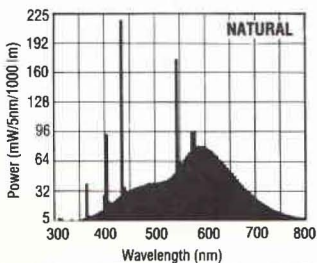
PLUSLUX POWER SAVER TUBES



SPECIALIST PHOSPHORS IN ARGON-FILLED TUBES



ORDINARY PHOSPHORS IN ARGON-FILLED TUBES



STANDARD 26MM AND 38MM DIAMETER FLUORESCENT TUBES - COLOUR DATA

POLYLUX POWER SAVER TUBES

COLOUR APPEARANCE AND COLOUR RENDERING

	Polylux 2700	Polylux 3500	Polylux 4000
Chromaticity Co-ordinate x	0.461	0.412	0.375
Chromaticity Co-ordinate y	0.417	0.403	0.377
Ra Index	82	85	85
CIE/CIBSE group	1B	1B	1B
Correlated colour temperature (K)	2700	3500	4200
CIE class	Warm	Inter*	Inter*

* Intermediate

PLUSLUX POWER SAVER TUBES

COLOUR APPEARANCE AND COLOUR RENDERING

	Warm White	White	Cool White
Chromaticity Co-ordinate x	0.431	0.394	0.367
Chromaticity Co-ordinate y	0.401	0.396	0.373
Ra Index	51	54	58
CIE/CIBSE group	3	3	3
Correlated colour temperature (K)	3100	3800	4400
CIE class	Warm	Inter*	Inter*

* Intermediate

SPECIALIST PHOSPHORS IN ARGON-FILLED TUBES

COLOUR APPEARANCE AND COLOUR RENDERING

	Deluxe Natural	Northlight/ Colour Matching	Kolor- rite	Artificial Daylight
Chromaticity Co-ordinate x	0.393	0.327	0.379	0.316
Chromaticity Co-ordinate y	0.356	0.332	0.375	0.331
Ra Index	92	94	90	92
CIE/CIBSE group	1A	1A	1A	1A
Correlated colour temperature (K)	3500	5800	4000	6300
CIE class	Inter*	Cold	Inter*	Cold

* Intermediate

ORDINARY PHOSPHORS IN ARGON-FILLED TUBES

COLOUR APPEARANCE AND COLOUR RENDERING

	Warm White	White	Plus White	Natural	Cool White
Chromaticity Co-ordinate x	0.440	0.414	0.408	0.380	0.373
Chromaticity Co-ordinate y	0.406	0.397	0.386	0.366	0.380
Ra Index	54	56	74	81	62
CIE/CIBSE group	3	3	2	1B	2
Correlated colour temperature (K)	3000	3400	3400	3900	4200
CIE class	Warm	Inter*	Inter*	Inter*	Inter*

* Intermediate

STANDARD 26MM AND 38MM DIAMETER FLUORESCENT TUBES — COLOUR DATA

POLYLUX POWER SAVER TUBES

NOMINAL PERCENTAGE LIGHT OUTPUT FOR 1500MM 58W TUBES

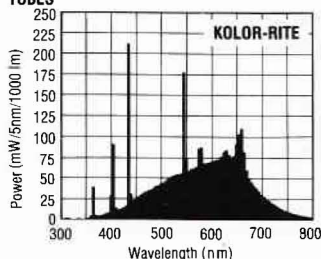
8 Bands		Polylux 2700	Polylux 3500	Polylux 4000
1-Far Violet	380-420	0.005	0.006	0.007
2-Violet	420-440	0.19	0.23	0.27
3-Blue	440-460	0.05	0.17	0.33
4-Blue-Green	460-510	2.3	3.2	4.2
5-Green	510-560	45.2	50.2	54.1
6-Yellow	560-610	32.1	29.3	25.8
7-Light Red	610-660	20.0	16.7	15.1
8-Dark Red	660-760	0.14	0.13	0.12
ULTRA-VIOLET (mW/1000 lumens, between 300 and 400 nanometres)		85	93	95

PLUSLUX POWER SAVER TUBES

NOMINAL PERCENTAGE LIGHT OUTPUT FOR 1500MM 58W TUBES

8 Bands		Warm White	White	Cool White
1-Far Violet	380-420	0.008	0.009	0.012
2-Violet	420-440	0.27	0.27	0.31
3-Blue	440-460	0.15	0.22	0.31
4-Blue-Green	460-510	2.0	2.9	4.3
5-Green	510-560	32.3	35.4	38.8
6-Yellow	560-610	55.9	52.9	49.1
7-Light Red	610-660	9.2	8.2	7.1
8-Dark Red	660-760	0.17	0.15	0.14
ULTRA-VIOLET (mW/1000 lumens, between 300 and 400 nanometres)		93	99	110

SPECIALIST PHOSPHORS IN ARGON-FILLED TUBES



NOMINAL PERCENTAGE LIGHT OUTPUT FOR 1500MM TUBES AT 65W

8 Bands		Deluxe Natural	Northlight/ Colour Matching	6 Bands	Kolor- rite	Artificial Daylight
1-Far Violet	380-420	0.010	0.015			
2-Violet	420-440	0.31	0.37			
3-Blue	440-460	0.38	0.63	400-455	0.51	0.82
4-Blue-Green	460-510	5.7	9.3	455-510	6.0	9.7
5-Green	510-560	36.7	42.9	510-540	16.8	19.4
6-Yellow	560-610	40.8	35.1	540-590	51.1	49.9
7-Light Red	610-660	15.1	11.0	590-620	16.4	12.6
8-Dark Red	660-760	1.0	0.68	620-760	9.2	7.6
ULTRA-VIOLET (mW/1000 lumens, between 300 and 400 nanometres)		141	142		109	573

ORDINARY PHOSPHORS IN ARGON-FILLED TUBES

NOMINAL PERCENTAGE LIGHT OUTPUT FOR 1500MM TUBES AT 65W

8 Bands		Warm White	White	Plus White	Natural	Cool White
1-Far Violet	380-420	0.007	0.008	0.009	0.013	0.012
2-Violet	420-440	0.21	0.23	0.25	0.32	0.27
3-Blue	440-460	0.17	0.22	0.27	0.36	0.36
4-Blue-Green	460-510	2.2	3.1	4.0	5.6	4.9
5-Green	510-560	29.7	33.5	35.2	37.8	37.4
6-Yellow	560-610	57.8	54.3	47.7	44.2	49.7
7-Light Red	610-660	9.8	8.4	12.4	11.2	7.2
8-Dark Red	660-760	0.18	0.16	0.15	0.5	0.14
ULTRA-VIOLET (mW/1000 lumens between 300 and 400 nanometres)		77	84	90	117	108

STANDARD 26MM AND 38MM DIAMETER FLUORESCENT TUBES

- LIGHT OUTPUT DATA

POLYLUX POWER SAVER TUBES

LIGHT OUTPUT Initial lumens (100 hours) Lumens at 2000 hours						
Nominal length	2400mm	1800mm	1500mm	1200mm	600mm	
Rated wattage	100W	70W	58W	36W	18W	
Nominal diameter	38mm	26mm	26mm	26mm	26mm	
Polylux 2700	9400	6550	5400	3450	1450	
	8900	6300	5100	3200	1300	
Polylux 3500	9400	6550	5400	3450	1450	
	8900	6300	5100	3200	1300	
Polylux 4000	9400	6550	5400	3450	1450	
	8900	6300	5100	3200	1300	

PLUSLUX POWER SAVER TUBES

LIGHT OUTPUT Initial lumens (100 hours) Lumens at 2000 hours						
Nominal length	2400mm	1800mm	1500mm	1200mm	600mm	
Rated wattage	100W	70W	58W	36W	18W	
Nominal diameter	38mm	26mm	26mm	26mm	26mm	
Pluslux 3000 – Warm White	8750	5950	4800	3000	1200	
	7900	5500	4400	2750	1050	
Pluslux 3500 – White	8800	6050	5000	3100	1250	
	8000	5600	4500	2800	1100	
Pluslux 4000 – Cool White	8650	5750	4800	3000	1200	
	7800	5400	4400	2750	1050	

SPECIALIST PHOSPHORS IN ARGON-FILLED TUBES

LIGHT OUTPUT Initial lumens (100 hours) Lumens at 2000 hours									
Nominal length	2400mm	2400mm	2400mm	1800mm	1500mm	1200mm	900mm	600mm	450mm
Rated wattage	125W	100W	85W	75W	65W	40W	30W	20W	15W
Nominal diameter	38mm	38mm	38mm	38mm	38mm	38mm	26mm	26mm	26mm
*Kolor-rite	6300	5700	4800	3900	3350	2000	—	850	—
	5700	5200	4400	3500	3000	1800	—	750	—
Northlight/ Colour Matching	6000	5500	4500	3600	3000	1900	1500	800	600
	5600	5000	4100	3200	2700	1700	1250	700	500
De Luxe Natural	5500	4900	4300	3400	2900	1750	1400	700	—
	4800	4400	3800	2900	2500	1500	1100	600	—
Artificial Daylight	4800	—	—	3000	2600	1500	—	650	—
	3800	—	—	2400	2100	1200	—	500	—

ORDINARY PHOSPHORS IN ARGON-FILLED TUBES

LIGHT OUTPUT Initial lumens (100 hours) Lumens at 2000 hours											
Nominal length	2400mm	2400mm	2400mm	1800mm	1500mm	1500mm	1200mm	1050mm	900mm	600mm	450mm
Rated wattage	125W	100W	85W	75W	65W	50W	40W	40W	30W	20W	15W
Nominal diameter	38mm	38mm	38mm	38mm	38mm	26mm	38mm	26mm	26mm	38mm	26mm
White	9700	8800	7350	6050	5100	3850	3050	3050	2400	2000	1225
	8800	8000	6850	5750	4750	3600	2800	2800	2150	1700	1100
Plus White	9300	8300	7000	5800	4800	—	2900	—	—	—	—
	8400	7600	6500	5500	4500	—	2700	—	—	—	—
Warm White	9650	8750	7250	5950	4950	3800	2950	2950	2400	2000	1200
	8700	7900	6750	5650	4600	3550	2700	2700	2150	1700	1100
Cool White	9300	8650	7000	5750	4800	—	2900	—	2300	1900	1150
	8500	7800	6500	5450	4450	—	2650	—	2050	1600	1050
Natural	7200	6400	5500	4400	3700	2800	2300	—	1800	—	900
	6500	5900	5000	4000	3400	2400	2100	—	1600	—	800

STANDARD 26MM AND 38MM DIAMETER FLUORESCENT TUBES - ELECTRICAL DATA

POLYLUX AND PLUSLUX POWER SAVER TUBES

Electrical Data for 240V 50Hz tube circuits. Average performance tested at 25°C to BS 2818 and BS 1853.

Tube size (mm)	2400	2400	1800	1800	1800	1500	1500	1200	1200	600
Tube diameter (mm)	38	38	26	26	26	26	26	26	26	26
Rated tube watts	100	2 x 100	2 x 70	2 x 70	70	2 x 58	58	2 x 36	36	18
Objective tube watts	102	2 x 102	2 x 69	2 x 61	69	2 x 51	58	2 x 32	36	18
Tube volts	125	125	128	129	128	111	110	102	103	57
Tube amps	0.96	2 x 0.96	2 x 0.7	0.47	0.7	0.46	0.67	0.32	0.43	0.37
Circuit type	SS/VS†	SS/VS Twin	SS	EB	SS/VS	EB	SS/VS	EB	SS/VS	SS/VS
Total circuit watts	112	229	162	132	80	108	71	74	47	28
Mains current (amps)	0.50†	0.98	0.71	0.57	0.38	0.47	0.34	0.32	0.22	0.38
Total volt-amps (VA)	120	235	170	137	92	113	82	77	52	91
Lagging power factor	0.93†	0.98	0.96	0.96	0.87	0.96	0.87	0.95	0.90	0.31*
% 3rd harmonics	17	11	19	26	19	24	19	22	19	19

† This is a lagging power factor corrected 100W circuit. For leading circuit mains current=0.96A, 0.52 leading power factor.

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

SS = Switchstart; VS = Vivatronic start; EB = Electronic ballast.

ARGON FILLED TUBES

Electrical Data for 240V 50Hz tube circuits. Average performance tested at 25°C to BS 2818 and BS 1853.

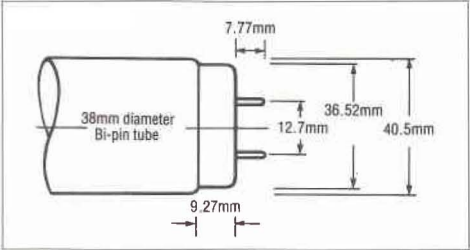
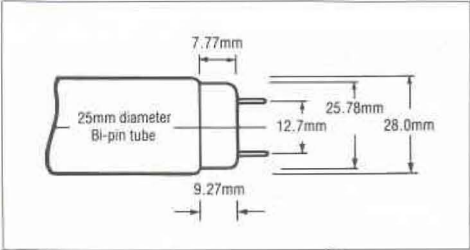
Tube size (mm)	2400	2400	1800	1500	1200	1050	900	600	450
Tube diameter (mm)	38	38	38	38	38	26	26	38	26
Rated tube watts	125	85	75	65	40	40	30	20	15
Objective tube watts	123	85	75	64	39	39	30	19	15
Tube volts	149	178	130	110	103	112	96	57	56
Tube amps	0.94	0.55	0.67	0.67	0.43	0.42	0.365	0.37	0.31
Circuit type	SS/VS	QS	SS/VS	SS/VS	SS/VS	SS/VS	SS	SS/VS	SS
Total circuit watts	137	100	91	78	51	48	40	32	25
Mains current (amps)	0.94	0.42	0.42	0.35	0.23	0.21	0.35	0.38	0.34
Total volt-amps (VA)	226	100	101	84	55	51	84	91	81
Lagging power factor	0.61±	0.99	0.9	0.93	0.92	0.95	0.47*	0.36*	0.31*
% 3rd harmonics	14	7	17	17	17	17	17	17	17

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

± Leading Power Factor.

SS = Switchstart; VS = Vivatronic start.

STANDARD 26MM AND 38MM DIAMETER FLUORESCENT TUBES - DIMENSIONS



Rated wattage	Nominal dimensions mm	Cap	Length, base face to base face (mm) max	Length, base face to end of opposite cap pins (mm)		Length overall (mm) max
				max	min	
125	2400 x 38	G13 (Bi-pin)	2374-3	2381-4	2379-0	2388-5
100	2400 x 38	G13 (Bi-pin)	2374-3	2381-4	2379-0	2388-5
85	2400 x 38	G13 (Bi-pin)	2374-3	2381-4	2379-0	2388-5
75/85	1800 x 38	G13 (Bi-pin)	1763-8	1770-9	1768-4	1778-0
70	1800 x 25	G13 (Bi-pin)	1763-8	1770-9	1768-4	1778-0
65/80	1500 x 38	G13 (Bi-pin)	1500-0	1507-1	1504-7	1514-2
58	1500 x 25	G13 (Bi-pin)	1500-0	1507-1	1504-7	1514-2
50	1500 x 25	G13 (Bi-pin)	1500-0	1507-1	1504-7	1514-2
40	1200 x 38	G13 (Bi-pin)	1199-4	1206-5	1204-1	1213-6
36	1200 x 25	G13 (Bi-pin)	1199-4	1206-5	1204-1	1213-6
40	1050 x 25	G13 (Bi-pin)	1047-0	1054-1	1051-7	1061-2
40	600 x 38	G13 (Bi-pin)	589-8	596-9	594-5	604-0
30	900 x 25	G13 (Bi-pin)	894-6	901-7	899-3	908-8
20	600 x 38	G13 (Bi-pin)	589-8	596-9	594-5	604-0
18	600 x 25	G13 (Bi-pin)	589-8	596-9	594-5	604-0
15	450 x 25	G13 (Bi-pin)	437-4	444-5	442-1	451-6

MISCELLANEOUS FLUORESCENT TUBES - GENERAL INFORMATION

COLOURED TUBES

A range of 38mm diameter tubes in five colours — pink, red, gold, green, blue.
These tubes are primarily designed for decoration and effect lighting purposes. Applications include stage lighting, shop window lighting, bars, dance halls, gardens etc.

Red and gold tubes when not lit appear as red and gold; pink, green and blue tubes appear white.

Red and gold tubes are for use in starter switch or Vivatronic start circuits only.

GROLUX TUBES

Tubes specially developed for stimulating plant growth. Red and blue light is especially important to plant growth, furnishing energy for making carbohydrates by photosynthesis and governing the ability to produce colour in many fruits, vegetables and ornamental plants. GROLUX is rich in the important red and blue areas of the spectrum.

GROLUX is particularly effective for aquarium lighting — maintaining a natural balance between plants and fish and with the added advantage of bringing out the colours of the fish.

ULTRA-VIOLET TUBES

Standard fluorescent tubes in which the phosphor emits long wave ultra-violet (UV-A) together with a small amount of visible light. The peak output at 365nm attracts insects and makes these tubes especially useful in insect traps. Other applications include chemical processing and some printing processes.

Note: these tubes emit UV radiation — recommendations for their safe use can be found in the publication "Protection against ultraviolet radiation in the workplace" issued by the National Radiological Protection Board and available from HMSO.

METAL STRIP TUBES (MCFA/U)

Tubes with an external metallic strip connected to both end caps. Although these tubes can be operated on switchstart circuits with no adverse effects the metal strip ensures satisfactory starting in starterless (QS or SRS) circuits where earthed metalwork is not adjacent to the tube e.g. in luminaires made of plastics. Both lamp caps must be earthed.

MINIATURE TUBES

These tubes can be used in switchstart circuits on 110V - 250V a.c. mains supplies or with transistorised ballasts on 12V - 110V d.c. supplies. These latter supplies include those required by emergency lighting luminaires for which the light output of miniature tubes is ideal.

Applications for these tubes include showcase lighting, desk lighting, mirror lighting, transport lighting, security lighting, and the camping and outdoor leisure markets.

'U'-SHAPED TUBES

This compact 'U' shaped fluorescent tube was designed primarily for use in 600mm x 200mm metric modular spaces but has found other uses in the commercial and residential lighting areas.

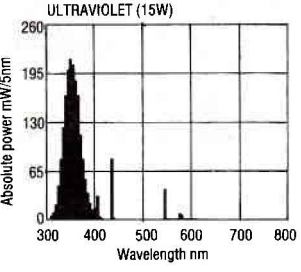
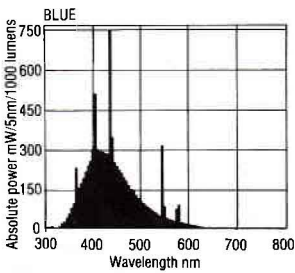
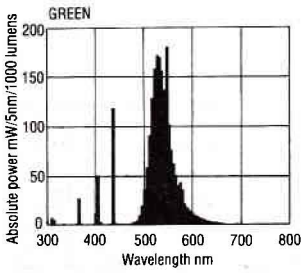
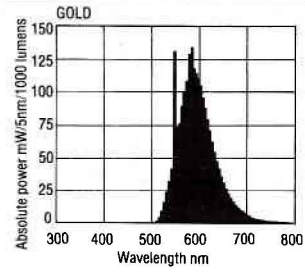
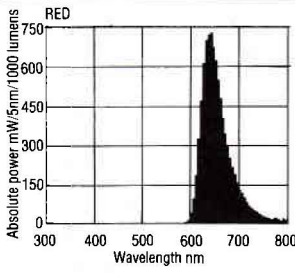
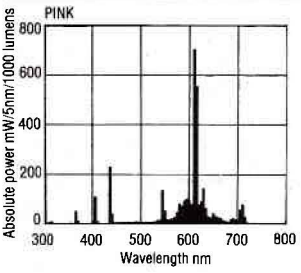
Special lampholders are available which incorporate a spring clip to ensure good pin contact by clamping the spacer rod against the lampholder moulding. For situations where the lamp is mounted horizontally a separate clip is provided with the lampholders to support the glass end of the tube.

CIRCULAR TUBES

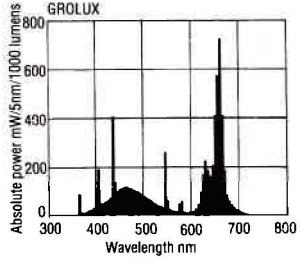
A range of three wattages of tube suitable for use on switchstart or Vivatronic start circuits.

Circline tubes find application in commercial and residential lighting and also in illuminated signs.

MISCELLANEOUS FLUORESCENT TUBES – COLOUR DATA



For metal strip tubes, miniature tubes, U-shaped tubes and circular tubes see page 209.



MISCELLANEOUS FLUORESCENT TUBES - LIGHT OUTPUT DATA

COLOURED TUBES Lumens at 2000 hrs

	1800mm 75/85W (@ 75W)	1500mm 65/80W (@ 65W)	1500mm 65/80W (@ 80W)	1200mm 40W	600mm 20W
Pink	1500	1400	1250	750	290
Red	270	250	230	140	—
Gold	2900	2700	2400	1450	—
Green	5600	5200	4600	2800	—
Blue	1400	1300	1150	700	—

GROLUX TUBES Lumens at 2000 hrs

	1500mm 65/80W (@ 65W)	1200mm 40W	900mm 30W	600mm 20W	450mm 15W
Grolux	1300	810	530	340	200

METAL STRIP TUBES Lumens at 2000 hrs Initial lumens (100 hrs)

	1800mm 75/85W (@ 75W)	1500mm 65/80W (@ 65W)	1200mm 40W	600mm 40W	600mm 20W
White	6050 5750	5100 4750	3050 2800	2000 1700	1225 1100
Warm White	— —	4950 4600	2950 2700	2000 1700	1200 1100

MINIATURE TUBES Lumens at 2000 hrs Initial lumens (100 hrs)

	525mm 13W	300mm 8W	225mm 6W	150mm 4W
White	850 750	480 420	300 250	800 700
Warm White	850 750	480 420	290 250	400 360
Cool white	800 700	400 360	275 240	275 240

'U'-SHAPED TUBES Lumens at 2000 hrs Initial lumens (100 hrs)

	525mm x 120mm 40W
White	2875 2575
Warm White	2825 2550
Plus White	2725 2500
Polylux 3500	3250 3000

CIRCULAR TUBES Lumens at 2000 hrs Initial lumens (100 hrs)

	406mm 60W	406mm 40W	305mm 32W
Warm White	3700 3400	2500 2300	1800 1600

MISCELLANEOUS FLUORESCENT TUBES - ELECTRICAL DATA

COLOURED TUBES, GROLUX TUBES, ULTRA-VIOLET TUBES, METAL STRIP TUBES

Electrical Data for 240V 50Hz tube circuits. Average performance tested at 25°C to BS 2818 and BS 1853.

Tube size (mm)	1800	1500	1200	900	600	450
Tube diameter (mm)	38	38	38	25	38	25
Rated tube watts	75	65	40	30	20	15
Objective tube watts	75	64	39	30	19	15
Tube volts	130	110	103	96	57	56
Tube amps	0.67	0.67	0.43	0.365	0.37	0.31
Circuit type	SS	SS	SS	SS	SS	SS
Total circuit watts	91	78	51	40	32	25
Mains current (amps)	0.42	0.35	0.23	0.35	0.38	0.34
Total volt-amps (VA)	101	84	55	84	91	81
Lagging power factor	0.9	0.93	0.92	0.47*	0.36*	0.31*
% 3rd Harmonics	17	17	17	17	17	17

* Uncorrected value. Allow 0.90 if power factor correction capacitor is fitted.

SS = Switchstart

MINIATURE TUBES

Electrical Data for 240V 50Hz tube circuits. Average performance tested at 25°C to BS 2818 and BS 1853.

Tube size (mm)	525	300	300	225	225	150	150
Tube diameter (mm)	16	16	16	16	16	16	16
Rated tube watts	13	8	2 x 8	6	2 x 6	4	2 x 4
Objective tube watts	13	7.1	2 x 7.1	6	2 x 6	4.5	2 x 4.5
Tube volts	95	56	56	42	42	29	29
Tube amps	0.17	0.15	0.15	0.16	0.16	0.17	0.17
Circuit type	SS	SS	SS	SS	SS	SS	SS
Total circuit watts	18	14	19	12	18	11	16
Mains current (amps)	0.17	0.15	0.15	0.16	0.16	0.17	0.17
Total volt-amps (VA)	40	39	36	39	39	41	41
Lagging power factor*	0.46	0.35	0.53	0.32	0.46	0.27	0.39

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

SS = Switchstart

'U'-SHAPED TUBES, CIRCULAR TUBES

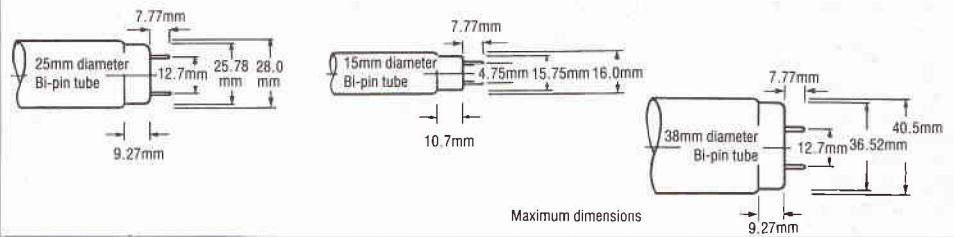
Electrical Data for 240V 50Hz tube circuits. Average performance tested at 25°C to BS 2818 and BS 1853.

Tube size (mm)	525 x 120	305 dia.	406 dia.	406 dia.
Tube diameter (mm)	26	32	32	32
Rated tube watts	40	32	40	60
Objective tube watts	39	32	40	58
Tube volts	112	81	110	92
Tube amps	0.42	0.45	0.42	0.75
Circuit type	SS/VS	SS/VS	SS/VS	SS/VS
Total circuit watts	48	43	54	76
Mains current (amps)	0.21	0.19	0.24	0.35
Total volt-amps (VA)	51	46	57	84
Lagging power factor	0.95	0.94	0.95	0.90
% 3rd Harmonics	17	17	17	17

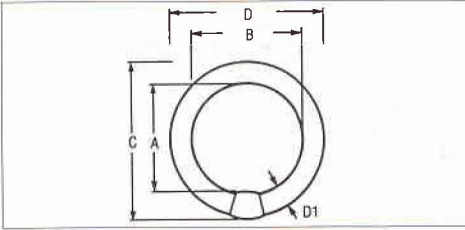
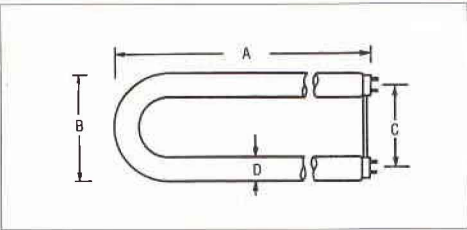
SS = Switchstart

VS = Vivatronic start

MISCELLANEOUS FLUORESCENT TUBES — DIMENSIONS



Rated Wattage	Nominal dimensions mm	Cap	Length, base face to base face (mm)		Length, base face to end of opposite cap pins (mm)		Length overall (mm) max
			max	min	max	min	
75/85	1800 x 38	G13 (Bi-pin)	1763.8		1770.9	1768.4	1778.0
65/80	1500 x 38	G13 (Bi-pin)	1500.0		1507.1	1504.7	1514.2
40	1200 x 38	G13 (Bi-pin)	1199.4		1206.5	1204.1	1213.6
40	600 x 38	G13 (Bi-pin)	589.8		596.9	594.5	604.0
30	900 x 25	G13 (Bi-pin)	894.6		901.7	899.3	908.8
20	600 x 38	G13 (Bi-pin)	589.8		596.9	594.5	604.0
15	450 x 25	G13 (Bi-pin)	437.4		444.5	442.1	451.6
13	525 x 15	G5 (Small bi-pin)	516.9		524.0	521.6	531.1
8	300 x 15	G5 (Small bi-pin)	288.3		295.4	293.0	302.5
6	225 x 15	G5 (Small bi-pin)	212.1		219.2	216.8	226.3
4	150 x 15	G5 (Small bi-pin)	135.9		143.0	140.6	150.1



'U'-SHAPED TUBE

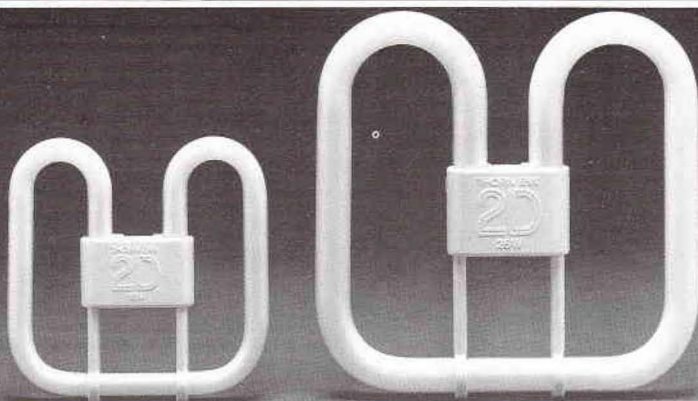
Rated wattage	Nominal dimensions mm	Cap	Length overall - A (mm)		Width overall - B (mm) max.	Leg centres - C (mm)		Bulb diameter - D (mm) max.
			max.	min.		max.	min.	
40	525 x 120	2 x G13	524.0	516.0	120.66	94.0	90.0	26.66

Note: Maximum tolerance of difference in lamp leg length = 2.0mm.

CIRCULAR TUBES

Rated wattage	Nominal diameter mm	Cap	Inside lamp diameter/glass (mm) - B		Inside lamp diameter/base (mm) - A		Outside lamp diameter (mm) - C & D		Bulb diameter (mm) - D1	
			max.	min.	max.	min.	max.	min.	max.	min.
32	305	G10q	246.1	236.5	246.1	239.7	311.2	298.5	34.1	29.4
40	406	G10q	347.7	338.1	347.7	341.3	412.8	400.0	34.1	29.4
60	406	G10q	347.7	338.1	347.7	341.3	412.8	400.0	34.1	29.4

COMPACT FLUORESCENT LAMPS



2D LAMP

Compact fluorescent lamps are available as energy saving alternatives for conventional filament lamps or as space saving alternatives for conventional fluorescent tubes.

THE 2D RANGE

The 2D 38W lamp has been added to the 2D 16W and 2D 28W lamps to give the range of lamps listed in the adjacent table.

The light output of the 2D 38W presents the luminaire designer with a compact alternative to the linear 1200mm 36W fluorescent tube, the circular fluorescent tube and the U-shaped fluorescent tube. The lamp form provides an excellent light source for use with 300 x 300mm modular ceiling systems.

During the currency of this catalogue many new luminaires suitable for the 2D 38W lamp will become available – details can be obtained from our UK Regional Sales Offices.

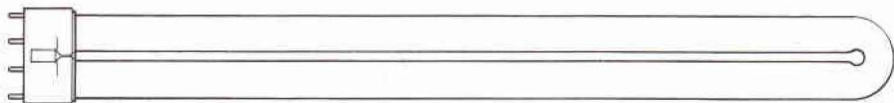
RANGE

Lamp description	Wattage	Starting mechanism
2D 16W (warm)	16	Built into lamp
2D 16W 4 pin (warm) *	16	Separate starter needed
2D 28W 2 pin (warm) †	28	Built into lamp
2D 28W 4 pin Polylux 2700 (warm)	28	Separate starter needed
2D 28W 4 pin Polylux 3500 (white)	28	Separate starter needed
2D 38W 4 pin Polylux 2700 (warm)	38	Separate starter needed
2D 38W 4 pin Polylux 3500 (white)	38	Separate starter needed

* For specialist applications only.

† For replacement purposes only.

Full details of the 2D lamps can be found in the 2D section of this catalogue.



2L LAMP

THE 2L CONCEPT

These space saving lamps are designed to replace lamps twice their length.

2L lamps have 4 pin caps (2G11) and are designed for operation with high frequency electronic ballasts as a result of which the maximum luminous efficacy is obtained from the lamp. In addition all the other advantages associated with electronic ballasts are obtained from the 2L circuit e.g. instant starting, no flicker, no stroboscopic effect, silent starting and operation, lightweight ballast, inherently high power factor etc.

The length and single-ended construction of the 2L lamp is ideally suited for use with 600 x 600mm modular ceiling systems without the necessity of employing extension boxes which waste light and make luminaires difficult to install.

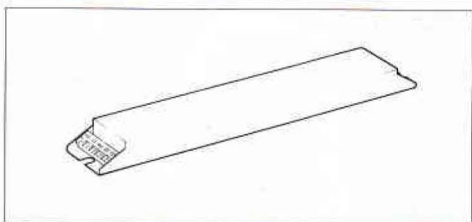
2L lamps are coated with Polylux phosphors for maximum efficacy and good colour rendering properties. Three colour temperatures are available – 2700K (warm), 3500K (intermediate) and 4000K (cool).

During the currency of this catalogue 2L lamps and luminaires will become available – details can be obtained from our UK Regional Sales Offices.

FLUORESCENT CONTROL GEAR & ACCESSORIES

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HIGH FREQUENCY ELECTRONIC BALLASTS FOR FLUORESCENT LAMPS — A LIGHTING MANAGEMENT PRODUCT



APPLICATIONS: suitable for all 26mm and 38mm diameter fluorescent lamps in the range 36–75W. See table below for details.

MAIN FEATURES:

- Rapid starting of lamps
- Improved circuit efficiency
- Total electronic filtering
- Low component count for high reliability
- Elimination of stroboscopic effects due to high frequency (32kHz) lamp operation
- High power factor (in excess of 0.95) without the need for separate power factor correction capacitor.

PHYSICAL DETAILS: Height — 28mm
Width — 42mm
Length — 422mm
Fixing centres — 401mm
Case — mild steel finished in white paint
Terminations — grab type suitable for both solid and stranded conductors
Weight — 600 grams

OPERATING VOLTAGE: 240V — 10% +6% a.c./d.c.
(Note there is a separate range available for 220V operation)

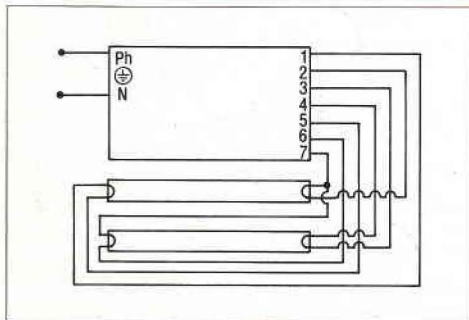
ELECTRICAL CHARACTERISTICS:
(see *Fluorescent Lamp* section for details.)

LUMINAIRES INCORPORATING ELECTRONIC BALLASTS: a limited range of luminaires is currently available to order with electronic ballasts fitted. For details see relevant fittings sections.

RANGE

Cat. no.	Application
G 81004	2 x 36W or 2 x 40W
G 81005	2 x 58W or 2 x 65W
G 81006	2 x 70W or 2 x 75W
G 81014	1 x 36W or 1 x 40W
G 81015	1 x 58W or 1 x 65W
G 81016	1 x 70W or 1 x 75W

For further information on the above products please ask at your local THORN EMI Lighting Sales Office.



CIRCUIT DIAGRAM FOR A TWIN LAMP ELECTRONIC BALLAST

CONTROL GEAR SETS FOR FLUORESCENT TUBES

SWITCHSTART CIRCUITS RANGE FOR 240V 50Hz SUPPLIES¹

amp length m	Wattage W	Circuit type ²	Dia. †	Choke Cat. no.	Weight kg	Term- inat- ions\$	tw °C	Δt °C	Illus. ‡	Starter switch Cat. no.	Capacitor Cat. no.	Rating μF	Working voltage	Diam mm
400	125 or 100	lead ²	2	GCU 100/125	1.25	P.W.	130	65	3	155/800	GC2173	7.2 ± 5%	440	35
400	125 or 100	lead ²	11	2 x GCSH 100/125	0.63 ³	P.W.	130	50	2	155/800	GC2173	7.2 ± 5%	440	35
400	125 or 100	lead	8	GCBS 100/125	2.60	S.T.B.	130	65	4	155/800 ⁴	Inc'd in ballast can.			
400	100	HPF	1	GCU 100	1.80	P.W.	130	65	3	155/800	GC2419	8.4 ± 5%	250	35
400	100	HPF	5	GCSH 100/6 + GCSH 100/4	0.99 0.63	P.W. P.W.	130 130	55 55	2 2	155/800	GC2419	8.4 ± 5%	250	35
400	100	LPF ⁵	3	GCU 100	1.80	P.W.	130	65	3	155/800	—	—	—	—
400	100	LPF ⁵	6	GCSH 100/6 + GCSH 100/4	0.99 0.63	P.W. P.W.	130 130	55 55	2 2	155/800	—	—	—	—
800	75 or 70	lead ²	2	GCU 70	1.09	P.W.	130	55	3	155/800	GC2226	5.0 ± 5%	440	35
800	75 or 70	lead ²	2	GCS 70	0.99	P.W.	130	60	2	155/800	GC2226	5.0 ± 5%	440	35
800	75 or 70	HPF	1	GCU 70/75	1.25	P.W.	130	60	3	155/800	GC2435	6.0 ± 10%	250	35
800	75 or 70	HPF	1	GCS 70/75	0.99	P.W.	140	60	2	155/800	GC2429	6.0 ± 10%	250	25
800	75 or 70	HPF	5	2 x GCSH 70/75	0.63 ³	P.W.	130	60	2	155/800	GC2429	6.0 ± 10%	250	25
800	75 or 70	LPF ⁵	3	GCU 70/75	1.25	P.W.	130	60	3	155/800	—	—	—	—
800	75 or 70	LPF ⁵	3	GCS 70/75	0.99	P.W.	140	60	2	155/800	—	—	—	—
800	75 or 70	LPF ⁵	6	2 x GCSH 70/75	0.63 ³	P.W.	130	60	2	155/800	—	—	—	—
800	75 or 70	HPF	8	GCBS 70/75	2.40	S.T.B.	130	60	4	155/800 ⁴	Inc'd in ballast can.			
500	65 or 58	HPF ⁶	1	GCU 58/65	1.09	P.W.	130	60	3	155/500	GC2435	6.0 ± 10%	250	35
500	65 or 58	HPF ⁶	1	GCS 58/65	0.99	P.W.	130	60	2	155/500	GC2429	6.0 ± 10%	250	25
500	65 or 58	HPF ⁶	5	2 x GCJH 58	0.66	P.W.	130	70	1	155/500	GC2429	6.0 ± 10%	250	25
500	65 or 58	HPF	8	GCBS 58/65	1.80	S.T.B.	130	60	4	155/500 ⁴	Inc'd in ballast can.			
200 ⁷	40 or 36	HPF ⁶	1	GCS 36/40	0.65	P.W.	130	55	2	155/500	GC2428	4.0 ± 10%	250	25
200 ⁷	40 or 36	HPF ⁶	1	GCJ 36/40	0.66	P.W.	130	55	1	155/500	GC2428	4.0 ± 10%	250	25
200 ⁷	40 or 36	HPF	8	GCBS 36/40	1.10	S.T.B.	130	55	4	155/500 ⁴	Inc'd in ballast can.			
300	38	HPF ⁶	1	GCS 36/40	0.65	P.W.	130	55	2	155/500	GC2428	4.0 ± 10%	250	25
300	30	HPF ⁶	1	GCS 30	0.65	P.W.	130	55	2	155/500	GC2428	4.0 ± 10%	250	25
300	30	HPF ⁶	1	GCJ 30	0.53	P.W.	130	65	1	155/500	GC2428	4.0 ± 10%	250	25
300	30	HPF	8	GCBS 30	1.10	S.T.B.	130	55	4	155/500 ⁴	Inc'd in ballast can.			
300	28	HPF ⁶	1	GCS 28	0.65	P.W.	130	50	2	155/500	GC2428	4.0 ± 10%	250	25
300	20 or 18	HPF ⁶	1	GCS 18/20	0.65	P.W.	130	50	2	155/500	GC2428	4.0 ± 10%	250	25
300	20 or 18	HPF ⁶	1	GCJ 18	0.48	P.W.	130	80	1	155/500	GC2428	4.0 ± 10%	250	25
300	20 or 18	HPF ⁶	9	GCBS 18/20	1.02	S.T.B.	130	55	4	155/500 ⁴	GC2417	4.0 ± 10%	250	35
600	2 x 20 or 18	Ser pr ⁸ 7	7	GCS 36/40	0.65	P.W.	130	55	2	2 x 155/200	GC2428	4.0 ± 10%	250	35
600	2 x 20 or 18	Ser pr ⁸ 10	10	GCBS 36/40	1.10	S.T.B.	130	55	4	2 x 155/200 ⁴	GC2417	4.0 ± 10%	250	35
300	16	HPF ⁶	12	GCS 16	0.35	P.W.	130	55	2	— ⁵	GC2286/PW	2.0 ± 10%	250	25
300	15	HPF ⁶	1	GCS 18/20	0.65	P.W.	130	50	2	155/500	GC2428	4.0 ± 10%	250	25
300	15	HPF ⁶	1	GCJ 15	0.48	P.W.	130	70	1	155/500	GC2428	4.0 ± 10%	250	25
300	15	HPF ⁶	9	GCBS 18/20	1.02	S.T.B.	130	55	4	155/500 ⁴	GC2417	4.0 ± 10%	250	35
450	2 x 15	Ser pr ⁸ 7	7	GCS 30	0.65	P.W.	130	55	2	2 x 155/200	GC2428	4.0 ± 10%	250	25
450	2 x 15	Ser pr ⁸ 10	10	GCBS 30	1.10	S.T.B.	130	55	4	2 x 155/200 ⁴	GC2417	4.0 ± 10%	250	35

FOR NOTES SEE OVERLEAF

CONTROL GEAR SETS FOR FLUORESCENT TUBES

SWITCHSTART CIRCUITS (continued) RANGE FOR 240V 50Hz SUPPLIES¹

Lamp length mm	Wattage W	Circuit type*	Dia. †	Choke Cat. no.	Weight kg	Termination§	tw °C	Δt °C	Illus. ‡	Starter switch Cat. no.	Capacitor Cat. no.	Rating μF	Working voltage	Dia. mm
525	13	HPF ⁵	1	GCS 13	0.35	P.W.	130	50	2	155/500	GC2286	2.0 ± 10%	250	25
525	13	HPF ⁵	1	GCJ 13	0.27	P.W.	130	50	1	155/500	GC2286	2.0 ± 10%	250	25
300	8	HPF ⁶	1	GCS 8	0.35	P.W.	130	50	2	155/500	GC2286	2.0 ± 10%	250	25
300	8	HPF ⁶	1	GCJ 8	0.27	P.W.	130	50	1	155/500	GC2286	2.0 ± 10%	250	25
2 x 300	2 x 8	Ser pr ⁶	7	GCS 13	0.35	P.W.	130	50	2	2 x 155/100	GC2286	2.0 ± 10%	250	25
2 x 300	2 x 8	Ser pr ⁶	7	GCJ 13	0.27	P.W.	130	50	1	2 x 155/100	GC2286	2.0 ± 10%	250	25
225	6	HPF ⁶	1	GCS 8	0.35	P.W.	130	50	2	155/500	GC2286	2.0 ± 10%	250	25
225	6	HPF ⁶	1	GCJ 8	0.27	P.W.	130	50	1	155/500	GC2286	2.0 ± 10%	250	25
2 x 225	2 x 6	Ser pr ⁶	7	GCS 8	0.35	P.W.	130	50	2	2 x 155/100	GC2286	2.0 ± 10%	250	25
2 x 225	2 x 6	Ser pr ⁶	7	GCJ 8	0.27	P.W.	130	50	1	2 x 155/100	GC2286	2.0 ± 10%	250	25
150	4	HPF ⁶	1	GCS 8	0.35	P.W.	130	50	2	155/500	GC2286	2.0 ± 10%	250	25
150	4	HPF ⁶	1	GCJ 8	0.27	P.W.	130	50	1	155/500	GC2286	2.0 ± 10%	250	25
2 x 150	2 x 4	Ser pr ⁶	7	GCS 8	0.35	P.W.	130	50	2	2 x 155/100	GC2286	2.0 ± 10%	250	25
2 x 150	2 x 4	Ser pr ⁶	7	GCJ 8	0.27	P.W.	130	50	1	2 x 155/100	GC2286	2.0 ± 10%	250	25

VIVATRONIC CIRCUITS RANGE FOR 240V 50Hz SUPPLIES¹

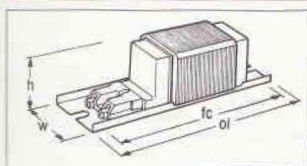
Lamp length mm	Wattage W	Circuit type*	Dia. †	Choke Cat. no.	Weight kg	Termination§	tw °C	Δt °C	Illus. ‡	Vivatron starter Cat. no.	Capacitor Cat. no.	Rating μF	Working voltage	Dia. mm
2400	125 or 100	lead ²	13	GCU 100/125	1.25	P.W.	130	65	3	G69517-4	GC2173	7.2 ± 5%	440	35
2400	125 or 100	lead ²	14	2 x GCSH 100/125	0.63 ³	P.W.	130	50	2	G69517-4	GC2173	7.2 ± 5%	440	35
2400	100	HPF	15	GCU 100	1.60	P.W.	130	65	3	G69517-4	GC2419	8.4 ± 5%	250	35
2400	100	HPF	17	2 x GCSH 100/125	0.63 ³	P.W.	130	50	2	G69517-4	GC2419	8.4 ± 5%	250	35
2400	100	LPF ⁵	16	GCU100	1.60	P.W.	130	65	3	G69517-4	—	—	—	—
2400	100	LPF ⁵	18	2 x GCSH 100/125	0.63 ³	P.W.	130	50	2	G69517-4	—	—	—	—
1800	75 or 70	HPF	19	GCU 70/75	1.25	P.W.	130	60	3	G69577-4	GC2435	6.0 ± 10%	250	35
1800	75 or 70	HPF	19	GCS 70/75	0.99	P.W.	140	60	2	G69577-4	GC2429	6.0 ± 10%	250	25
1800	75 or 70	HPF	20	2 x GCSH 70/75	0.63 ³	P.W.	130	60	2	G69577-4	GC2429	6.0 ± 10%	250	25
1500	65 or 58	HPF	19	GCU 58/65	1.09	P.W.	130	60	3	G69577-4	GC2435	6.0 ± 10%	250	35
1500	65 or 58	HPF	19	GCS 58/65	0.99	P.W.	130	60	2	G69577-4	GC2429	6.0 ± 10%	250	25
1200	40 or 36	HPF	19	GCS 36/40	0.65	P.W.	130	55	2	G69577-4	GC2428 or GC2417	4.0 ± 10%	250	25
2D	28	HPF	19	GCS 28	0.65	P.W.	130	50	2	GC 69577-4	GC 2428	4.0 ± 10%	250	25
2D	38	HPF	19	GCS 36/40	0.65	P.W.	130	55	2	GC 69577-4	GC 2428	4.0 ± 10%	250	25
600	20 or 18	HPF	19	GCS 18/20	0.65	P.W.	130	55	2	G69577-4	GC2428 or GC2417	4.0 ± 10%	250	25

Notes:

- * HPF=Lagging high power factor circuit.
- LPF=Lagging low power factor circuit.
- lead=Leading power factor circuit.
- Ser pr=Series pair lagging power factor circuit.
- † See pages 226-227 for circuit diagrams
- ‡ P.W.=push wire. S.T.B.=screw terminal block.
- § See page 225 for choke illustrations.

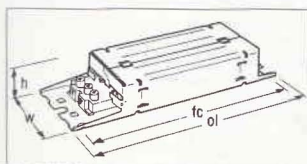
- ¹ Details of control gear for other electricity supplies are available on request.
- ² Circuit can be used as leading half of a lead/lag pair circuit.
- ³ Weight (kg) each.
- ⁴ Starter switches must be ordered separately — an additional switch socket will also be required for series pair circuits.
- ⁵ Circuit can be used as lagging half of a lead/lag pair circuit.
- ⁶ Omit capacitor for LPF (low power factor) circuit.
- ⁷ Control gear set also suitable for 40W 26mm dia. tube and 40W 'U' tube.
- ⁸ Starter switch included within 2D 16W lamp.

FLUORESCENT TUBE BALLAST ILLUSTRATIONS



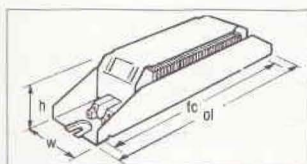
GBJ AND GCJ SERIES

Cat. no.	h	w	fc	ol
GBJ 50	34	30	240	255
GCJH 58	34	30	170	180
GCJ 36/40	34	30	170	180
GCJ 30	34	30	170	180
GCJ 18	34	30	170	180
GCJ 15	34	30	170	180
GCJ 13	32	30	97	110
GCJ 8	32	30	97	110



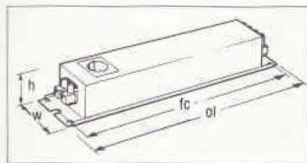
GCS SERIES

Cat. no.	h	w	fc	ol
GCSH 100/125	28	42	140	150
GCSH 100/4	28	42	140	150
GCSH 100/6	28	42	180	190
GCS 70	28	42	180	190
GCS 70/75	28	42	180	190
GCSH 70/75	28	42	140	150
GCS 58/65	28	42	180	190
GCS 36/40	28	42	140	150
GCS 30	28	42	140	150
GCS 28	28	42	140	150
GCS 18/20	28	42	140	150
GCS 16	28	42	97	105
GCS 13	28	42	97	105
GCS 8	28	42	97	105



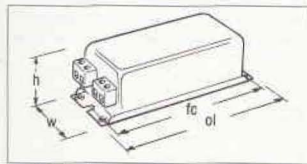
GCU SERIES

Cat. no.	h	w	fc	ol
GCU 100/125	40	48	165	180
GCU 100	40	48	204	217
GCU 70	40	48	150	170
GCU 70/75	40	48	165	185
GCU 58/65	40	48	150	170



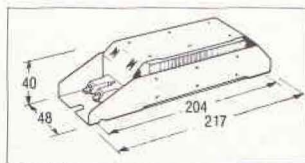
GBS SERIES

Cat. no.	h	w	fc	ol
GBS 100/125	48	64	395	415
GBS 70/75	48	64	395	415
GBS 58/65	43	49	395	408
GBS 36/40	43	49	355	368
GBS 30	43	49	355	368
GBS 18/20	43	49	250	263

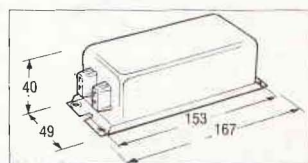


GQS SERIES

Cat. no.	h	w	fc	ol
GQS 220	39	59	102	118
GQS 20/40/80	40	49	115	128



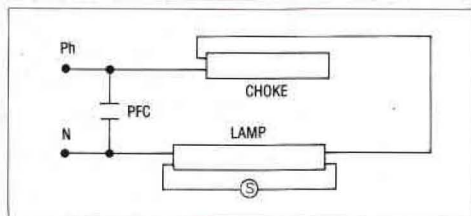
GBU65/75 AND GBU685



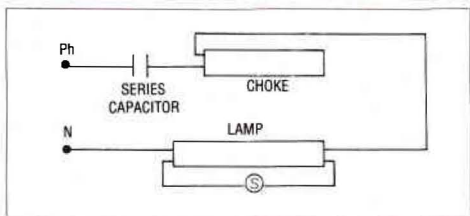
GBU 40

All dimensions shown in mm

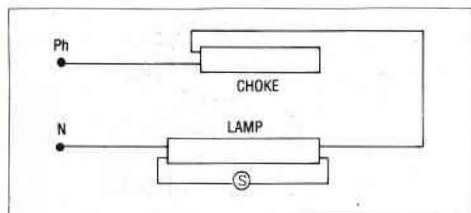
FLUORESCENT TUBE CIRCUIT DIAGRAMS



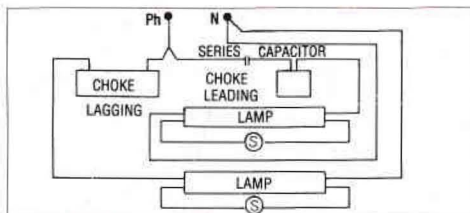
1. Standard lagging high power factor circuit



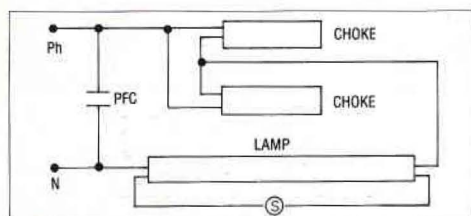
2. Standard leading power factor circuit



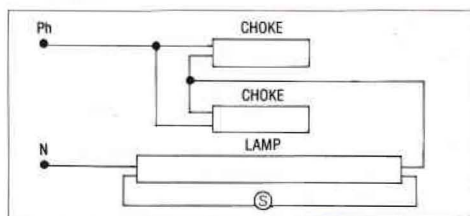
3. Standard lagging low power factor circuit



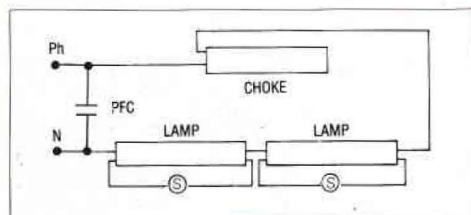
4. Lead-lag pair (Unity Power Factor) circuit (Circuits 2 and 3 combined).



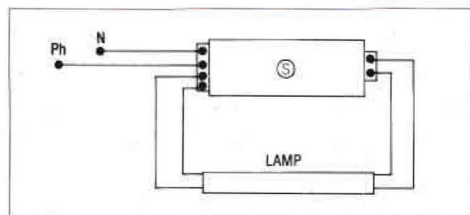
5. Lagging high power factor circuit using parallel half chokes



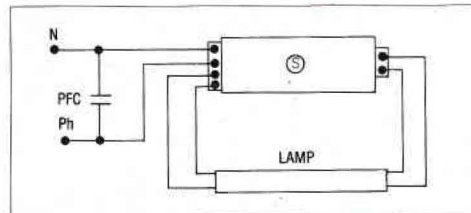
6. Lagging low power factor circuit using parallel half chokes



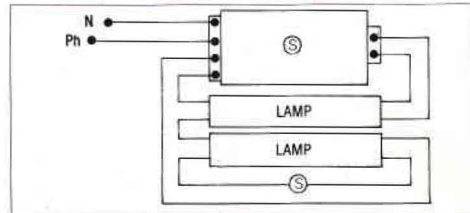
7. Lagging high power factor series pair circuit (omit PFC for lagging low power factor circuit)



8. High power factor circuit for ballast units with built in starter switch socket. (GCBS series)

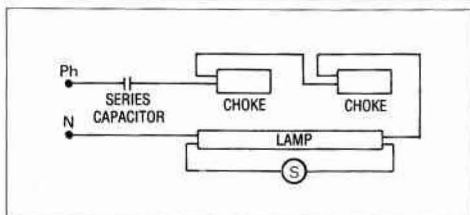


9. High power factor circuit for ballast units with built in starter switch socket. (GCBS series)

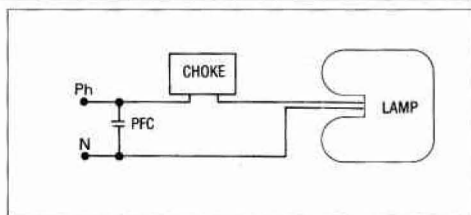


10. High power factor series pair circuit for ballast units with built in starter switch socket (GCBS series).

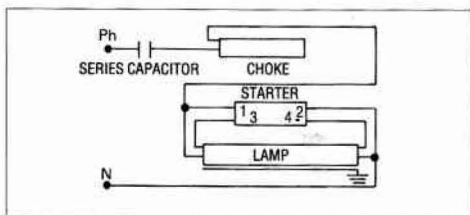
FLUORESCENT TUBE CIRCUIT DIAGRAMS



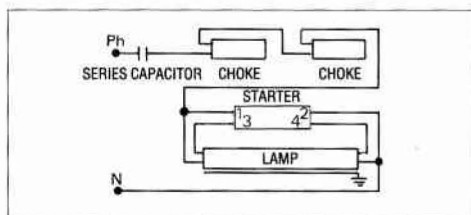
11. Leading power factor circuit using series connected half chokes.



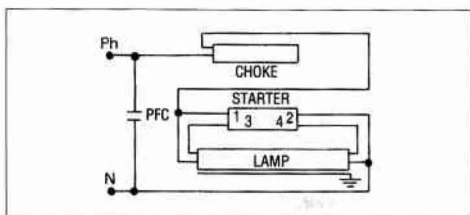
12. Lagging high power factor circuit for 2D 16W lamp.



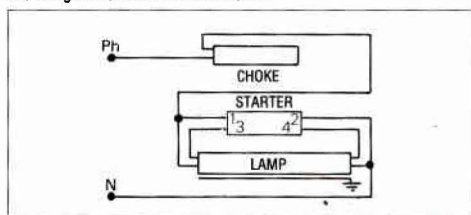
13. Leading power factor circuit for a four terminal Vivatronic starter.



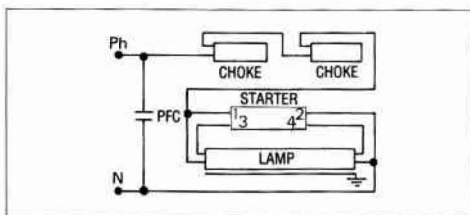
14. Leading power factor circuit for a four terminal Vivatronic starter and using series connected half chokes.



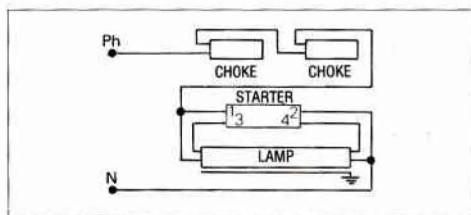
15. Lagging high power factor circuit for a four terminal Vivatronic starter.



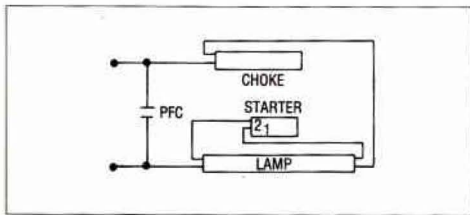
16. Lagging low power factor circuit for a four terminal Vivatronic starter.



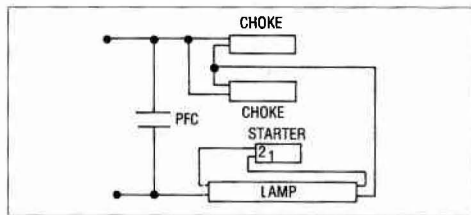
17. Lagging high power factor circuit for a four terminal Vivatronic starter and using series connected half chokes.



18. Lagging low power factor circuit for a four terminal Vivatronic starter and using series connected half chokes.



19. Lagging high power factor circuit for a two terminal Vivatronic starter.



20. Lagging high power factor circuit for a two terminal Vivatronic starter and using parallel half chokes.

CONTROL GEAR SETS FOR FLUORESCENT TUBES

SRS (SEMI-RESONANT-START) AND QS (QUICKSTART) CIRCUITS

The circuits shown here are being superseded by Vivatronic circuits with all the advantages described on Page 230. The details below are for the convenience of customers servicing older starterless luminaires.

RANGE FOR 240V 50Hz SUPPLIES¹

Lamp length mm	Watts W	Circuit type*	Diag	Choke or ballast Cat. no.	Wt kg	Terminations†	tw °C	Δt °C	Illus. §	Quickstart transformer Cat. no.	Terminations†	Illus. §	Capacitor Cat. no.	Rating μF	Working voltage	Diam mm
1800	85	HPF	21	GBU 685	1.70	P.W.	130	70	6	—	—	—	GC 2419	8.4 ± 5%	250	35
1800	75	HPF	21	GBU 65/75	1.70	P.W.	130	55	6	—	—	—	GC 2419	8.4 ± 5%	250	35
1500	65	HPF	21	GBU 65/75	1.70	P.W.	130	55	6	—	—	—	GC 2419	8.4 ± 5%	250	35
1500	50	HPF	21	GBJ 50	0.80	P.W.	130	70	1	—	—	—	GC 2420	5.5 ± 10%	250	35
1200 ³	40	HPF	24	GBU 40	1.30	P.W.	130	60	5	—	—	—	GC 2435	6.0 ± 10%	250	35
2 x 600	2 x 20	HPF	22	GCS 36/40	0.65	P.W.	130	55	2	GQS 220	S.T.B.	7	GC 2417 ²	4.0 ± 10%	250	35
600	20	HPF	23	GCS 18/20	0.65	P.W.	130	50	2	GQS20/40/80	S.T.B.	7	GC 2417	4.0 ± 10%	250	35

* Type HPF=Lagging high power factor circuit

† Terminations: P.W.=push wire S.T.B.=screw terminal block

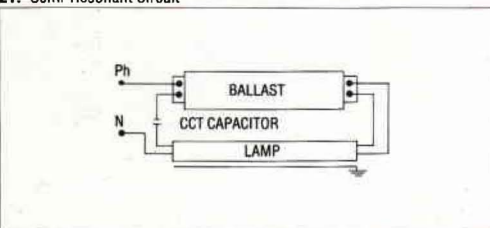
¹ Details of control gear for other electricity supplies are available on request

² Starting capacitor GC 2423 also required

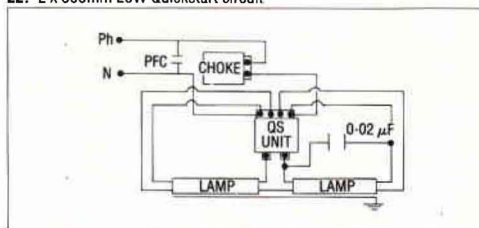
³ Control gear also suitable for 40W 26mm and 40W 'U' tubes

§ See page 225 for illustrations

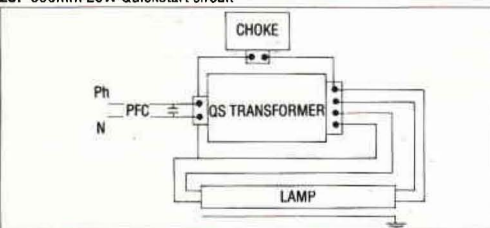
21. Semi-Resonant Circuit



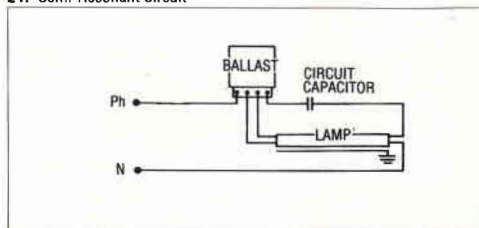
22. 2 x 600mm 20W Quickstart circuit



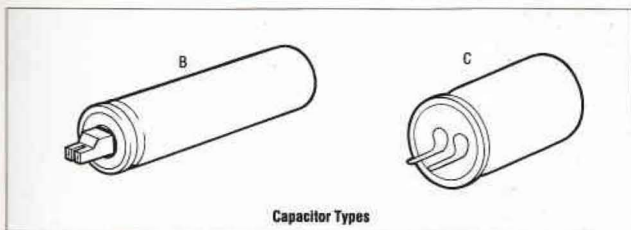
23. 600mm 20W Quickstart circuit



24. Semi-Resonant Circuit



CAPACITORS FOR FLUORESCENT TUBE CIRCUITS

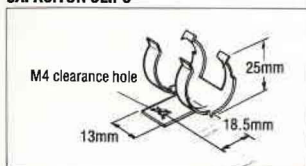


A range of capacitors for fluorescent tube circuits in cases of aluminium or approved plastics. All capacitors detailed below are fitted with a suitable discharge resistor. Capacitors listed comply with BS 4017. Type B capacitors have push wire terminals which accept two 0.5mm² to 1.0mm² conductors per terminal. They can be supplied with an M8 x 1.25 x 8 min 12 max fixing stud, nut and shakeproof washer by the addition of /S after the Catalogue number. Type C capacitors have solder tag connections.

RANGE

Rated capacitance μF	Rated voltage V	Cat. no.	Rated frequency Hz	Self-healing	Rated min./max. temps $^{\circ}\text{C}$	Type	Diameter mm	Max overall length incl terminations mm
$2 \pm 10\%$	250	GC2286	50/60	Yes	-40/+85	C	25	52
$2 \pm 10\%$	250	GC2286/PW	50/60	Yes	-40/+85	B	25	70
$2 \pm 10\%$	250	GC2426	50/60	Yes	-40/+85	B	35	85
$4 \pm 10\%$	250	GC2428	50/60	Yes	-40/+85	B	25	115
$4 \pm 10\%$	250	GC2417	50/60	Yes	-40/+85	B	35	102
$5 \pm 5\%$	440	GC2226	50/60	Yes	-40/+85	B	35	143
$6 \pm 10\%$	250	GC2429	50/60	Yes	-40/+85	B	25	110
$6 \pm 10\%$	250	GC2435	50/60	Yes	-40/+85	B	35	102
$7.2 \pm 5\%$	440	GC2173	50/60	Yes	-40/+85	B	35	155
$8 \pm 10\%$	250	GC2430	50/60	Yes	-40/+85	B	25	110
$8.4 \pm 5\%$	250	GC2419	50/60	Yes	-40/+85	B	35	125
$10 \pm 10\%$	250	GC2274	50/60	Yes	-40/+85	B	35	125
$12 \pm 10\%$	250	GC2431	50/60	Yes	-40/+85	B	25	160
$12 \pm 10\%$	250	GC2409	50/60	Yes	-40/+85	B	35	125

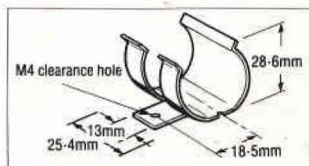
CAPACITOR CLIPS



GY 5330
For 25mm diameter capacitors.

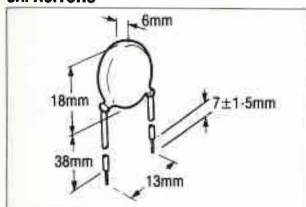


GY 5244 CLIP GY5325 STRAP
For 35mm diameter capacitors

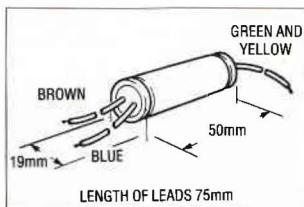


GY 5320
For 35mm diameter capacitors.

RADIO INTERFERENCE SUPPRESSION CAPACITORS



GC2139
A ceramic disc 0.005 μF 800V a.c. capacitor to BS 4017 with high temperature PVC sleeved 38mm leads.



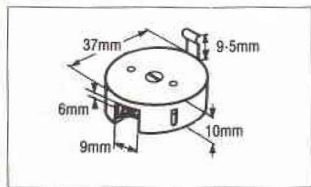
GC2051
A radio interference suppression filter network comprising two 0.005 μF and one 0.1 μF delta connection for additional suppression where the GC 2139 fails to suppress the interference.

FLUORESCENT TUBE LAMPHOLDERS

LAMPHOLDERS FOR 38MM DIAMETER (T12) BI-PIN FLUORESCENT TUBES

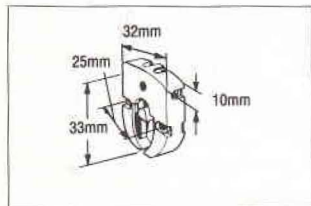
GB 1512

A white urea two piece moulding with earth clip and double-sided lamp pin contacts. Pinch screw cable terminals. A recess allows a neat termination of 2-core or 3-core flexible cable.



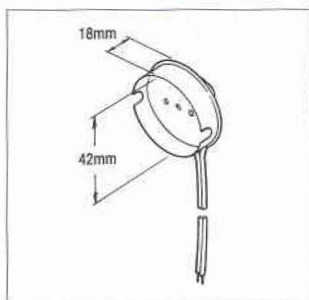
GB 1524

White urea moulding with paxolin backplate. Single-sided tube contacts with pinch screw terminal for incoming cables. 6BA tubular tapped nuts are provided for fixing. This lampholder is not suitable for use with 2400mm tubes which have large tolerances in length.



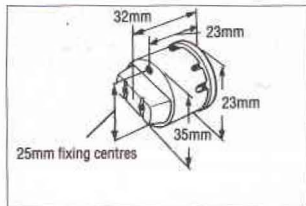
GB 1632/460

A white polycarbonate grip-pin lampholder with 460mm 0.5 sq mm conductor, high-temperature white PVC insulated cable, crimped to double sided side pressure lamp pin contacts.



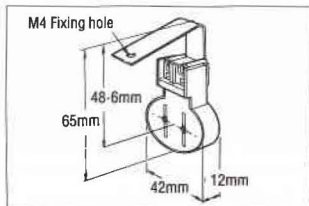
GB 1502

White urea moulding with double-sided independently sprung tube pin contacts and pinch screw terminals for incoming cables. 6BA tubular tapped nuts are provided for fixing. This holder is not suitable for use with 2400mm tubes which have large tolerances in length.



GB 1680/A

White polycarbonate mouldings designed to blend with 38mm diameter (T12) tubes or 26mm diameter (T8) tubes. Side pressure lamp pin contacts. Pushwire supply terminals for 0.5 sq mm - 1 sq mm conductors. Lampholder is vertical with a nominal length tube fitted.



FIXING DETAILS

The dimensions for GB 1524 and GB 1502 are recommended distances between backs of lampholders when mounted on support brackets. Dimensions for GB 1680/A are recommended distances between fixing centres.

FIXING CENTRES

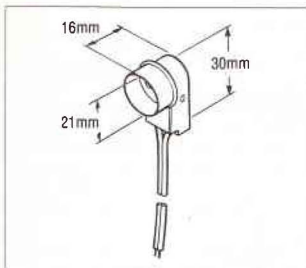
Tube size mm	GB 1524 mm	GB 1680/A mm	GB 1502 mm
2400	—	2329	—
1800	1784	1718	1827
1500	1520	1454	1563
1200	1220	1154	1263
1050	1067	1001	1110
900	915	849	958
600	610	544	653
450	458	392	501

FLUORESCENT TUBE LAMPHOLDERS

LAMPHOLDERS FOR 16MM DIAMETER (T5) MINIATURE BI-PIN FLUORESCENT TUBES.

GB 1625/460

A white polycarbonate grip-pin lampholder with 460mm 0.5 sq mm conductor, high-temperature white PVC insulated cable, crimped to double sided side pressure lamp pin contacts.



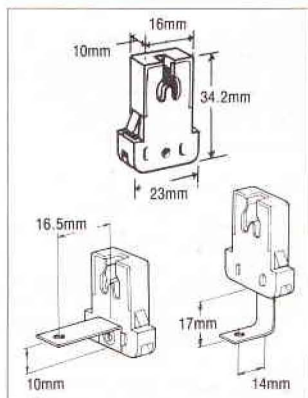
GB 1598

White polycarbonate moulding with single-sided phosphor bronze lamp pin contacts. Push-wire terminals for single conductor cables. This lampholder is self-fastening into a 17.5mm x 10.5mm hole in 22 SWG (0.7mm) metal. Dimensions between holes are shown below:

GB 1598/2, GB 1598/3S

Lampholders similar to GB 1598 above but with fixing brackets added. Fixing centres are given below.

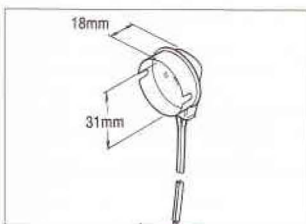
Tube size mm	GB1598 mm	GB1598/2 mm	GB1598/3 mm
525	517	484	510
300	289	256	282
225	212	179	205
150	136	103	129



LAMPHOLDERS FOR 26MM DIAMETER (T8) BI-PIN FLUORESCENT TUBES

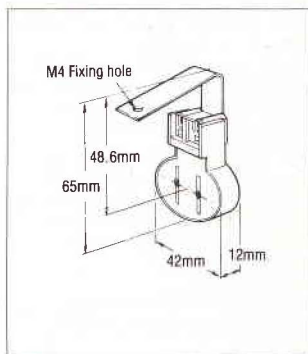
GB 1628/1200

A white polycarbonate grip-pin lampholder with 1200mm 0.5 sq mm conductor, high-temperature white PVC insulated cable, crimped to double sided side pressure lamp pin contacts.



GB 1680/A

White polycarbonate mouldings designed to blend with 38mm diameter (T12) tubes or 26mm diameter (T8) tubes. Side pressure lamp pin contacts. Push-wire supply terminals for 0.5 sq mm-1 sq mm conductors. Lampholder is vertical with a nominal length tube fitted. See opposite for fixing centres.



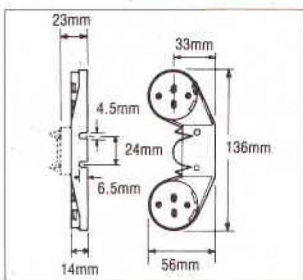
LAMPHOLDERS FOR 26MM DIAMETER (T8) BI-PIN 525MM x 120MM FLUORESCENT U-TUBES

GB 1635-A

White plastic moulding with retaining clip to hold bar of tube, side pressure lamp pin contacts and push-in wire terminals for solid conductors. Screw-mounted by two x 4mm screws (not supplied). Supplied with the lampholder is a tube retaining spring used to support the tube on its bend. The GB 1635-A comes complete with starter switch socket already wired in.

GB 1636-A

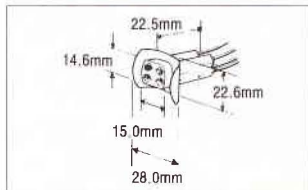
As GB 1635-A but less starter switch socket.



LAMPHOLDER FOR CIRCULAR FLUORESCENT TUBES

GB 1623

A single moulding high-temperature white polycarbonate body with 300mm PVC insulated 0.5 sq mm leads (one pair, yellow for starter holder connection, one lead, white for choke connection and one lead, blue for connection to neutral supply terminal). Split cylinder grip pin brass contacts crimped to leads.

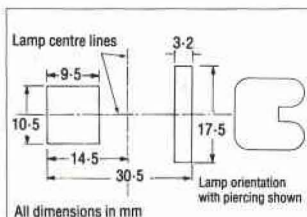
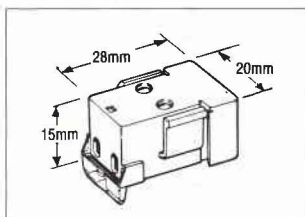


FLUORESCENT TUBE LAMPHOLDERS

LAMPHOLDERS FOR 2-PIN 2D LAMPS

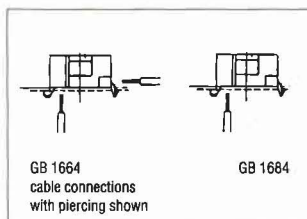
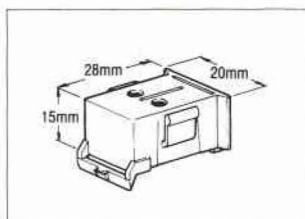
GB 1664

Surface-mounted lampholder with housing of white polycarbonate. Push wire terminals permit back or side entry of 0.5–1.0 sq. mm single conductor cable. This lampholder is for mounting on sheet metal 0.5–1.0 mm thick pierced as shown.



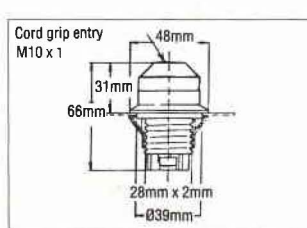
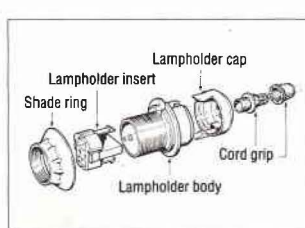
GB 1684

Similar to GB 1664 but with back cable entry only.



GB 1669

Pendant lampholder of white thermoplastic material for 2-pin lamps. Push wire terminals accept single conductor cable, or solder-tinned multi-strand conductor cable, fastened by a 6mm cord-grip.

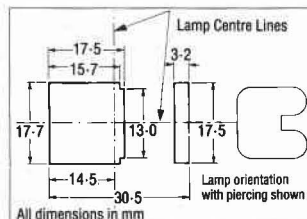
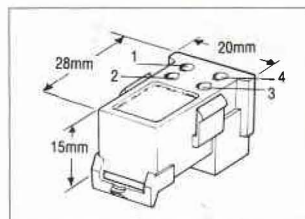


LAMPHOLDERS FOR 4-PIN 2D LAMPS

GB 1685

Surface-mounted lampholder with housing of white polycarbonate. Push wire terminals permit side entry of 0.5–1.0 sq. mm single conductor cable. This lampholder is for mounting on sheet metal 0.5–1.0 mm thick pierced as shown.

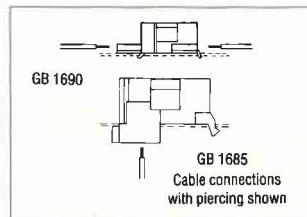
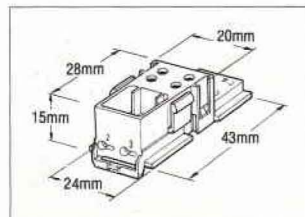
Connect suitable starter switch or electronic starter across terminals 1 and 4. Connect neutral and ballast leads to terminals 2 and 3.



GB 1690

Surface-mounted lampholder with housing of white polycarbonate. Push wire terminals permit side entry of 0.5–1.0 sq. mm single conductor cable. This lampholder is for mounting on sheet metal 0.5–1.0 mm thick pierced as for the GB 1664 lampholder for 2-pin 2D lamps.

Connect suitable starter switch or electronic starter across terminals 1 and 4. Connect neutral and ballast leads to terminals 2 and 3.

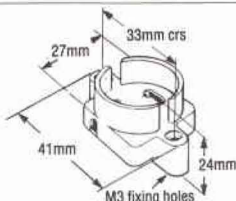


MISCELLANEOUS ACCESSORIES FOR FLUORESCENT TUBES



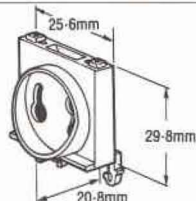
BI-PIN TO BC ADAPTOR GB 1515

Bi-pin/BC adaptor with earth contact. A pair of these adaptors enables modern bi-pin tubes to be used where BC lampholders are fitted. Two adaptors required per tube.



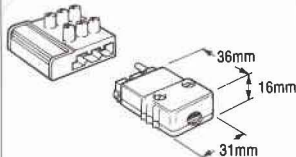
STARTER SWITCH SOCKET GA 5019/X

White urea moulding with paxolin backplate. Side pressure switch contacts. Draw nut terminals giving side and rear cable entries. When mounted on 22mm distance pieces behind luminaire chassis the starter switch projects enough for easy removal.



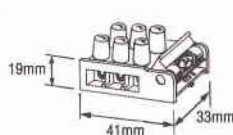
STARTER SWITCH SOCKET GA 5136

A white polycarbonate moulding to hold starter switch parallel to mounting surface. Pushwire connections for 0.5 sq mm - 1 sq mm conductors. Side pressure switch contacts. Mounting - 2 x 4-8mm diameter holes at 20mm centres in 0.5mm-0.9mm thick material.



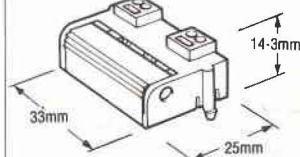
FUSED TERMINAL BLOCK AND ADAPTOR GA 5109

A 250V 5A rated assembly with mains supply via free adaptor (GA 5117) to fixed fused terminal block (GT 1368). White polycarbonate adaptor has earth pin and line and neutral sockets. Pinch screw terminals accept 1 sq mm cable. Fused terminal block generally as GT 1367 but earth socket and pins for supply connection. Also available (GA 5110) as assembly with supply via fixed fused terminal block with earth pin and supply sockets (GT 1381) to free plug with supply pins and earth socket (GA 5126).



FUSED TERMINAL BLOCK GT 1367

White polycarbonate moulding with clear glass filled nylon fuse carrier which swings open to release fuse. Earth and neutral connections are of the through-barrel type and two line connections are provided for mains input and circuit feed. All connections are by pinch screw terminals suitable for 2 x 2.5 sq mm cables. Back fixing is by a screw and shakeproof washer provided. For front fixing a 2.5mm x 18mm screw must be used (not provided). Either method of fixing provides earth connection to chassis. Fuses to be ordered separately.



FUSEHOLDER GT 1387

A 250V 5A rated in-line fuseholder with snap-in mounting action. The body moulding is of white polycarbonate. The fuse carrier is of clear glass filled nylon revealing the presence of a fuse and its colour coding. Push wire terminals provide top looping facilities for 1 sq mm max conductors. Recommended strip length 8mm. Mounting - 2 x 4mm diameter holes at 31.7mm centres in 0.5mm - 0.9mm thick material. Fuses to be ordered separately.

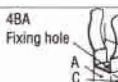
FUSES GT 1268, GT 1299

All fuses comply with BS 1362 dimensions and must be used with GT 1367, GA 5109 and GT 1387 fuseholders.

Cat. no.	Rating	Colour
GT 1299	3A	Red
GT 1268	5A	Black

CLEANING FLUID (DESTATOL) GM 6207/1 (1 LITRE) GM 6207/5 (5 LITRES)

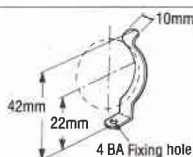
An anti-static cleaning fluid specially manufactured for cleaning plastic diffusers. Destatol is supplied in a plastic container in concentrated form. Dilute 1 part Destatol to 10 parts water.



SUPPORT CLIPS GY 5204, GY 5200, GY 5201

A range of bright zinc plated spring steel tube support clips which can be used around the glass of the tube or around the metal cap. When used to earth the cap to the metalwork of the luminaire chassis any paint should be scraped from the chassis to give good continuity.

Cat. no.	Tube dia mm	A mm	B mm	C mm
GY 5204	16	7.5	10.3	7.9
GY 5200	26	12.7	17.8	9.5
GY 5201	38	16.7	26.2	9.0



SUPPORT CLIP GY 5332

A bright zinc plated spring steel support clip for circular fluorescent tubes. Three clips are required per tube, mounted outside the tube circumference. Fixing details - 32W tube: 275mm radius - 40W and 60W tubes: 375 mm radius.

DIMMING SYSTEMS

UNIT DIMMERS

GENERAL: The range consists of 6 unit dimmers suitable for the control of both tungsten (including low voltage) and fluorescent loads in commercial and architectural situations. Remote control is provided via a variety of units with the manual and slider options being available if required with a 'Take Control' facility enabling control of an installation to be achieved from a number of positions.

RANGE

Cat no.	Description
G 81023	5A with remote manual control
G 81024	5A with 4 level automatic control*
G 81025	10A with remote manual control
G 81026	10A with 4 level automatic control*
G 81027	20A with remote manual control
G 81028	20A with 4 level automatic control*

* 4 level dimmers are provided with 4 pre-sets, one being OFF and the other 3 adjustable from OFF to FULL. Fade rates from one preset to another are adjustable up and down from 1 to 16 or 10 to 160 seconds.

OPERATING VOLTAGES All dimmers listed are suitable for operation on 220/240V 50/60 Hz supplies.

MAXIMUM AMBIENT OPERATING TEMPERATURE Operation at full load levels in ambient temperatures up to 40°C is permissible providing the area around the dimmer is well ventilated.

RADIO INTERFERENCE All dimmers comply with the limits laid down in BS 800.

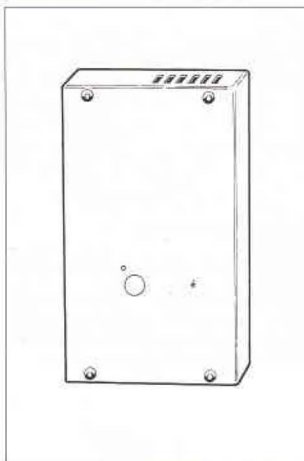
FUSE PROTECTION All dimmers are protected by HRC fuses of the appropriate rating located on the front panel. A spare fuse is also provided in the case of dimmers G 81025 - G 81028 inclusive.

CABLE ENTRY 20mm knockouts are provided in the top and rear of the dimmer housing in the case of G 81023 and G 81024. For dimmers G 81025 to G 81028 inclusive an additional knockout is also provided in the bottom.

CONTROL RANGES

i Tungsten/Tungsten Halogen Lamps: a smooth transition from full to zero output may be achieved. **Note:** operation of certain tungsten halogen lamps at low levels of brightness for prolonged periods of time may impair the halogen cycle and the expected life may not be fully realised.

ii Fluorescent Lamps: smooth dimming is possible from full light output to 5% of full light output for lamps up to 1800mm 70W (both 26mm and 38mm diameter) providing the appropriate control gear as detailed below is utilised.



G 81023



G 81024

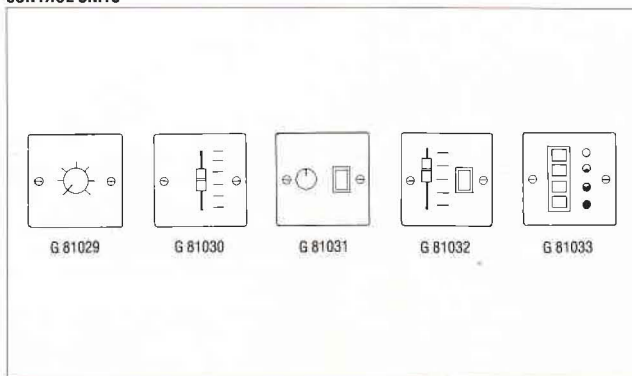
MAXIMUM LOAD RATINGS

Dimmer Cat no.	Tungsten†	Fluorescent
G 81023 and G 81024	1.1 kW (1.0 kW)	36W 1200mm tubes* x 11 58W 1500mm tubes* x 7 70W 1800mm tubes* x 6
G 81025 and G 81026	2.2 kW (2.0 kW)	36W 1200mm tubes* x 22 58W 1500mm tubes* x 14 70W 1800mm tubes* x 12
G 81027 and G 81028	4.4 kW (4.0 kW)	36W 1200mm tubes* x 44 58W 1500mm tubes* x 28 70W 1800mm tubes* x 24

* Includes 'U' Tubes and 28W 2D 4 Pin lamps.

† Maximum load figures are for 240V input mains supply, 220V figures in brackets.

CONTROL UNITS



NOTES

- Any combination up to a maximum of 6 control units with the 'Take Control' facility (i.e. G 81031 or G 81032) may be used with a remote manual dimmer.
- Up to a maximum of 6 G 81033 may be used with a 4 level automatic control dimmer.
- All control units are satin aluminium anodised finish. Alternative finishes can be supplied to order.
- Control units may be mounted in standard 86mm x 86mm mounting boxes.
- For multiple dimmer installations, up to 4 channels may be controlled from any one location. Control units of this type can be supplied to order.

RANGE

Cat no.	Description
G 81029	Single channel rotary potentiometer for use with G 81023, G 81025 and G 81027
G 81030	Single channel slider fader for use with G 81023, G 81025 and G 81027
G 81031	As G 81029 but with 'Take Control' facility
G 81032	As G 81030 but with 'Take Control' facility
G 81033	Single channel push button control for use with G 81024, G 81026 and G 81028

WEIGHTS AND DIMENSIONS

Dimmer Cat no.	Weight kg	Dimensions mm
G 81023 / G 81024	0.75	175 (h) x 100 (w) x 60 (d)
G 81025 / G 81027	2.0	250 (h) x 200 (w) x 60 (d)
G 81026 / G 81028	2.2	250 (h) x 200 (w) x 60 (d)

DIMMABLE FLUORESCENT LUMINAIRES

In order to dim a fluorescent lamp the use of a special electronic dimming transformer and appropriate choke (see below for details) is required for **each** lamp to be dimmed. Luminaires can be supplied to order with the relevant gear already fitted. To obtain a converted fitting the catalogue number for the fitting should be followed by /DIM, eg. FCLV 58 becomes FCLV 58/DIM. Customers are strongly advised to consult the Lighting Engineering Department of their local THORN EMI Lighting Ltd. Sales Office when specifying dimming equipment.

DIMMABLE CONTROL GEAR

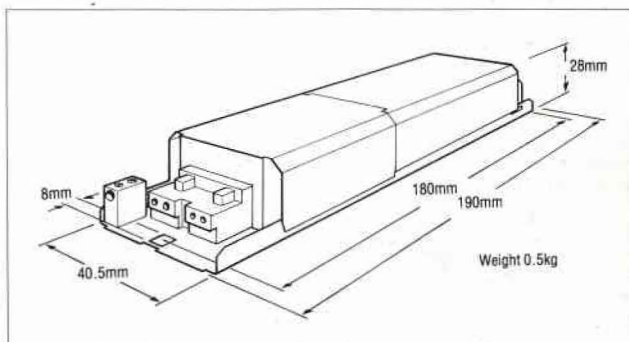
Lamps up to 1800mm 70W (both 26mm and 38mm diameter) may be dimmed by the use of the following. One set of control gear is required per fluorescent lamp. G 81013 Electronic Dimming Transformer plus relevant switchstart choke for lamp (see p.223).

DIMMING OF 2D LAMPS

The 16W 2D lamp is not suitable for dimming applications. However, the 28W 4 pin 2D lamp can be successfully dimmed using the control gear illustrated and detailed above. It is unlikely that any of the current range of 28W 2D luminaires will be capable of accommodating this gear, and alternative arrangements will be required.

LUMINAIRES CONVERTED FOR DIMMING AND EMERGENCY OPERATION

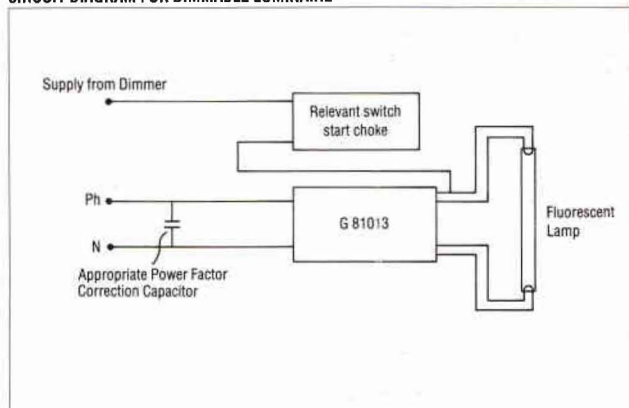
On some occasions fittings with the above facilities will be required. These can be supplied to special order, however, customers should consult their local THORN EMI Lighting Sales Office before doing so, as accommodation of all the relevant gear may not always be possible with some fittings' ranges.



G 81013

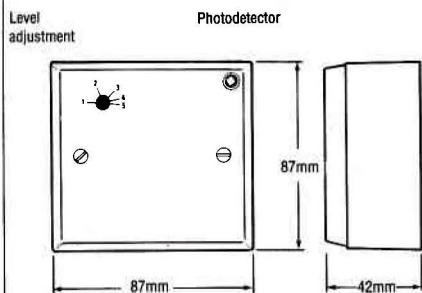
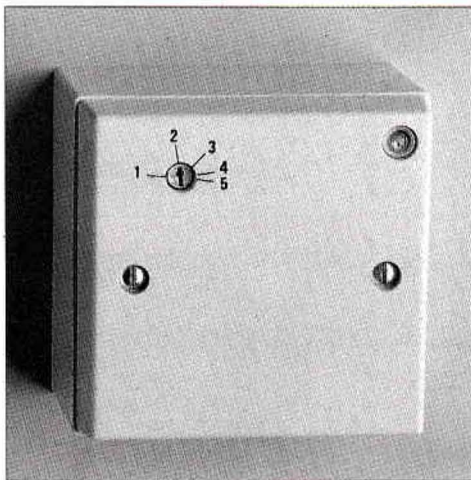
Note: G 81013 is suitable for 240V 50/60Hz supplies and operation in locations where its case temperature will not exceed 50°C.

CIRCUIT DIAGRAM FOR DIMMABLE LUMINAIRE



'MAGIC EYE' PHOTOCELL SWITCH

— A LIGHTING MANAGEMENT PRODUCT



APPLICATION: the photocell switch is designed for any interior application where the artificial lighting is supplemented by a high level of daylight. It can be used to automatically control a luminaire or group of luminaires adjacent to a window area, resulting in savings as high as 75%.

DESCRIPTION

HOUSING: standard single white plastic surface mounted box.

CABLE ENTRY: via a single 20mm knockout hole located in the rear of the box.

ELECTRICAL CONNECTIONS: via a 3-way block (each terminal being suitable for 2 x 2.5mm² cables) mounted inside the rear of the box. An earthing point is also provided.

MOUNTING FACILITIES: using one or more of the available push-out screw holes provided in the rear of the housing.

OPERATING VOLTAGE: 240V \pm 10% 50Hz.

LEVEL ADJUSTMENT: a manually adjustable control is provided enabling lighting levels between 20 and 500 lux to be maintained.

OPERATING TEMPERATURE RANGE: 0–50°C

CATALOGUE NUMBER: LMPC1

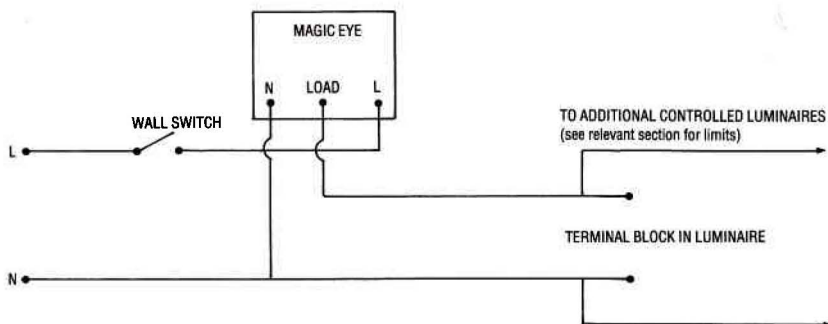
OFF/ON SWITCHING RATIO: 3:1

MAXIMUM FLUORESCENT LAMP LOAD PER MAGIC EYE

Lamp length	1.8m	1.5m	1.2m
Lamp wattage	70W/75W/85W	58W/65W	36W/40W
Maximum number of lamps	6	8	10

* Alternatively a tungsten load up to 1000W may also be operated.

For further information please request data sheet 5.EM.1 from your local THORN EMI Lighting Sales Office.



General lamp information	240
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SON High pressure sodium lamps	242
SONDL Deluxe high pressure sodium lamps	243
SON High pressure sodium lamps – linear	244
SON High pressure sodium lamps – reflector	245
Kolorlux MBF and MBF Super Deluxe mercury fluorescent lamps	246
Kolorlux MBFR mercury reflector lamps	247
Kolor-plus MBTF mercury tungsten lamps	247
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Arcstream 3000	249
MBIL Linear metal halide lamps	250
CSI Sealed beam compact source iodide lamp	251
Electrical data for discharge lamps	252

GENERAL LAMP INFORMATION

LIGHTING ADVISORY SERVICE

Discharge lamps are compact high output light sources and their successful application for interior or exterior use depends upon several factors. Luminaire design, layout and decor are all important elements in achieving visual satisfaction. Advice from THORN EMI lighting engineers is available on request.

SUPPLY VOLTAGE

All lamps are suitable for 220V and 240V supplies with suitable control gear. The lamps described in this section will start and operate with a 10% reduction in rated supply voltage provided the correct control gear is used. Kolor-Plus lamps which do not require control gear must be operated at the correct supply voltage.

High pressure sodium lamp ballasts are designed to give the correct lamp operating conditions at the nominated supply voltage. Short term variations of $\pm 6\%$ are permissible without any significant effect on lamp life. However, the lamps should not be run continuously on a mean supply voltage of 10V or more above nominal.

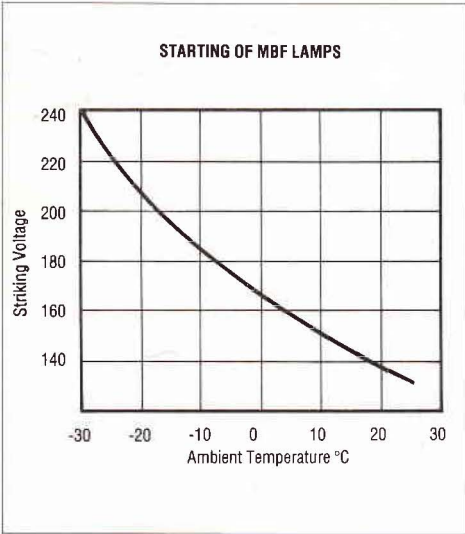
FUSING

For a very short period after switch-on, a discharge lamp may act as a rectifier and as a result the ballast may allow several times the normal circuit current to flow. To avoid fuse failures the ratings recommended in the *Discharge Control Gear* section, pages 253 to 262, should be used. For further information refer to Data Sheet 4:90.2

To prevent rectification occurring at end of life continuous burning of discharge lamps should be avoided and a switch off introduced at least once every 24 hours.

AMBIENT TEMPERATURE

Discharge lamps will normally start at minimum temperatures of -20°C and -40°C for SON. Mercury lamps which do not use a high voltage ignitor device are dependent upon supply voltage.



LIGHTING PERFORMANCE VALUES

The figures quoted in this section are average values to be expected from a batch of lamps and light output is shown for 100 hours and 2000 hours (Data Sheet 4:90.1). Other values and dimensions are subject to normal manufacturing tolerances and relate to the relevant standards below.

Dimensions quoted are maximum.

STANDARDS

Lamps conform to the following standards where applicable:-

- BS 3677 High pressure mercury vapour lamps
- BS 3767 Low pressure sodium vapour lamps
- IEC Publication 188 High pressure mercury vapour lamps.
- IEC Publication 192 Low pressure sodium vapour lamps.
- IEC Publication 662 High pressure sodium vapour lamps.

CAP DESIGNATIONS

- ES — E27
- GES — E40
- BC — B22
- 3pin BC — B22-3

RUN-UP AND RE-STRIKE TIMES

The following table shows typical times for both these characteristics. The actual time will vary according to location, luminaire and ambient temperature. Re-strike time is based upon lamps that have fully run-up and are subject to a momentary interruption to the supply voltage. Run-up times are for the period up to 90% normal light output.

RANGE

Lamp type	Rating watts	Run-up time mins.	Re-strike time mins.
SOX	18	12	Instant
	35	9	Instant
	55	9	Instant
	90	9	10
	135	8	10
SON	50	3	less than 1
	70	3	less than 1
	150	6	less than 1
	250	6	less than 1
	400	4	less than 1
MBI	1000	6	3
	250	2	7
	400	2	7
Arcstream	1000	2	7
	150	1.5	4
MBF	50	5	4
	80	3	4
	125	3	4
	250	4	4
	400	4	4
MBIL	700	3	6
	1000	2	7
	750	2	8-12 †
CSI	1000	2	15-20 †
	1000	1	10*

† In floodlight

* Hot re-strike version available

LOW PRESSURE SODIUM LAMPS

The monochromatic radiation from a low pressure sodium discharge corresponds closely to optimum human eye response and therefore provides the highest luminous efficacy of lamp types for general lighting service. This characteristic produces the yellow colour. The red colour occurs only during the warming up period when the electrical discharge is maintained through the neon gas filling.

DESCRIPTION

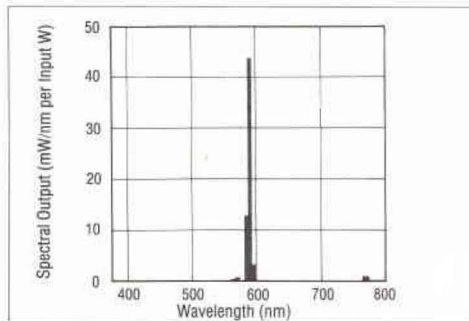
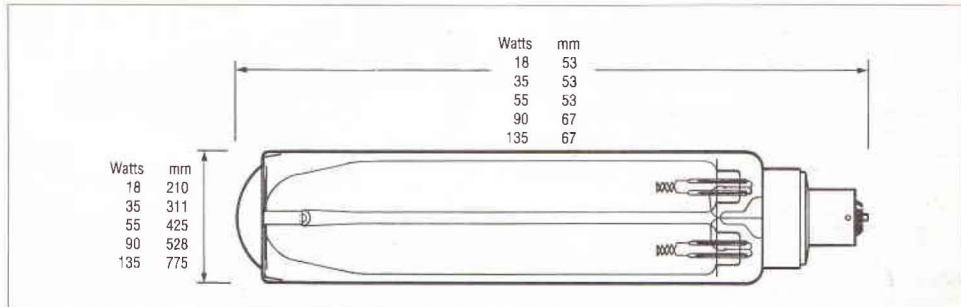
The low pressure discharge operates in a U shaped arc tube. This is contained within a clear outer bulb which has an internal infra-red reflecting coating to provide thermal insulation and to ensure the optimum operating temperature of the arc tube.

APPLICATION

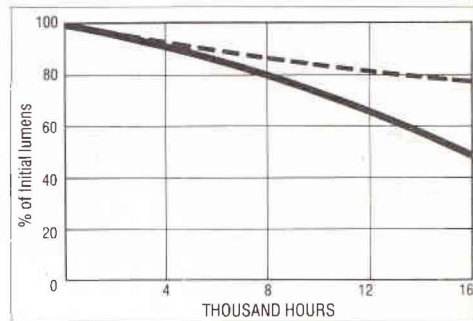
These lamps are highly efficient radiating only yellow light. Their use is for exterior lighting where efficient economic operating is more important than colour discrimination. Roadways, security lighting, subways, footpaths are typical.

OPERATING POSITION

Horizontal $\pm 20^\circ$. 18 - 55W rating may also be used in the vertical cap up position.



99.5% of the visible radiation is emitted at 589.0 and 589.6nm.



RANGE

Rating watts	Lamp type	Cap	Lamp voltage V	Lamp current amps	Lumen output 100 hrs	Lumen output 2000 hrs
18	SOX	BC	56	0.35	1800	1750
35	SOX	BC	70	0.6	4600	4500
55	SOX	BC	107	0.59	7650	7500
90	SOX	BC	112	0.94	12750	12500
135	SOX	BC	164	0.95	22000	21500

SON HIGH PRESSURE SODIUM LAMPS


High pressure sodium lamps offer a dramatic improvement in colour appearance and colour rendering compared with low pressure sodium lamps. Their compact size offers more variation in luminaire design and better optical control.

High pressure sodium lamps combine long life with good lumen maintenance and therefore suitable for situations where maintenance costs are high.

Where 'white' light is required high pressure sodium lamps are the most efficient light sources available.

DESCRIPTION

A high pressure sodium discharge operating within a sintered alumina arc tube contained within an outer bulb which may be either clear tubular or diffuse coated elliptical shape.

The lamps are marked  and are suitable for use with control gear circuits with an external ignitor. This simplifies lamp construction and thereby ensures reliability.

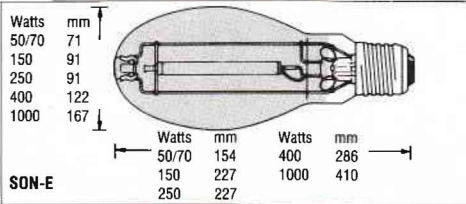
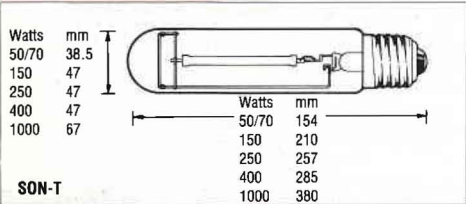
The light emitted is a warm golden colour and allows some colour discrimination but not accurate colour rendering.

APPLICATION

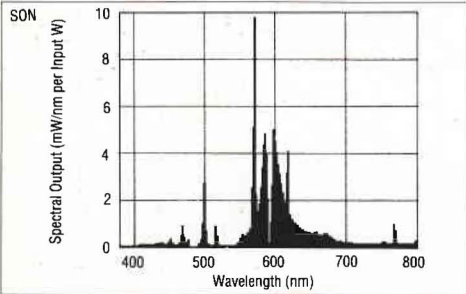
The combination of high efficiency, good lumen maintenance and long life make this lamp suitable for many industrial applications both internal and exterior. Warehouses, roadways, floodlighting and security lighting.

OPERATING POSITION

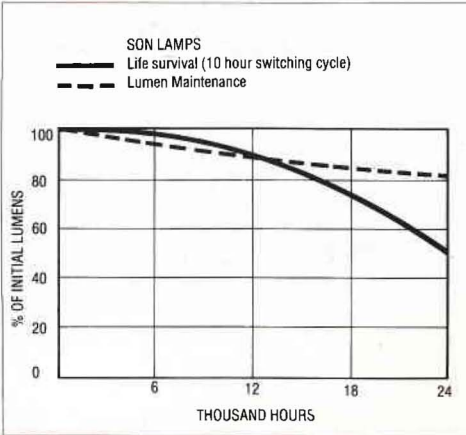
Universal. IEC 662 gives specific operating conditions for all luminaires.



RANGE						
Rating watts	Lamp type	Cap	Lamp Voltage (V)	Lamps current Amps (A)	Lumen output	
					100 hrs	2000 hrs
50	SON-E	ES	85	0.75	3500	3100
70	SON-E	ES	90	0.98	5800	5300
150	SON-E	GES	100	1.8	15500	15000
250	SON-E	GES	100	3.0	26500	25500
400	SON-E	GES	105	4.4	46000	45000
1000	SON-E	GES	110	10.3	120000	110000
50	SON-T	ES	85	0.75	3500	3100
70	SON-T	ES	90	0.98	6000	5500
150	SON-T	GES	100	1.8	16000	15500
250	SON-T	GES	100	3.0	28500	28000
400	SON-T	GES	100	4.6	48000	47000
1000	SON-T	GES	110	10.3	130000	120000



Correlated Colour Temp (K)	50-70W 1900	150W upward 2000
Colour co-ordinates x	0.542	0.530
y	0.415	0.415
General colour rendering index (Ra)	35	25

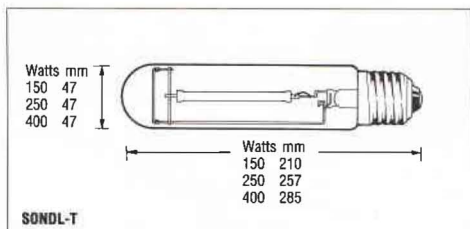


SONDL DELUXE HIGH PRESSURE SODIUM LAMPS

DESCRIPTION

An increased high pressure sodium discharge operating within a sintered alumina arc tube. The same choice of clear tubular and coated elliptical outer bulbs as for standard SON lamps.

The higher pressure raises the colour temperature and improves the colour rendering but lowers efficacy and reduces life. The lamps will operate from the same control gear as standard SON lamps but the arc tube dimensions are different so optical performance of the luminaire may change.

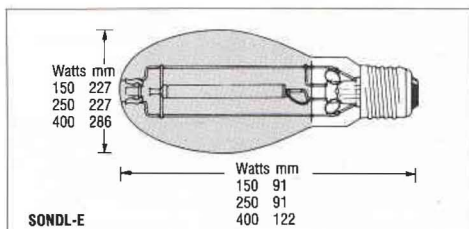


APPLICATION

The improved colour qualities make SONDL lamps suitable for many commercial interiors particularly uplights.

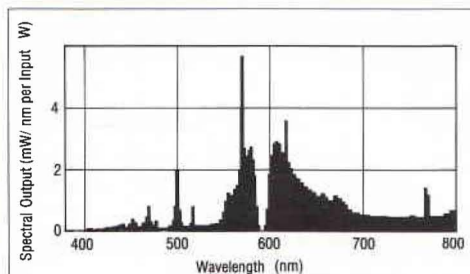
OPERATING POSITION

Universal. The conditions in IEC 662 should be checked for luminaires using SONDL lamps as their voltage sensitivity is greater than for standard SON lamps.

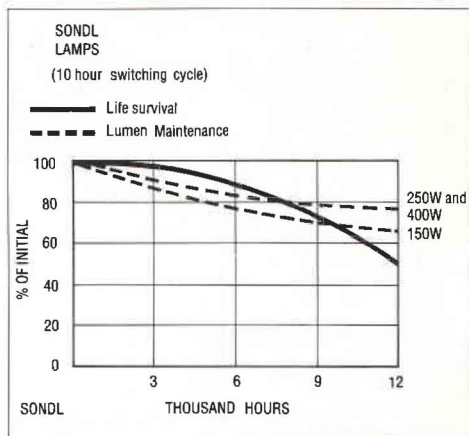


RANGE

Rating watts	Lamp type	Cap	Lamp voltage V	Lamp current amps A	Lumen output 100 hrs	Lumen output 2000 hrs
150	SONDL-E	GES	100	1.8	11500	11000
250	SONDL-E	GES	100	3.0	20000	19000
400	SONDL-E	GES	105	4.4	34000	33000
150	SONDL-T	GES	100	1.8	12000	11500
250	SONDL-T	GES	100	3.0	21000	20500
400	SONDL-T	GES	100	4.6	35000	34000



Correlated Colour Temp (K)	2200
Colour co-ordinates x	0.504
y	0.411
General colour rendering Index (Ra)	70



SON HIGH PRESSURE SODIUM LAMPS – LINEAR

DESCRIPTION

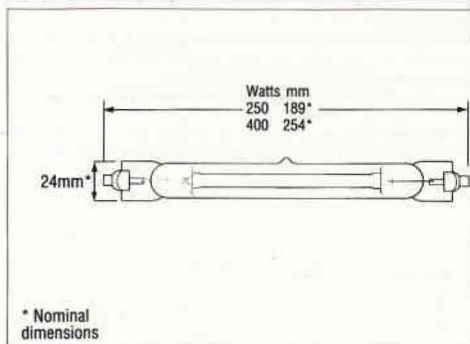
A double ended version with clear quartz sleeve. This lamp is specifically designed for use in floodlights. The light output and electrical characteristics are quoted for optimum performance in a suitable fitting. This performance will not be achieved in free air.

APPLICATION

For floodlighting where good optical control is required from a compact luminaire. Specific THORN EMI floodlights for the 400W lamp are ODW 1500 and OW 1500.

OPERATING POSITION

Horizontal $\pm 20^\circ$. If operated vertically full life may not be achieved. For use with standard 250/400W SON control gear.



RANGE

Rating watts	Lamp type	Cap	Lamp voltage V	Lamp current A	Lumen output	
					100 hrs	2000 hrs
250	SON-TD Rx7s	100	3-0	26000	25000	
400	SON-TD Rx7s	105	4-4	48000	46000	

SON HIGH PRESSURE SODIUM LAMPS — REFLECTOR

DESCRIPTION

A 70W SON arc tube contained in an R95 soft glass reflector bulb.

APPLICATION

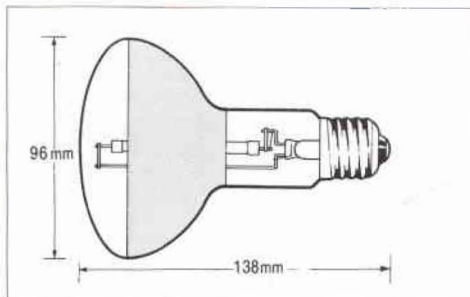
Display and downlight use where long life lamp reduces maintenance.

OPERATING POSITION

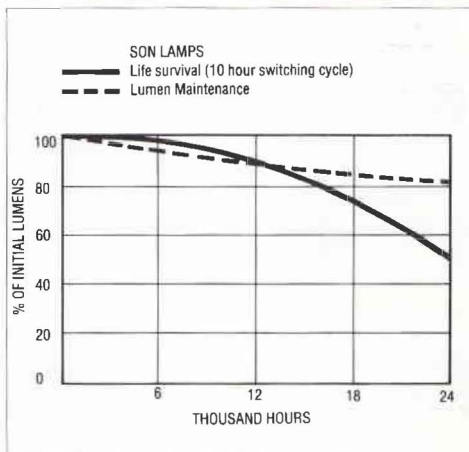
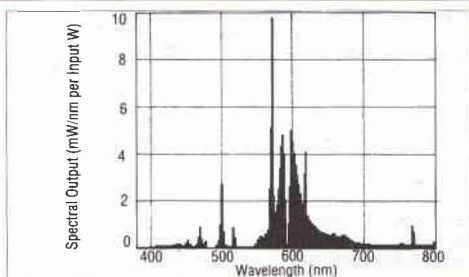
Universal. For use with standard 70W SON control gear.

RANGE

Rating watts	Lamp type	Cap	Lamp voltage V	Lamp current A	Lumen output	
					100 hrs	2000 hrs
70	SON-R	ES	90	0.98	4000	3700



Peak intensity	9200 cds
$\frac{1}{2}$ peak to $\frac{1}{2}$ peak beam angle	20°
$\frac{1}{10}$ peak to $\frac{1}{10}$ peak beam angle	70°



KOLORLUX MBF AND MBF SUPER DELUXE MERCURY FLUORESCENT LAMPS

High pressure mercury lamps are of well established design but the new improved phosphor coating gives a super deluxe lamp with better colour appearance and colour rendering without loss of efficacy. This new lamp combines well with tubular fluorescent lamps for many interior applications.

High pressure mercury lamps are operated by simple ballast circuit and provide low-cost, high intensity discharge lighting.

DESCRIPTION

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

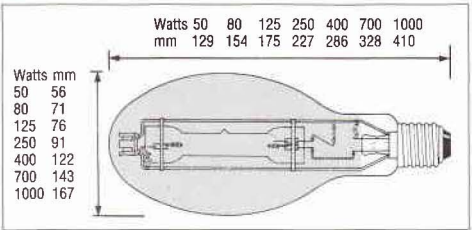
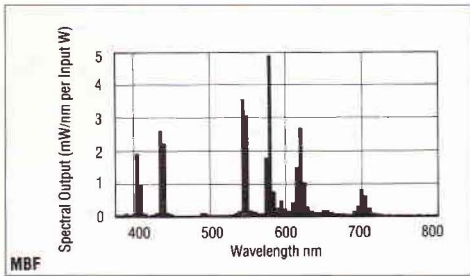
The super deluxe version uses the same arc tube but a different phosphor coating to give a greater red content thereby improving the colour rendering and reducing the colour temperature.

RANGE

Lamp rating W	Lamp type	Cap	Lamp voltage V	Lamp current amps	Lumen output 100 hours	Lumen output 2000 hours
50	MBF/U	ES	95	0.6	2000	1900
80	MBF/U	ES	115	0.8	3850	3650
125	MBF/U	ES	125	1.15	6300	5800
250	MBF/U	GES	130	2.15	13500	12500
400	MBF/U	GES	135	3.25	23000	21500
700	MBF/U	GES	140	5.6	42000	38000
1000	MBF/U	GES	145	7.6	62000	58000

SUPER DELUXE

80	MBFSD/U	ES	115	0.8	3850	3650
125	MBFSD/U	ES	125	1.15	6500	6200
250	MBFSD/U	GES	130	2.15	14000	13300
400	MBFSD/U	GES	135	3.25	24000	22800

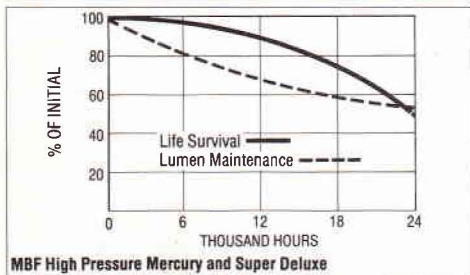
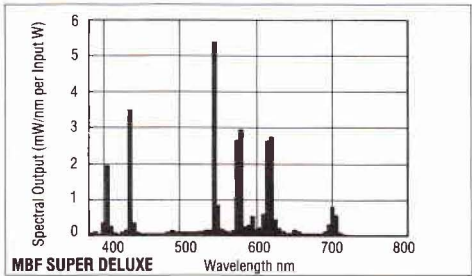


APPLICATION

Industrial and streetlighting with the deluxe version for display areas and public spaces.

OPERATING POSITION

Universal.



	MBF	MBF super deluxe
Correlated Colour Temp (K)	4350	3300
Colour co-ordinates x	0.390	0.420
y	0.385	0.395
General colour rendering Index (Ra)	45	55

KOLORLUX MBFR MERCURY REFLECTOR LAMPS

DESCRIPTION

High pressure mercury vapour discharge operating in a quartz arc tube. A shaped outer bulb is coated with a reflecting layer but allows some transmission. This internal reflector is unaffected by atmospheric corrosion or dirt collection.

APPLICATION

For industrial situations where minimum maintenance is valuable. The hard glass outer bulb permits external use.

OPERATING POSITION

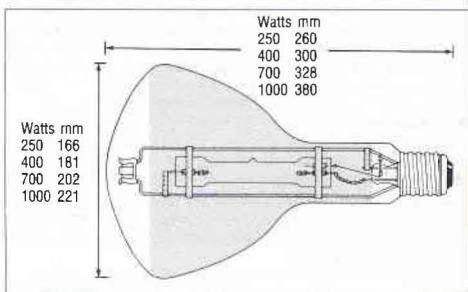
Universal.

	250W	400W	700W	1000W
Peak intensity (per km)	270	285	250	255
1/2 peak beam angle	58°	54°	62°	60°
1/10 peak beam angle	85°	80°	80°	84°

Life and colour characteristics similar to MBF

RANGE

Rating W	Lamp type	Cap	Lamp voltage V	Lamp current A	Lumen Output 100h	Lumen Output 2000h
250	MBFR	GES	130	2.15	11500	10500
400	MBFR	GES	135	3.25	20500	18000
700	MBFR	GES	140	5.60	35000	32500
1000	MBFR	GES	145	7.60	52000	48000



KOLOR-PLUS MBTF MERCURY TUNGSTEN LAMPS

DESCRIPTION

High pressure mercury discharge operating in a quartz arc tube. A coiled tungsten filament is connected in series with the arc tube and acts as a ballast. The lamp operates directly from the supply. The elliptical outer bulb is phosphor coated internally to improve colour and light output.

APPLICATION

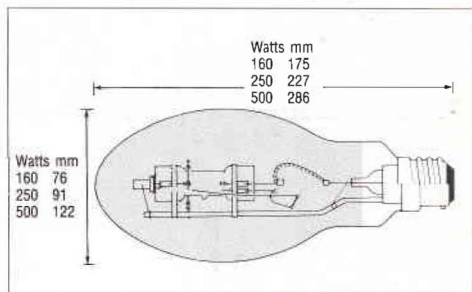
Can be used as a direct replacement for tungsten filament lamps giving higher light output and longer life.

OPERATING POSITION

Cap up. 250W and 500W ratings may be operated in other positions provided there is negligible fluctuation in supply voltage.

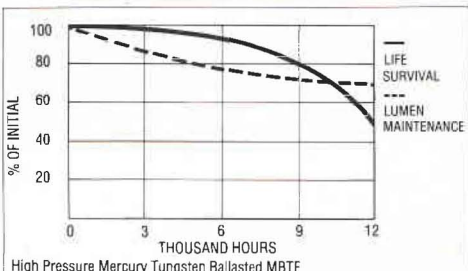
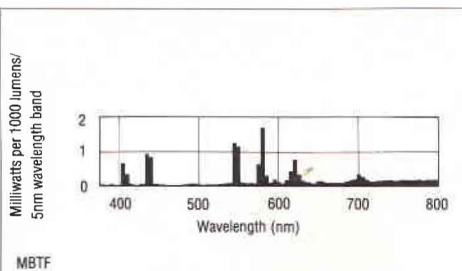
Correlated colour temp (K)	3600
Colour co-ordinates x	0.400
y	0.385
General colour rendering Index (Ra)	48

NOTE: These lamps must be operated on the correct supply as sudden reductions in voltage may cause them to extinguish.



RANGE

Rating W	Lamp type	Cap	Supply voltage V	Lamp current A	Lumen Output 100h	Lumen Output 2000h
160	MBTF	BC or ES	240/250	0.65	2900	2560
250	MBTF	GES	240/250	1.05	5500	4840
500	MBTF	GES	240/250	2.10	12500	11500



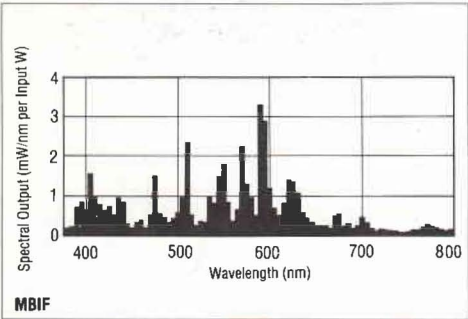
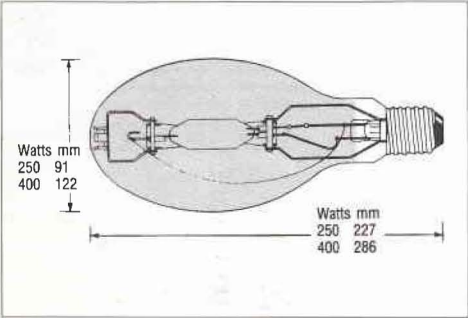
KOLORARC METAL HALIDE LAMPS

The performance of high pressure mercury lamps can be improved in colour and light output by the addition of other metallic elements. Halide compounds are used to control dosing and ensure good mixing within the mercury vapour. Such lamps require external high voltage ignitors. Compatibility of lamp and control gear for metal halide should be checked as lamps are not manufactured to a common standard.

Kolorarc lamps give excellent colour rendering and a clean white appearance making them suitable for many commercial interiors. To maintain the best appearance, group replacement of these lamps is recommended.

DESCRIPTION

High pressure discharge in mercury vapour with metallic additives operating with a quartz arc tube. MBIF lamps have elliptical bulbs coated internally with fluorescent phosphor giving increased light output and improved colour.



Correlated Colour Temp (K)	3700
Colour co-ordinates x	0.395
y	0.395
General colour rendering Index (Ra)	78

APPLICATION

For interior and external applications where good colour rendering and a clean white light is required.

OPERATING POSITION

BUH Base up to horizontal. Operates in any position between cap up and cap 15° below horizontal.

H Horizontal. Primarily designed with cap ± 15° of horizontal, but can be used up to ± 60° of horizontal.

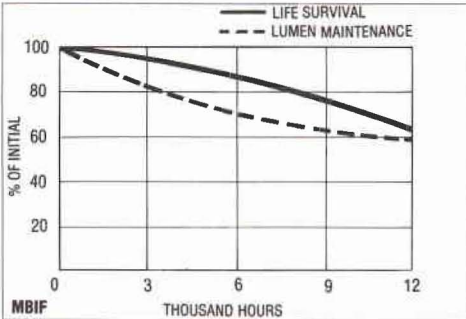
BU Base up. Cap up ± 30°.

NOTE: A suitable enclosed luminaire must be used for these lamps when operating in or near the horizontal position.

RANGE

Rating W	Lamp type	Cap	Lamp voltage V	Lamp current A	Lumen Output 100h	Lumen Output 2000h
250	MBIF/BUH	GES	100	2.9	19000	16000
400*	MBIF/BU	GES	120	3.5	29000	24000
400*	MBIF/H	GES	120	3.5	29000	24000

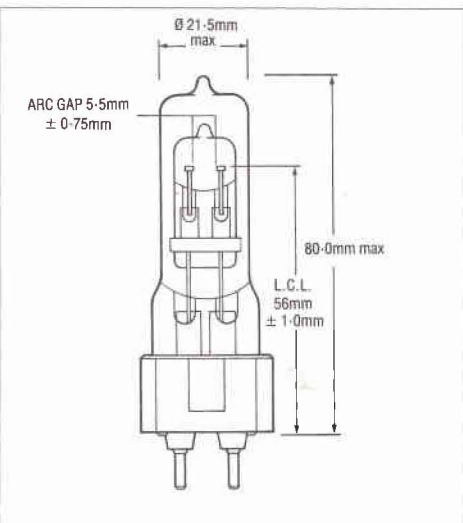
* When operated with THORN EMI control gear lamp operates at 375W. Lumen output quoted for this condition.



ARCSTREAM 3000 (available from 1987)

DESCRIPTION

Single ended low wattage metal halide lamp with quartz arc tube and outer jacket.



APPLICATION

A compact light source offering excellent colour rendering for display lighting, floodlighting and uplighting of commercial interiors.

OPERATING POSITION

BDH Base down to horizontal

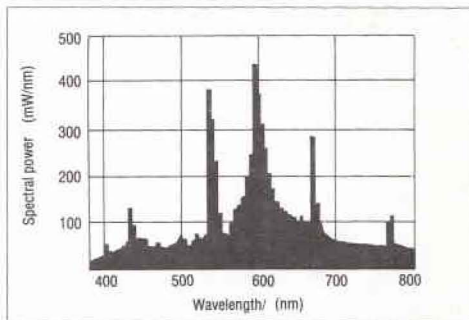
NOTE: Only to be used with suitably enclosed luminaires.

RANGE

Rating W	Lamp type	Cap	Lamp voltage V	Lamp current A	Lumen output
150	MBI-T	G12	95	1.8	12000

PROVISIONAL PERFORMANCE DATA

Correlated Colour Temp (K)	3000
General colour rendering Index (Ra)	80
Service Life	6000h
Colour co-ordinates x	0.434
y	0.402



MBIL LINEAR METAL HALIDE LAMPS

DESCRIPTION

An arc burning between tungsten electrodes in an atmosphere of mercury and metal halides enclosed in a tubular quartz bulb. The halides are chosen to give high efficiency, good colour rendering and a colour appearance approximating to daylight. The lamps are designed to operate as an integral part of the OW 1500 floodlight (see page 168).

APPLICATIONS

Exterior, industrial, commercial and sports floodlighting. The colour rendering properties are well suited for use with colour television cameras.

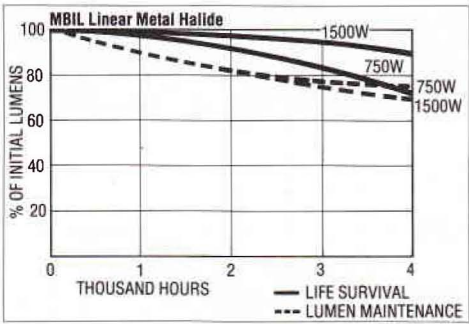
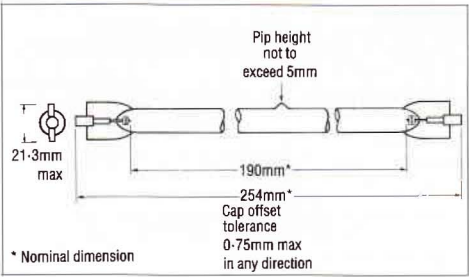
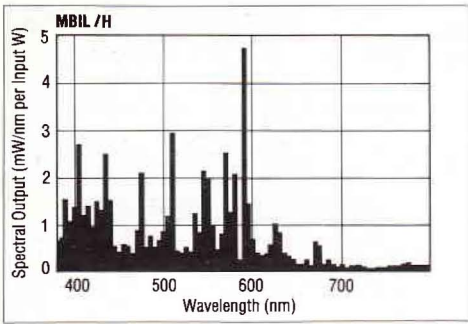
OPERATING POSITION

Horizontal

NOTE: 1500W lamp requires 380/415V supply or use of a step-up transformer.

RANGE

Rating W	Lamp type	Lamp reference	Cap	Lamp voltage V	Lamp current A	Lumen Output 100h	Lumen Output 2000h
750	MBIL/H	91-7461	Rx7s	500	1.75	67000	58500
1500	MBIL/H	91-7473	Rx7s	250	6.70	120000	110000



Rating	750W	1500W
Correlated colour temp (K)	5200	5200
Colour co-ordinates x	0.340	0.340
y	0.360	0.360
General colour rendering Index (Ra)	65	65

CSI SEALED BEAM COMPACT SOURCE IODIDE LAMP

DESCRIPTION

An arc in a quartz envelope between tungsten electrodes in an atmosphere of mercury and metal iodides. The arc tube is enclosed in a PAR 64 sealed beam reflector with clear front glass. The lamp is of high efficiency with white light of good colour rendering. The lamp is specifically designed for use with the THORN EMI OQ1000 floodlight.

APPLICATION

Floodlighting for sports stadia particularly where TV outside broadcasts occur.

NOTE: An instant hot restrrike version of this lamp is available.

OPERATING POSITION

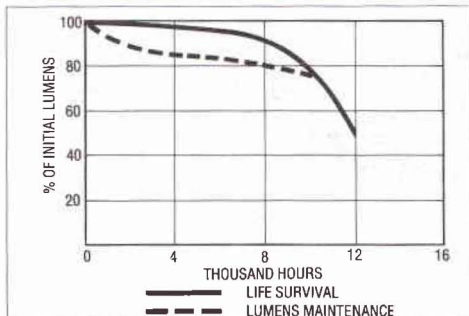
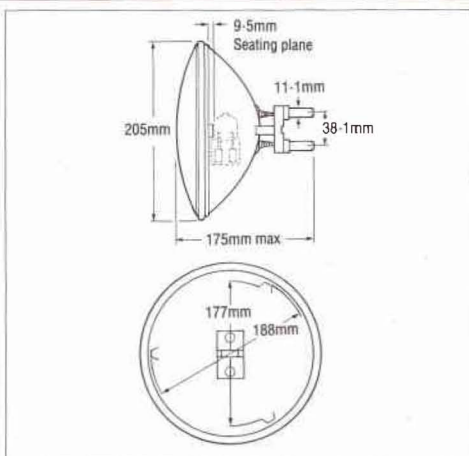
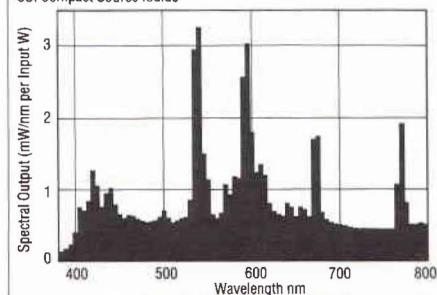
Universal.

Peak intensity	1.5 Mcd
1/2 peak beam angle	6°
1/10 peak beam angle	18°

RANGE

Rating W	Lamp type	Lamp reference	Cap	Lamp voltage V	Lamp current A	Lumen Output 100h 2000h
1000	CSI	99-1222	G38	70-85	15	76000 67000

CSI Compact Source Iodide



Correlated colour temp (K)	4000
Colour co-ordinates x	0.395
y	0.395
General colour rendering Index (Ra)	80

ELECTRICAL DATA FOR DISCHARGE LAMPS

Lamp type	Lamp rating W	Circuit current (A) max. start	Circuit current (A) run	Circuit W	Failed lamp capacitor (A)	% 3rd harmonic
SOX	18	0.16	0.13	26	0.45	30
	35	0.27	0.26	52	0.46	8
	55	0.31	0.32	68	0.46	6
	90	0.53	0.59	122	1.9	21
	135	0.83	0.87	175	2.3	18
SON	50	0.35	0.3	64	0.6	12
	70	0.55	0.4	86	0.76	12
	150	0.7	0.8	172	1.5	18
	250	1.5	1.3	280	2.3	21
	400	3.0	2.15	432	3.0	14
	1000	6.0	5.4	1100	6.4	18
MBF	50	0.32	0.3	62	0.45	19
	80	0.7	0.45	94	0.6	19
	125	1.0	0.7	142	0.6	13
	250	2.0	1.33	275	0.98	8
	400	3.0	2.2	430	1.5	15
	700	6.0	3.5	750	2.3	14
	1000	9.0	5.0	1040	3.8	11
MBIF	250	1.5	1.3	288	2.3	14
	400	3.5	2.0	410	1.9	11
	1000	9.0	5.4	1080	3.2	20
(415V)	1000	5.2	3.1	1050	2.0	20
Arcstream	150	0.83	0.8	174	1.5	18
MBIL	750	6.0	4.2	915	5.7	18
	1500	11.5	7.5	1620	7.0	21
(415V)	1500	6.0	4.2	1580	3.9	17
CSI	1000	3.5	5.0	1120	13.5	21

DISCHARGE CONTROL GEAR & ACCESSORIES

Discharge lamp control gear circuit components	254
Ballast dimensions	255
Circuit diagrams	256
Ballasts	258
Capacitors	259
Ignitors	260
Control gear boxes and trays	261
Discharge lampholders	262

DISCHARGE LAMP CONTROL GEAR CIRCUIT COMPONENTS FOR 240V 50HZ SUPPLY

SON LAMPS† (SON-E, SON-T, SON-TD, SON-R, SONDL-E, SONDL-T)

Lamp type	Lamp wattage	Ballast	Capacitor	Ignitor	HBC/MCB	Fuse rating † re-wire	Circuit diagram
SON	50	G 53451-4	GC 2383	G 53353	4A	5A	A
	70	G 53438-4	GC 2442	G 53353	4A	5A	A
	150	G 53400-T	GC 2331	G 53282/B	4A	5A	A
	250	G 53398-T	GC 2386	G 53282/B	10A	5A	A
	400	G 53371-T	2 x GC 2331	G 53282/B	16A	10A	A
	1000	3 x G 53425-T	2 x GC 2346 + GC 2382	G 53316	20A	15A	B

† For Δ (external ignitor) marked lamps only

SOX LAMPS

SOX	18	G 53376-4	GC 2420	—	3A	5A	C
	35	G 53331-4	GC 2435	G 53311	4A	5A	D
	55	G 53331-4	GC 2435	G 53421	4A	5A	D
	90	G 53365-4	GC 2346	—	4A	5A	E
	135	G 53369-4	GC 2386	—	4A	5A	E

MBF LAMPS (MBF, MBF DELUXE, MBFR)

MBF	50	G 53327-T	GC 2435	—	4A	5A	F
	80	G 53333-T	GC 2383	—	4A	5A	F
	125	G 53439-T	GC 2383	—	4A	5A	F
	250	G 53399-T	GC 2370	—	10A	5A	F
	400	G 53397-T	GC 2331	—	16A	10A	F
	700	G 53399-T + G 53397-T	GC 2386	—	16A	10A	G
	1000	G 53350-4	2 x GC 2346	—	20A	15A	F

METAL HALIDE LAMPS

Arcstream	150	G 53400-T	GC 2331	G 53455	4A	5A	H
MBI/MBIF	250	G 53398-T	GC 2386	G 53455	10A	5A	H
MBI/MBIF	400	G 53397-T	GC 2346	G 53455	16A	10A	H
MBI/MBIF*	1000	G 53351	GC 2413	G 53342	16A	10A	J
MBIL	750	G 53402-4	3 x GC 2346	—	16A	10A	K
MBIL*	1500	G 53308-T	GC 2411	G 53342	16A	10A	J
CSI	1000	G 53307-T	7 x GC 2346	G 53444	20A	20A	H

Ballasts suffix -4 240V operation only.

Ballast suffix -T 220/240V operation. Luminaires normally wired for 240V.

† Data sheet 4:90-2 provides information regarding fusing recommendations for discharge lamps.

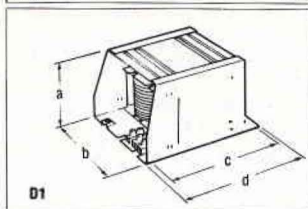
* Circuit for 380/415V 3 phase supply.

Add G 47102 step-up transformer for single phase operation.

Special control gear components are used in street lanterns, SONPAK, Hipak and Invincible ranges. These are listed in the relevant fittings section.

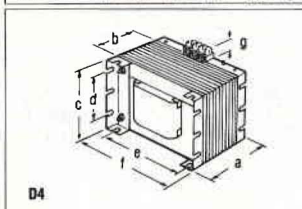
DISCHARGE BALLAST DIMENSIONS

	a	b	c	d
mm	87	100	135	150



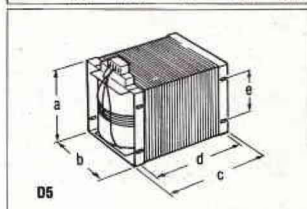
G 53371-T G 53397-T G 53398-T
G 53399-T G 53400-T G 53425-T

	a	b	c	d	e	f	g
mm	120	93	115	70	120	150	26



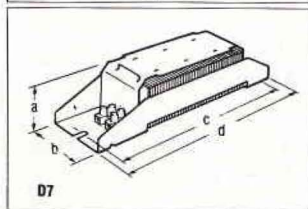
G 53350-4
G 53351

	a	b	c	d	e
mm	190	150	190	125	100



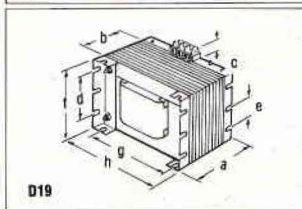
G 53402-4

	a	b	c	d
mm	40	48	150	170



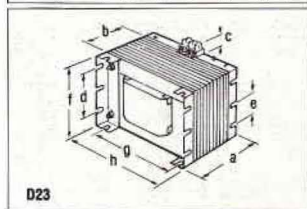
G 53327-T G 53331-4
G 53333-T G 53376-4

	a	b	c	d	e	f	g	h
mm	162	117	26	100	50	155	159	190



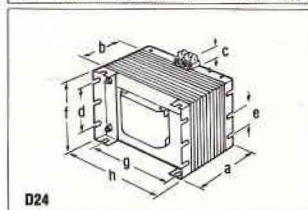
G 53307-T

	a	b	c	d	e	f	g	h
mm	131	86	26	100	50	153	160	194



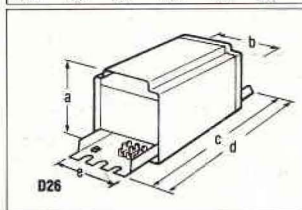
G 53308-T

	a	b	c	d	e	f	g	h
mm	120	82	29	80	40	138	143	178



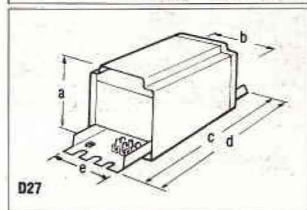
G 47102

	a	b	c	d	e
mm	88	92	165	178	45



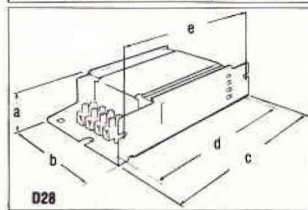
G 53365-4

	a	b	c	d	e
mm	86	109	165	178	51



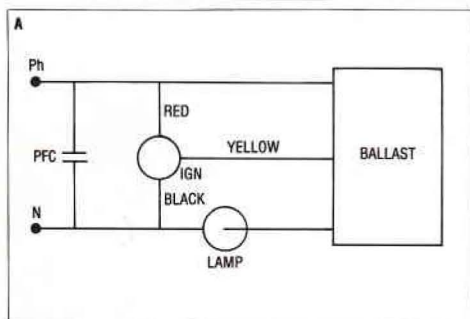
G 53369-4

	a	b	c	d	e
mm	83	73	150	135	135

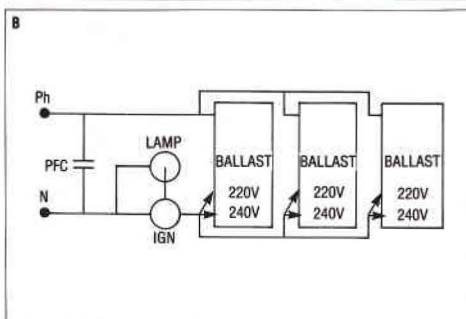


G 53438 G 53439-T G 53451-4

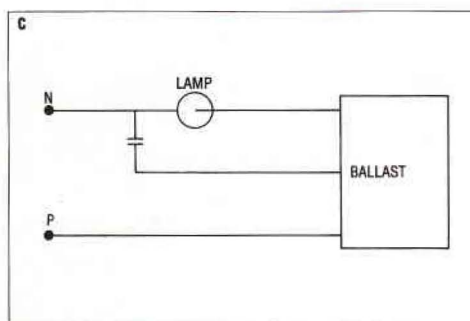
DISCHARGE CIRCUIT DIAGRAMS



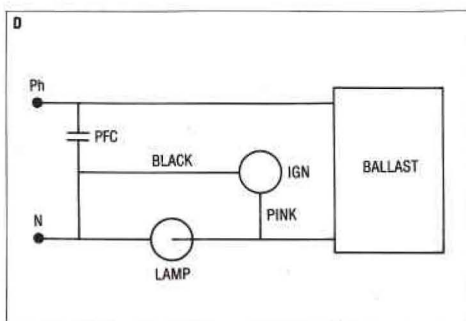
SON 50W - 400W



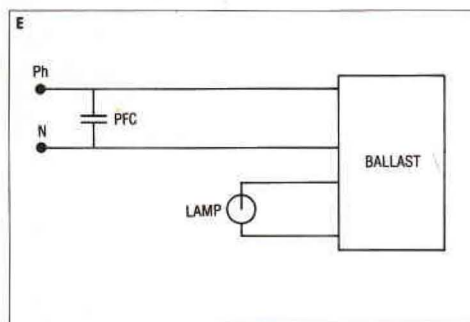
SON 1kW



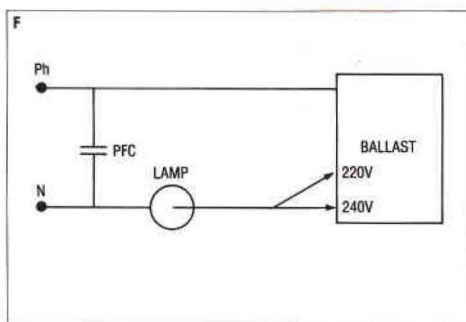
SOX 18W



SOX 35 - 55W

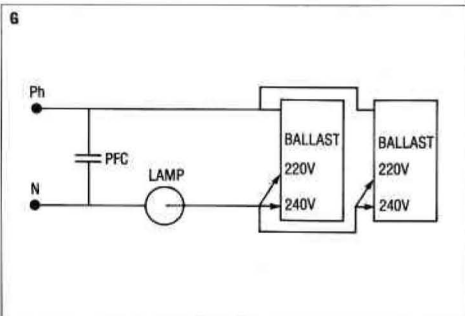


SOX 135W

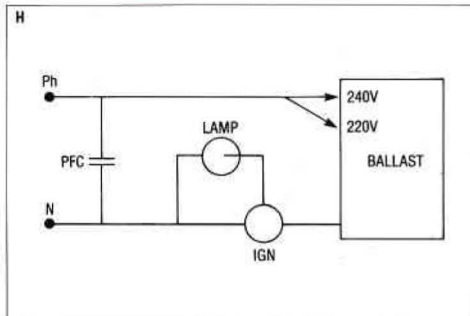


MBF ALL BUT 700W

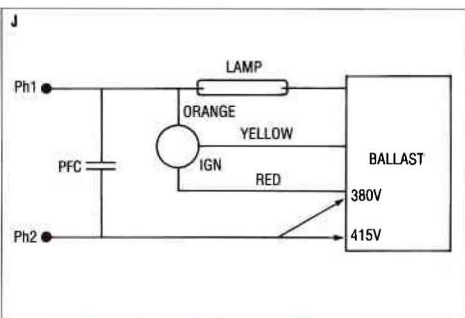
DISCHARGE CIRCUIT DIAGRAMS



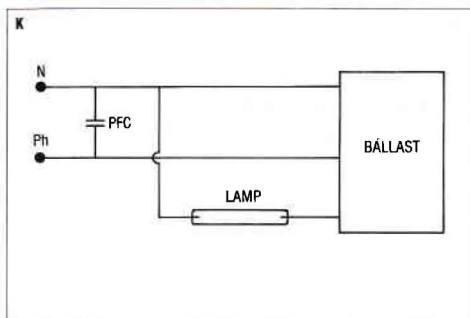
700W MBF



ARCSTREAM + 250 - 400W MBIF



1kW MBIF
1500W MBIL



750W MBIL

DISCHARGE LAMP BALLASTS

DISCHARGE LAMP BALLASTS (240V 50Hz)

Cat. no.	Lamp type	Lamp power (W)	Weight kg	Fig. no.	tw °C	Δt °C	Terminal
G53307-T	CSI	1000	19.3	D19	120	80	4 x TB + E
G53308-T*	MBIL	1500	19.7	D23	120	70	4 x TB + E
G53327-T	MBF	50	1.1	D7	130	60	3 x TB
G53331-4	SOX	35/55	1.1	D7	120	65	2 x TB
G53333-T	MBF	80	1.3	D7	130	60	3 x TB
G53350-4	MBF	1000	7.6	D4	120	75	2 x TB + E
G53351*	MBI	1000	7.6	D18	120	80	4 x TB + E
G53365-4	SOX	90	4.3	D26	130	85	4 x TB + E
G53369-4	SOX	135	5.7	D27	130	85	4 x TB + E
G53371-T	SON	400	4.7	D1	140	75	3 x TB + E
G53376-4	SOX	18	1.1	D7	130	45	3 x TB
G53397-T	MBF/MBI	400	3.5	D1	140	75	3 x TB + E
G53398-T	MBI/SON	250	3.5	D1	140	90	3 x TB + E
G53399-T	MBF	250	2.3	D1	140	80	3 x TB + E
G53400-T	SON	150	2.3	D1	140	80	3 x TB + E
G53402-4	MBIL	750	17.0	D5	130	65	3 x TB + E
G53425-4	SON	1000†	4.7	D1	140	65	3 x TB + E
G53438-4	SON	70	1.9	D28	130	65	4 x TB
G53439-4	MBF	125	1.9	D28	130	75	5 x TB
G53451-4	SON	50	1.9	D28	130	65	4 x TB

STEP UP TRANSFORMER

G47102	—	1500	9.8	D24	120	70	3 x TB + E
Step up transformer 220/240V — 380/415V							

Ballasts suffix -4 240V operation.

Ballasts suffix -T 220/240V operation. Luminaires normally wired for 240V

* for 380/415V three phase supply

† 3 ballasts required per lampway.

TB terminal block

Nx number of wireways

E earth connection.

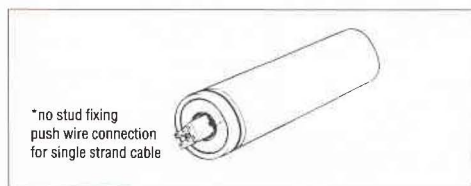
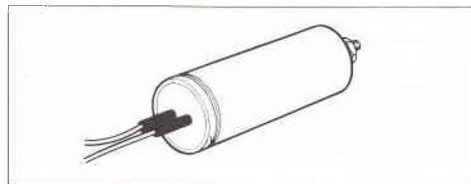
DISCHARGE LAMP CAPACITORS

These capacitors comply with the requirements of BS 4017 and are of either the self healing metallised polypropylene (dry) film type, or the self healing metallised paper mineral oil filled leakproof type.

The capacitors have an end fixing stud (8 - 12mm length) and are complete with M8 nut and shakeproof washer. *An alternative method of fixing is by spring clip.

The suffixes /BO, /PED or /RIC should be added to catalogue numbers where particular dimensions are required.

The capacitors are supplied with flying leads (300mm).



GC 2435

CAPACITORS

Catalogue number	Capacitance $\mu F \pm 10\%$	Working voltage a.c.	Can diameter mm	Can length mm	Suitable capacitor clip
GC 2331/PED	20	250	45	72	GY 5313
GC 2331/BO	20	240	35	80	GY 5320
GC 2331/RIC	20	250	45	98	GY 5313
GC 2346/PED	25	250	45	97	GY 5313
GC 2346/BO	25	240	40	80	GY 5244
GC 2346/RIC	25	250	45	98	GY 5313
GC 2370/PED	13	250	45	72	GY 5313
GC 2370/BO	13	240	30	80	—
GC 2370/RIC	13	250	45	73	GY 5313
GC 2382/PED	35	250	45	125	GY 5313
GC 2382/BO	35	240	45	120	GY 5313
GC 2382/RIC	35	250	45	123	GY 5313
GC 2383/PED	8	250	35	69	GY 5320
GC 2383/BO	8	250	25	80	GY 5200
GC 2383/RIC	8	250	35	73	GY 5320
GC 2386/PED	30	250	45	100	GY 5313
GC 2386/BO	30	250	45	105	GY 5313
GC 2386/RIC	30	250	45	98	GY 5313
GC 2411/PED	30	440	63	135	—
GC 2411/BO	30	440	45	175	GY 5313
GC 2413/PED	15	440	45	107	GY 5313
GC 2420/PED	5.5	250	35	77	GY 5320
GC 2420/RIC	5.5	250	35	73	GY 5320
GC 2435/PED	6	250	35	77	GY 5320
GC 2435/RIC	6	250	35	73	GY 5320
GC 2442	10	250	35	77	GY 5320

Fig. 1



Capacitor clip: GY 5244 & Strap: GY 5325

Fig. 2

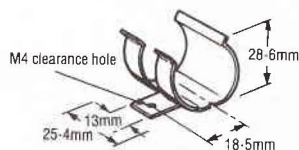
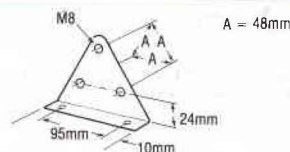
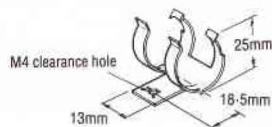


Fig. 3



GM 6203

Fig. 4



CAPACITOR CLIPS

Catalogue number	Safety strap	Capacitor dia. mm	Dimensions* see fig 1			
			A	B	C	D
GY 5200	—	25	34	9.5	12	—
GY 5244	GY 5245 (35) GY 5325 (38)	35-40	45	19	25	17
GY 5313	GY 5314	45	52	25	35	21
GY 5320	—	35	see fig 2			
GY 5321	—	53	59	25	40	27
GY 5330	—	35	see fig 4			
GM 6203	bracket for three 45mm dia capacitors see fig 3					

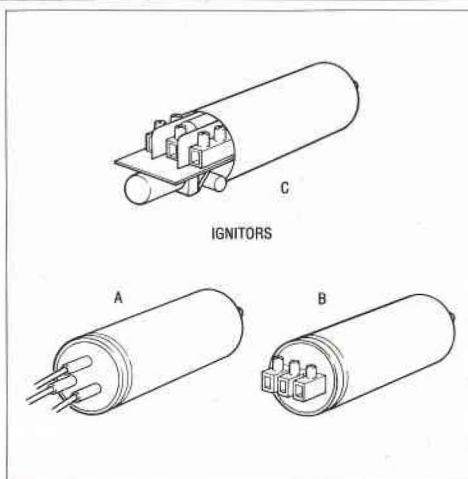
*All dimensions shown are in mm.

DISCHARGE LAMP IGNITORS

The maximum recommended cable length for any lamp/ignitor combination can be found by dividing "Maximum Cable Capacitance" by "Capacitance per metre" listed for calculation for the particular type of cable to be used.

The ignitors have an end fixing stud (8-12mm length) and are complete with M8 nut and shakeproof washer. The capacitor clips listed on page 259 provide an alternative mounting method.

Note that the maximum operating temperature for ignitors is Ta 85°C and this should be checked when mounting in restricted spaces and in close proximity to ballasts or lamps.



DISCHARGE LAMP IGNITORS

Catalogue number	Termination drawing	Lamp type	Lamp power W	Can length mm	Can diameter mm	Maximum cable capacitance at 240V (pF)
G 53282/B	A	SON	150	102	38	2750
			250			2500
			400			2000
G 53311	B	SOX	35	102	38	20000
G 53316	C	SON	1000			200
G 53342	B	MBI	1000	102	51	18500*
		MBIL	1500			15500*
G 53353	B	SON	50	102	38	
			70			700
G 53421	B	SOX	35	102	38	10000
			55			
G 53434	B	SON	50	102	38	80
			70			
G 53444	C	CSI	1000	178	51	20
G 53455	A	MBI	250/400	102	38	100
		Arcstream	150	102	38	

* Also apply for 415V operation

CAPACITANCE OF TYPICAL PVC CABLES

PVC insulated 1.0-4.0mm ²	Typical measured capacitance of pulse carrying core to all others connected together (including earth cores or armour)	Capacitance per metre for use in calculating cable length
Unsheathed single cores loose packed (2 cores) in 20mm earthed conduit	70 pF/m	70 pF/m
Unsheathed single cores tightly packed (8 cores) in 20mm earthed conduit	120 pF/m	120 pF/m
Twin and Earth (loose contact with earth)	115 pF/m	115 pF/m
Twin SWA (armoured or sheathed)	225-300 pF/m	300 pF/m
Multicore SWA (armoured or sheathed)	225-300 pF/m	300 pF/m
Multicore (non-armoured)	225-300 pF/m	300 pF/m

Warning: Mineral insulated (MICC) cables should not be used in ignitor circuits, or circuits where no power factor correction capacitors are used, as the transient voltages will exceed the voltage rating of that cable

DISCHARGE CONTROL GEAR BOXES AND TRAYS

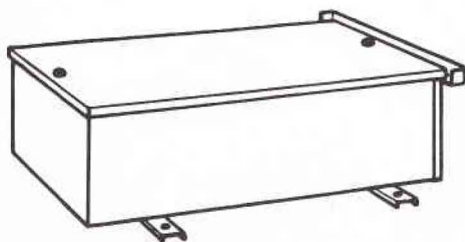
These trays and boxes are complete with HPF SON control gear and are prewired.

The RBSG 1000A is less ignitor as this component has to be mounted in close proximity to the lamp. A suitable housing for lamp and ignitor is in Hipak Range page 61.

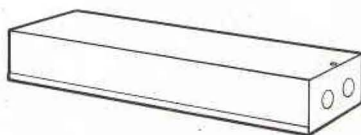
The OHA 4615-4 cast aluminium gear box has a stirrup fixing bolt for suitable luminaire mounting. It can also be mounted on floor or wall and on poles using two OHA 4613 clamps (48-89mm o/d).

DISCHARGE CONTROL GEAR BOXES AND TRAYS

Cat. no.	Lamp type	Lamp power W	Fixing centres mm	External dimensions mm l w d	Weight kg	Material /finish	Protection	Ta °C
RBSG 70-4	SON	70	360 x 55	403 94 58	3.1	Steel-gloss white	IP20	25
RBSG 1000A	SON	1000	324 x 415	501 390 150	24.0	Steel-grey	IP21	40
OHA 4615-4	SON	400	102 x 350	390 192 115	9.5	Aluminium-black	IP24	35
OHA 4617-4	SON	400	178 x 279	420 168 163	9.4	Steel-black	IP23	45



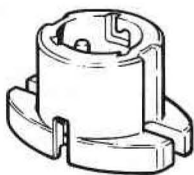
RBSG 1000A



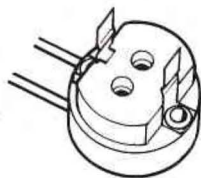
RBSG 70-4

For details of OHA gear boxes, see page 166

DISCHARGE LAMPHOLDERS



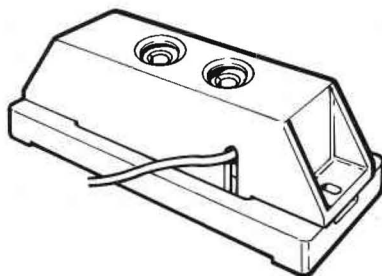
3BC DISCHARGE LAMPHOLDER GL 1086/B22-3



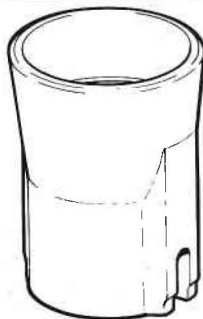
ARCSTREAM LAMPHOLDER GL 1235



ES DISCHARGE LAMPHOLDER GL 1087/E27



CSI DISCHARGE LAMPHOLDER GL 1198



GES DISCHARGE LAMPHOLDER GL 1196

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GENERAL LAMP INFORMATION

INTRODUCTION

THORN EMI offer a comprehensive range of incandescent lamps suitable for domestic, commercial or industrial applications. Over 99% of the lamps listed in this section are manufactured in our UK factories where meticulous attention is paid to quality control and where the latest high speed manufacturing equipment ensures that a safe and reliable product is produced.

BRITISH AND INTERNATIONAL STANDARDS

Lamps described in this section comply with the following British and European standards where applicable:

British Standard	International Equivalent	Description
BS 161	IEC 64	Specification for tungsten filament lamps for general lighting service.
BS 5971	IEC 432	Safety and interchangeability of tungsten filament lamps for domestic and general lighting purposes.
BS 5101	—	Specification for lamp caps and holders together with gauges for the control of interchangeability and safety.
BS 6179	—	Specification for tungsten filament lamps for general lighting service with lives of 2000 hours.

DIMENSIONS

The dimensions shown in this section are in millimetres and, unless otherwise stated, are maximum values.

LAMP CAP CODE (for pictorial guide see page 281)

BS/IEC designation	Common designation	Description
B15d	SBC	Small bayonet cap
B22d	BC	Bayonet cap
B22d-3	3-pin BC	Bayonet cap—3 pin
BA20d	—	Bosch
E12	CAND	Candelabra screw
E14	SES	Small Edison screw
E27	ES	Edison screw
E40	GES	Goliath Edison screw

Note: The first number group in the IEC designation represents the diameter of the cap barrel in millimetres.

LUMEN OUTPUTS OF GLS LAMPS

This information is given in the table below. The figures are derived from National and International specifications and are provided for the guidance of lighting engineers. Initial lumens are the average lumen outputs at the start of life, while Lighting Design lumens are the average lumen outputs throughout the life of the lamp.

	240V Initial lumens		Doublelife 240V Initial lumens		Netabulb 240V Initial lumens		110V Initial lumens		50V Initial lumens		25V Initial lumens	
Watts	LDL*		LDL*		LDL*		LDL*		LDL*		LDL*	
15W	115	105	—	—	—	—	—	—	—	—	—	—
25W	215	200	—	—	—	—	—	—	290	275	335	310
40W	410	390	370	350	385	365	500	460	495	465	620	580
60W	700	665	630	595	660	625	840	770	870	820	998	940
75W	940	890	—	—	—	—	—	—	—	—	—	—
100W	1330	1260	1200	1140	1250	1185	1580	1450	1600	1500	1720	1610
150W	2140	2030	1900	1800	2030	1925	2360	2160	—	—	—	—
200W	2880	2730	—	—	—	—	3250	2980	—	—	—	—
300W	4550	4300	—	—	—	—	5050	4710	5400	5050	—	—
500W	8200	7700	—	—	—	—	8900	8270	—	—	—	—
750W	13100	12400	—	—	—	—	—	—	—	—	—	—
1000W	18400	17300	—	—	—	—	—	—	—	—	—	—

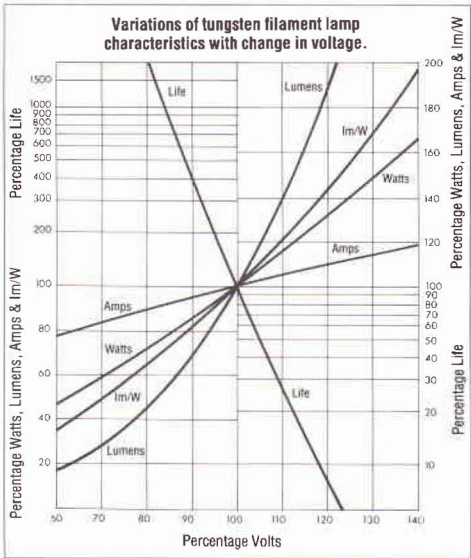
* Lighting design lumens

AVERAGE LIFE AND INITIAL LUMENS

The quality control of GLS lamps has been extremely well developed, but because minute variations within laid down production tolerances produce proportionally greater changes in average life and lumens, it is impossible to guarantee these figures for an individual lamp.

The average life (the rated life of a doublelife lamp is 2000 hours; all others 1000 hours) and lumens quoted in our literature and on lamp cartons is calculated statistically by regularly measuring and life testing sample quantities of lamps to BS 161 and IEC 64, and taking these results as being representative of our production of a particular type of lamp. These results are recorded and over a period of time an on-going indication of quality is established. The average life of a small quantity of lamps should not be taken as typical unless the results are read in conjunction with BS 161 and IEC 64.

Operating conditions, particularly supply voltage and burning position, will affect achieved life. As can be seen from the following graph, a 5% increase in supply voltage will reduce the expected life by 50%, hence correct matching of lamp and supply voltage is essential.



GENERAL LIGHTING SERVICE LAMPS



STANDARD GLS

Voltage	Watts	Cap	Finish	Diagram	Box Quantity*
240	40	BC	Pearl	1	ABC
240	60	BC	Pearl	1	ABC
240	100	BC	Pearl	1	ABC
240	150	BC	Pearl	1	AC

DOUBLE LIFE

Voltage	Watts	Cap	Finish	Diagram	Standard Pack*
240	40	BC	Pearl	1	D
240	60	BC	Pearl	1	D
240	100	BC	Pearl	1	D
240	150	BC	Pearl	1	D

COLOURED

Voltages	Watts	Cap	Finish	Diagram	Standard Pack*
200/250	15	BC	Amber, Blue, Green, Pink, Yellow, Red 1	1	D
200/250	25	BC	Amber, Blue, Green, Pink, Yellow, Red 1	1	D
200/250†	40	BC	Amber, Blue, Green, Pink, Yellow, Red 1	1	D
200/250†	60	BC	Amber, Blue, Green, Pink, Yellow, Red 1	1	D

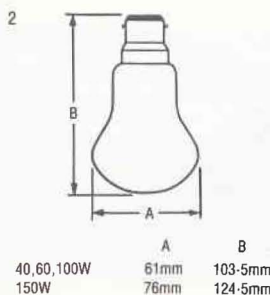
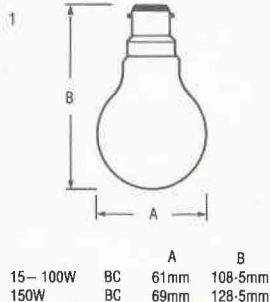
†Not suitable for outdoor use unless enclosed for protection against rain.

NETABULB (MUSHROOM LAMP)

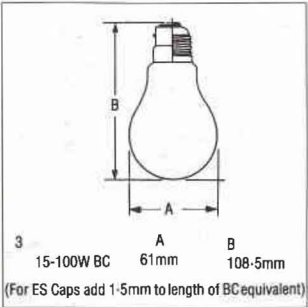
Voltage	Watts	Cap	Finish	Diagram	Standard Pack*
240	40	BC	Silverlight	2	A
240	60	BC	Silverlight	2	A
240	100	BC	Silverlight	2	A
240	150	BC	Silverlight	2	A

*BOX QUANTITIES

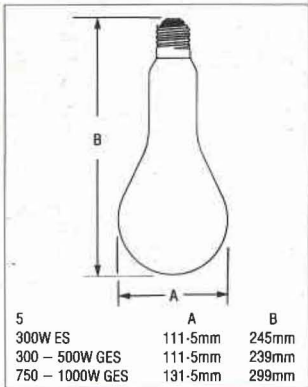
- A. 25 lamps in tuckend cartons.
- B. 100 lamps in Twinpacks, 50 Twinpacks per case.
- C. 100 lamps in tuckend cartons, shrink wrapped in 10's.
- D. 50 lamps in tuckend cartons, shrink wrapped in 10's.



GENERAL LIGHTING SERVICE LAMPS



G.L.S. LAMP / NIGHT LIGHT



OTHER G.L.S. LAMPS

Voltage	Watts	Cap	Finish	Diagram	Standard Pack
110 VOLT					
110	40	BC	Pearl	3	25
110	60	BC	Clear	3	25
110	60	BC, ES	Pearl	3	25
110	100	BC	Clear	3	25
110	100	BC, ES	Pearl	3	25
110	150	BC, ES	Pearl	4	25
110	200	ES	Pearl	4	25
110	300	GES	Clear	5	10
110	300	ES	Clear	5	10
110	500	GES	Clear	5	10

240 VOLT

240	15	BC	Pearl	3	25
240	25	BC, ES	Pearl	3	25
240	40	ES	Pearl	3	25
240	40	BC	Clear	3	25
240	60	ES	Pearl	3	25
240	60	BC, ES	Clear	3	25
240	75	BC	Pearl	3	25
240	100	BC, ES	Clear	3	25
240	100	ES	Pearl	3	25
240	150	BC, ES	Clear	4	25
240	150	ES	Pearl	4	25
240	200	BC, ES	Clear	4	25
240	200	BC, ES	Pearl	4	25
240	300	ES, GES	Clear	5	10
240	500	GES	Clear	5	10
240	750	GES	Clear	5	10
240	1000	GES	Clear	5	10

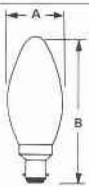
250 VOLT

250	25	BC	Pearl	3	25
250	40	BC	Pearl	3	25
250	60	BC	Pearl	3	25
250	100	BC	Clear	3	25
250	100	BC	Pearl	3	25
250	150	BC	Clear	4	25
250	150	BC	Pearl	4	25
250	300	GES	Clear	5	10
250	500	GES	Clear	5	10
250	750	GES	Clear	5	10
250	1000	GES	Clear	5	10

NIGHTLIGHT

200/250	8/12	BC	Pearl	3	10
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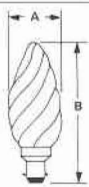
6



	A	B
25W-60W BC	36mm	97mm
SBC	36mm	103mm
SES	36mm	104mm
60W BC	46mm	130mm
SBC	46mm	135mm

PLAIN CANDLE

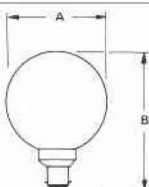
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	A	B
40W-60W BC	46mm	130mm
SBC	46mm	135mm

TWISTED CANDLE

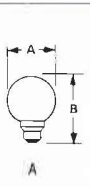
8



	A	B
40-150W BC	97mm	142.5mm
40-100W ES	97mm	144mm

DECOR ROUND

9



	A	B
25-40W BC	46mm	68.5mm
25-40W SBC	46mm	74.5mm
25-40W SES	46mm	75.5mm
40W ES	46mm	72.5mm

ROUND BULB

PLAIN CANDLE (36mm) VUPAK **

Voltage	Watts	Cap	Finish	Diagram	Standard Pack**
240	40	BC, SBC	Silverlight	6	50
240	40	BC, SBC	Clear	6	50
240	60	BC, SBC	Silverlight	6	50
240	60	BC, SBC	Clear	6	50

** Two candle lamps packed in a clear plastic bubble, sealed onto a backing card. 50 VUPAKs per outer box.

PLAIN CANDLE (36mm)

Voltage	Watts	Cap	Finish	Diagram	Standard Pack
240	25	BC, SBC	Clear	6	50*
240	25	BC, SBC, SES	Silverlight	6	50*
240	40	BC, SBC, SES	Clear	6	50*
240	40	BC, SBC, SES	Silverlight	6	50*
240	60	BC, SBC	Clear	6	50*
240	60	BC, SBC	Silverlight	6	50*

PLAIN CANDLE (46mm)

Voltage	Watts	Cap	Finish	Diagram	Standard Pack
240	60	BC, SBC	Clear	6	50*
240	60	BC, SBC	Silverlight	6	50*
240	60	BC, SBC	Pearl	6	50*

TWISTED CANDLE (46 mm)

Voltage	Watts	Cap	Finish	Diagram	Standard Pack
240	40	BC, SBC	Clear	7	50*
240	40	BC, SBC	Pearl	7	50*
240	60	BC, SBC	Clear	7	50*
240	60	BC, SBC	Pearl	7	50*

DECOR ROUND (95mm)

Voltage	Watts	Cap	Finish	Diagram	Standard Pack
240	40	BC, ES	Clear	8	10
240	40	BC, ES	Silverlight	8	10
240	40	BC	Amber, Red, Green, Purple	8	10
240	60	BC, ES	Silverlight	8	10
240	100	BC, ES	Silverlight	8	10
240	150	BC	Silverlight	8	10

ROUND BULB (45 mm)

Voltage	Watts	Cap	Finish	Diagram	Standard Pack
240	25	BC, SBC, SES	Silverlight	9	50*
240	40	BC, SBC, ES, SES	Silverlight	9	50*

* Standard pack consists of 5 x 10-way packs per container.

SPECIAL SERVICE LAMPS

FIREGLOW, VUPAK†

Voltage	Watts	Cap	Finish	Diagram	Standard Pack†
200/250	60	BC	Lacquered	10	50

† Single Fireglow lamp packed in a clear plastic bubble, sealed onto backing card.

FIREGLOW

Voltage	Watts	Cap	Finish	Diagram	Standard Pack
200/250	60	BC, 3-Pin BC	Lacquered	10	50

PIGMY SIGN

Voltage	Watts	Cap	Finish	Diagram	Standard Pack
25	15	BC, SBC	Clear	11	50
50	15	BC, SBC	Clear	11	50
110/120	15	BC, SBC, SES	Clear	11	50
200/250	15	BC, SBC, SES	Clear	11	50
200/250	15	BC, SBC	Amber, Blue, Green, Pink, Red, Yellow	11	50
200/250	25	BC, SBC, SES	Clear	11	50

PIGMY SIGN – ROUGH SERVICE

Voltage	Watts	Cap	Finish	Diagram	Standard Pack
200/250	15	BC, SBC, SES	Clear	11	50
200/250	25	BC, SBC, SES	Clear	11	50

PIGMY SIGN VUPAK*

Voltage	Watts	Cap	Finish	Diagram	Standard Pack
200/250	15	BC, SBC, SES		11	50
200/250	25	SBC		11	50

* Single Pigmy lamps, packed in a clear plastic bubble, sealed onto a backing card.

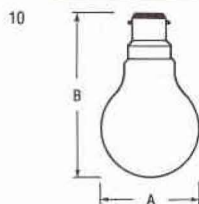
SWITCHBOARD INDICATOR

Voltage	Watts	Cap	Finish	Diagram	Standard Pack
200/260	8/12	BC	Clear	11	50

PILOT INDICATOR*

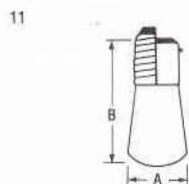
Voltage	Watts	Cap	Finish	Diagram	Standard Pack
50	10	SBC, CAND	Clear	12	25
100/130	10	SBC, SES, CAND	Clear	12	25
200/250	10	SBC, SES, CAND	Clear	12	25

* SES versions are intended for use in appliances only and not for general lighting.



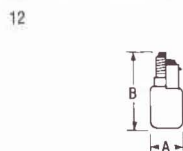
	A	B
60W BC	61	108.5
60W 3-PIN BC	61	108.5

FIREGLOW



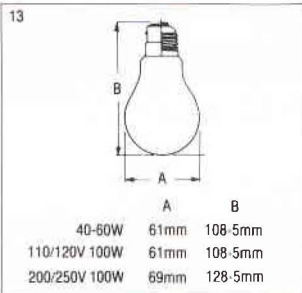
	A	B
15-25W BC	29	59
15-25WSBC	29	65
15-25W SES	29	66

PIGMY AND SWITCHBOARD INDICATOR

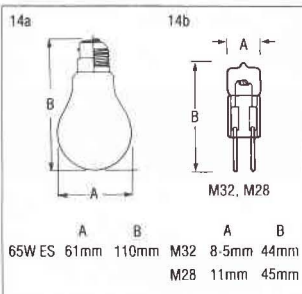


	A	B
10W SBC	19	43
10W CAND	19	48
10W SES	19	49

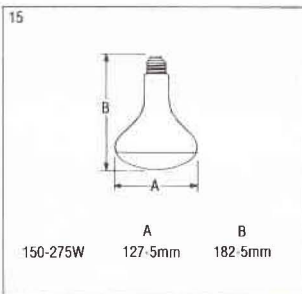
PILOT INDICATOR



ROUGH SERVICE



TRAFFIC SIGNAL



INFRA-RED REFLECTOR

ROUGH SERVICE

Voltage	Watts	Cap	Finish	Diagram	Standard pack
110/120	40	BC, ES	Pearl	13	25
110/120	60	BC, ES	Pearl	13	25
110/120	100	BC, ES	Pearl	13	25
200/250	40	BC, ES	Pearl	13	25
200/250	40	BC	Clear	13	25
200/250	60	BC, ES	Pearl	13	25
200/250	60	BC	Clear	13	25
200/250	100	BC, ES	Pearl	13	25
200/250	100	BC	Clear	13	25

TRAFFIC SIGNAL

Voltage	Watts	Nominal L.C.L.*	Cap	Finish	Diagram	Standard pack
240/250	65	62	ES	Clear	14a	25

* Light centre length

TUNGSTEN HALOGEN

Power	Watts	Base	Cap	Finish	Diagram	Standard pack
12	50	M32	30	Bi-pin G6-35	Clear	14b
12	100	M28	30	Bi-pin G6-35	Clear	14b

HEATING LAMPS

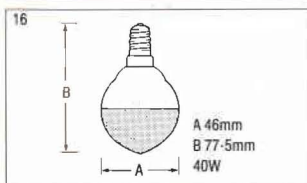
INFRA-RED REFLECTOR Standard bulb (NOT for domestic use)

Voltage	Watts	Cap	Finish	Diagram	Standard pack
200/250	150	ES	Satin	15	10
200/250	275	BC	Satin	15	10
200/250	275	ES	Satin	15	10
200/250	275	BC, ES	Clear	15	10

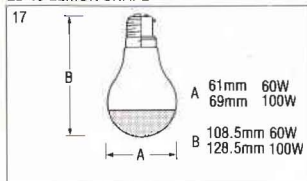
INFRA-RED REFLECTOR Hard glass bulb (Domestic and other uses)

Voltage	Watts	Cap	Finish	Diagram	Standard pack
200/250	275	BC, ES	Clear front	15	10
200/250	275	BC, ES	Red front	15	10

REFLECTOR LAMPS



LS 45 LEMON SHAPE



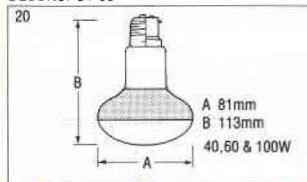
CROWN SILVERED



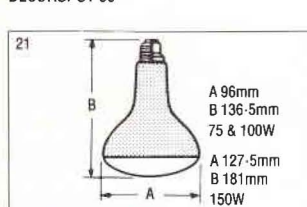
DECORSPT 50



DECORSPT 63



DECORSPT 80



DECORSPT 95/125

(For ES caps add 1.5mm to length of BC equivalent)

LS 45 LEMON SHAPE

Voltage	Watts	Cap	Finish	Diagram	Standard pack
240	40	SES	Crown silvered	16	20

CROWN SILVERED DISPLAY

Voltage	Watts	Cap	Finish	Diagram	Standard pack
240	60	BC, ES	Crown silvered	17	25
240	100	3PBC, ES	Crown silvered	17	25

DECORSPT 50

Voltage	Watts	Cap	Finish	Diagram	Standard pack
240	25	SES	Light diffuse front	18	50
240	40	SES	Light diffuse front	18	50

DECORSPT 63

Voltage	Watts	Cap	Finish	Diagram	Standard pack
240	40, 60	ES	Light diffuse front	19	50
240	40, 60	ES	Clear front	19	50
240	60	BC	Light diffuse front	19	50
240	60**	ES	Disco lamp, Clear front, Lacquered Amber, Blue, Green, Red and Yellow	19	50

DECORSPT 80

Voltage	Watts	Cap	Finish	Diagram	Standard pack
240	40	BC, ES	Satin etch	20	10
240	60	BC, ES	Satin etch	20	10
240	60	BC, ES	Clear front	20	10
240	100	BC, ES	Satin etch	20	10
240	60**	ES	Disco lamp, Clear front, Lacquered Amber, Blue, Green, Red and Yellow	20	10

** This lamp is designed for non-continuous burning. If run continuously, lacquer could deteriorate after 500 hours.

DECORSPT 95

Voltage	Watts	Cap	Finish	Diagram	Standard pack
240/250	75	BC, ES	Light diffuse front	21	10
240/250	100	BC, ES	Light diffuse front	21	10
240/250	75	ES	Light diffuse front, Lacquered Amber, Blue, Green, Red and Yellow	21	10
240/250	100	ES	Light diffuse front, Lacquered Amber, Blue, Green, Red and Yellow	21	10

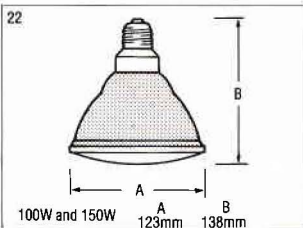
DECORSPT 125

Voltage	Watts	Cap	Finish	Diagram	Standard pack
240/250	150	BC, ES	Light diffuse front	21	10

SEALED BEAM LAMPS/LOW VOLT DISPLAY LAMPS

PAR SEALED BEAM SPOTLIGHTS AND FLOODLIGHTS

PAR 38 lamps are suitable for both indoor and outdoor applications. PAR 56 lamps should only be used indoors.



PAR 38 SEALED BEAM

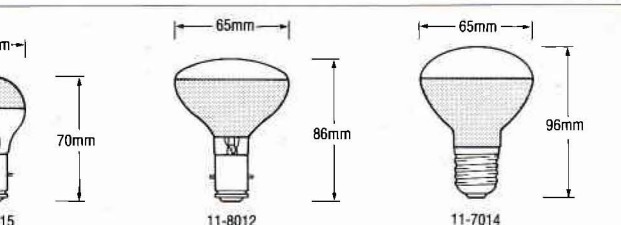
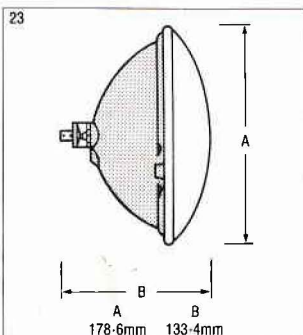
Voltage	Watts	Cap	Finish	Diagram	Standard pack
240	100	ES	Clear front, Spot	22	12
240	100	ES	Clear front, Flood	22	12
240	100	ES	Flood lacquered Blue, Green, Red, Yellow, Amber	22	12
240	150	ES	Clear front, Spot	22	10
240	150	ES	Clear front, Flood	22	10

PAR 56 SEALED BEAM

Voltage	Watts	Cap	Finish	Diagram	Standard pack
240/250	300	GX16d	Clear front, Wide beam	23	6
240/250	300	GX16d	Clear front, Medium beam	23	6
240/250	300	GX16d	Clear front, Narrow beam	23	6

LOW VOLTAGE DISPLAY

Voltage	Watts	Cap	Finish	Ref	Diagram	Standard pack
12	24	SBC	Diffuse front	11-7005	24	25
12	50	Bosch	Crown silvered	11-7015	24	25
12	50	Bosch	Clear front	11-8012	24	25
12	50	ES	Clear front	11-7014	24	25



LOW VOLTAGE DISPLAY

TUBULAR LAMPS

30 and 60W
30 and 60W

A
26mm
26mm

B
222mm
285mm

STRIPLIGHT

25,40W BC, SBC, SES

A 26mm
B 65mm

SINGLE CAP TUBULAR

STRIPLIGHTS

Voltage	Watts	Length mm	Cap	Finish	Standard Pack
240	30	221	S15s	Clear	25
240	30	221	S15s	Opal	25
240	30	284	S15s	Clear	25
240	30	284	S15s	Opal	25
240	60	221	S15s	Clear	25
240	60	221	S15s	Opal	25
240	60	284	S15s	Clear	25
240	60	284	S15s	Opal	25

SINGLE CAP TUBULAR

Voltage	Watts	Cap	Finish	Standard Pack
240	25	BC, SBC, SES	Clear	50
240	40	BC, SBC	Clear	50

THORN EMI

Pygmy Appliance Lamp

15W SBC Clear

THORN EMI Lighting Ltd. Made in Great Britain

THORN EMI

Candle Clear

40w
240v SBC

THORN EMI Lighting Ltd. Made in Great Britain

THORN EMI

Candle Silverlight

60w
240v BC

THORN EMI Lighting Ltd. Made in Great Britain

VUPAKS—IDEAL FOR RETAIL OUTLETS

LINEAR AND TUBULAR TUNGSTEN HALOGEN LAMPS

OPERATING TEMPERATURES

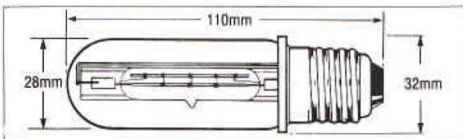
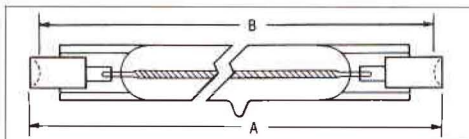
During operation, the temperature of the lamp pinch seal should not exceed 350°C, whilst the bulb wall temperature must not drop below 250°C in order to maintain the tungsten halogen cycle.

FUSING

It is recommended that a suitably rated fuse be used in the luminaire or external circuit, as listed.

RECOMMENDED FUSE RATINGS (HBC type)

Lamp watts	110/120V	200/250V
100-300	3-15A	2A
500	6-3A	4A
750	10A	4A
1000	10A	6A
1500		10A
2000		10A



TUBULAR LAMPS

Lamp type	Voltage	Watts	Caps	Rated average life hrs	Nominal lumens*	Colour temp.*K	Operating position
K16	120	100	E27	4000	1450	2850	Universal
K16	200/230	100	E27	4000	1350	2850	Universal
K16	240/250	100	E27	4000	1350	2850	Universal
K13	120	150	E27	4000	2300	2850	Universal
K13	200/230	150	E27	4000	2100	2850	Universal
K13	240/250	150	E27	4000	2100	2850	Universal

LINEAR LAMPS

Lamp type	Voltage	Watts	Caps	Contact to ceramic max (A) mm	Contact to contact (B) mm	Rated average life hrs.	Nominal lumens*	Colour temp.*K	Operating position
K14	120	100	R7s	78-3	74.9 ± 1.6	4000	1450	2850	Universal
K14	200/230	100	R7s	78-3	74.9 ± 1.6	4000	1350	2850	Universal
K14	240/250	100	R7s	78-3	74.9 ± 1.6	4000	1350	2850	Universal
K12	120	150	R7s	78-3	74.9 ± 1.6	4000	2300	2850	Universal
K12	200/230	150	R7s	78-3	74.9 ± 1.6	4000	2100	2850	Universal
K12	240/250	150	R7s	78-3	74.9 ± 1.6	4000	2100	2850	Universal
K11	120	200	R7s	117-6	114.2 ± 1.6	4000	3200	2900	Universal
K11	200/230	200	R7s	117-6	114.2 ± 1.6	4000	3100	2900	Universal
K11	240/250	200	R7s	117-6	114.2 ± 1.6	4000	3100	2900	Universal
K15	120	250	R7s	78-3	74.9 ± 1.6	4000	4300	2900	Universal
K15	200/230	250	R7s	78-3	74.9 ± 1.6	4000	4000	2900	Universal
K15	240/250	250	R7s	78-3	74.9 ± 1.6	4000	4000	2900	Universal
K9	110/115	300	R7s	117-6	114.2 ± 1.6	4000	5250	2900	Universal
K9	200/230	300	R7s	117-6	114.2 ± 1.6	4000	5000	2900	Universal
K9**	240/250	300	R7s	117-6	114.2 ± 1.6	4000	5000	2900	Universal
K1	110	500	R7s	117-6	114.2 ± 1.6	2000	10500	2900	Horizontal
K1	120	500	R7s	117-6	114.2 ± 1.6	2000	10500	2900	Horizontal
K1	200/230	500	R7s	117-6	114.2 ± 1.6	2000	9500	2900	Horizontal
K1	240/250	500	R7s	117-6	114.2 ± 1.6	2000	9500	2900	Horizontal
K3	200/230	750	R7s	189-1	185.7 ± 1.6	2000	15000	3000	Horizontal
K3	240/250	750	R7s	189-1	185.7 ± 1.6	2000	15000	3000	Horizontal
K4	110	1000	R7s	189-1	185.7 ± 1.6	2000	22000	3000	Horizontal
K4	200/230	1000	R7s	189-1	185.7 ± 1.6	2000	21000	3000	Horizontal
K4	240/250	1000	R7s	189-1	185.7 ± 1.6	2000	21000	3000	Horizontal
K10	200/230	1000	R7s	254-1	250.7 ± 1.6	2000	21000	3000	Horizontal
K10	240/250	1000	R7s	254-1	250.7 ± 1.6	2000	21000	3000	Horizontal
K5	200/230	1500	R7s	254-1	250.7 ± 1.6	2000	33000	3000	Horizontal
K5	240/250	1500	R7s	254-1	250.7 ± 1.6	2000	33000	3000	Horizontal
K8	200/230	2000	R7s	331-0	327.4 ± 1.6	2000	44000	3000	Horizontal
K8	240/250	2000	R7s	331-0	327.4 ± 1.6	2000	44000	3000	Horizontal

* The lumen output of individual lamps will be subject to normal commercial tolerances.

** Also available frosted

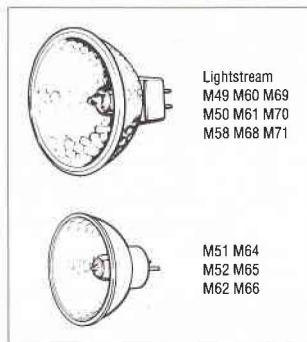
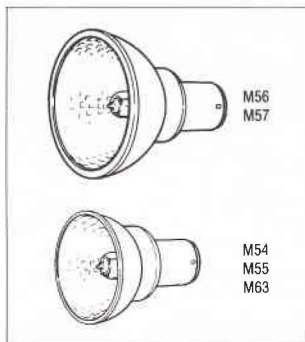
SINGLE ENDED DICHOIC HALOGEN DISPLAY LAMPS (INCLUDING LIGHTSTREAM)

ADVANTAGES OF LOW VOLT HALOGEN DICHOIC LAMPS

1. Compactness
2. High efficacy
3. Good colour rendering
4. Long life
5. Universal burning position
6. Virtually 100% lumen maintenance
7. Robust construction
8. Low voltage safety
9. Cool beam

LAMP HOLDERS

Appropriate lampholders covering this range are on page 276.



FUSING

It is recommended that a suitably rated fuse be used in the luminaire or external circuit.

TRANSFORMERS

A range of step-down transformers for single and multi lamp application is available. It is important that where applicable only THORN EMI transformers are used with these lamps. THORN EMI Lighting cannot accept any responsibility if transformers other than those shown on page 142 (which comply with the relevant international specifications) are used.

FRONT FILTERS

For 50mm dichroic reflectors a range of clip-on front glasses is available in clear, red, green, blue and yellow. For details see page 142.

OPERATING TEMPERATURES

During operation the temperatures of the lamp pinch seal should not exceed 350°C, while the bulb wall temperature must not drop below 250°C in order to maintain the tungsten-halogen cycle.

SINGLE ENDED HALOGEN DISPLAY LAMPS

Lamp ref.	Voltage	Watts	Cap	Maximum overall length mm	Maximum flange diameter mm	Nominal lumens or peak intensity cds	Beam angle to 1/2 peak°	Mirror type
M64	12	12	GZ4	35.0	35.3	6400	7	Dichroic, spot
M51	12	20	GZ4	35.0	35.3	1760	17	Dichroic, medium
M52	12	20	GZ4	35.0	35.3	5500	10	Dichroic, spot
M54	12	20	SBC	42.0	35.3	1760	17	Dichroic, medium
M55	12	20	SBC	42.0	35.3	5500	10	Dichroic, spot
M62	12	20	GZ4	35.0	35.3	600	30	Dichroic, flood
M63	12	20	SBC	42.0	35.3	600	30	Dichroic, flood
M68	12	20	GX5.3	44.5	50.7	5000	11	Dichroic, spot
M69	12	20	GX5.3	44.5	50.7	1000	24	Dichroic, medium
M65	12	35	GZ4	35.0	35.3	9000	8	Dichroic, spot
M66	12	35	GZ4	35.0	35.3	3000	20	Dichroic, medium
M71	12	35	GX5.3	44.5	50.7	3600	18	Dichroic, medium
M70	12	35	GX5.3	44.5	50.7	9000	8	Dichroic, spot
M49	12	50	GX5.3	44.5	50.7	12000	10	Dichroic, spot
M50	12	50	GX5.3	44.5	50.7	3700	21	Dichroic, medium
M56	12	50	SBC	50.0	50.7	3700	21	Dichroic, medium
M57	12	50	SBC	50.0	50.7	12000	10	Dichroic, spot
M58	12	50	GX5.3	44.5	50.7	1550	38	Dichroic, flood
M60	12	75	GX5.3	44.5	50.7	16000	12	Dichroic, spot
M61	12	75	GX5.3	44.5	50.7	2250	38	Dichroic, flood

Rated average life:

M64 2000 hours
all other lamps 3000 hours

Dichroic coated mirrors reduce by 50% the heat forward. Consequently higher temperatures can be generated behind the lamp than for comparable aluminised reflectors.

For dimensional cross section diagrams of lamps with GX5.3 and GZ4 caps see page 141

SINGLE ENDED TUNGSTEN HALOGEN LAMPS



M29 6V 10W
M30 6V 20W
M34 6V 20W
M35 12V 20W
M47 12V 20W



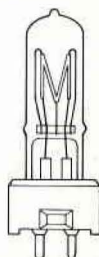
M32 12V 50W



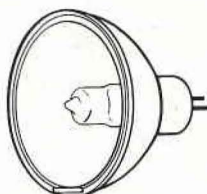
M28 12V 100W



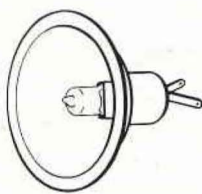
M33 24V 250W
M36 24V 250W



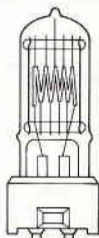
M38 300W



M37 12V 55W



M39 6V 20W



M40 500W

SINGLE ENDED TUNGSTEN HALOGEN LAMPS

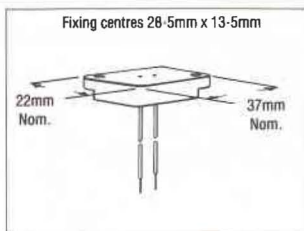
Lamp type	Voltage	Watts	Base	Maximum overall length mm	Maximum bulb diameter mm	Nominal lumens	Rated average life hrs.	Operating position	
M29	6	10	G4	30.0	8.5	210	100	Universal	For film editors
M30	6	20	G4	30.0	8.5	420	100	Universal	For film editors
M34	12	20	G4	30.0	8.5	350	2000	Universal	
M39	6	20	2 Tab	39.0	50.0	—	—	—	Ellipsoidal mirror
M35*	12 (13-2)	20 (23)	G4	30.0	8.5	400 (500)	250 (100)	Universal	
M47	6	20	G4	30.0	8.5	350	2000	Universal	
M32	12	50	GY6-35	44.0	12.0	850	3000	Universal	
M37	12	55	GY6-35	42.0	50.0	—	—	—	Fibre optic display
M28	12	100	GY6-35	44.0	11.0	2400	2000	BD ± 90°	
M67	24	100	GY6-35	44.0	11.0	1800	2000	BD ± 90°	Base up only with heat sinks
M33	24	250	GY6-35	55.0	13.5	8400	300	BD ± 90°	
M36	24	250	GY6-35	58.0	15.0	5750	2000	BD ± 90°	
M38	240/250	300	GY9-5	80.0	30.0	5000	2000	Universal	
M40	240/250	500	GY9-5	85.0	30.0	8500	2000	Universal	

* M35 lamp can be operated at 13-2V

TUNGSTEN HALOGEN LAMPHOLDERS

GL 1079

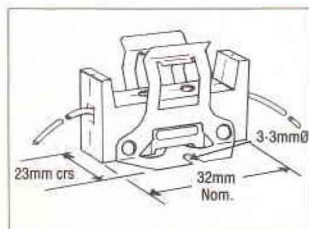
The GL 1079 series are for use with miniature tungsten halogen LV lamps having G6-35 caps, e.g. M28, M32, M33, M36, M37 and M67. Both tab and lead wire versions are available. The basic flat holder is suitable where the lamp is not subject to any vibration and is unlikely to sag. Where extra support for the lamp is necessary the versions with springs which support the lamp pinch are recommended.



GL 1079-W

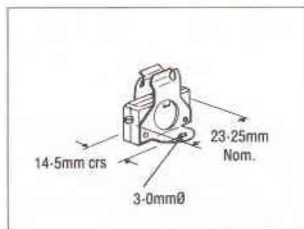


GL 1079-SLW



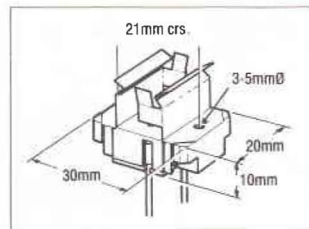
GL 1177

GL 1105 is superseded by GL 1177 (same mounting centres) suitable for GY9-5 caps e.g. A1/233, A1/247, and M38.



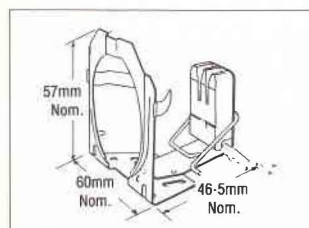
GL 1123-A

Suitable for use with low volt miniature tungsten lamps having G 4 caps. eg. M29, M30, M34, M35.



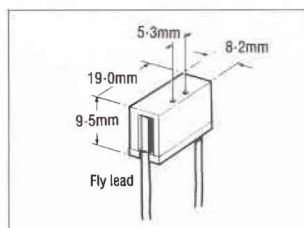
GL 1228

For use with Lightstream GX5-3 Base display lamps. Lamp requires no front mount.



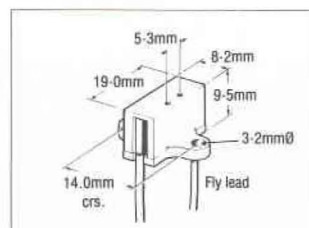
GL 1210

Lampholder for 50mm Lightstream lamps with GX5.3 base e.g. M49, M50, etc. Fixing centres 38mm x 3-3mmØ



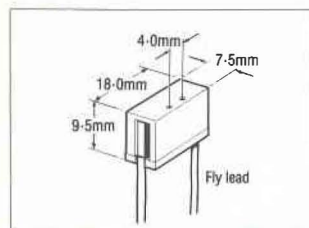
GL 1218

For lamps with GX5-3 Base eg. M49, M50.



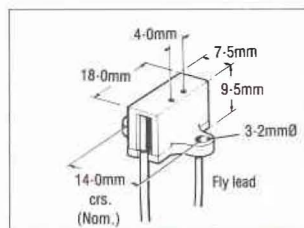
GL 1219

For lamps with GX5-3 Base e.g. M49, M50.



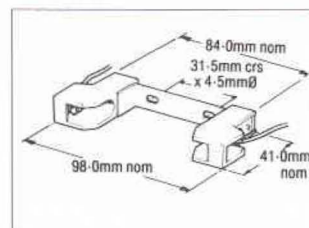
GL 1211

For lamps with G4/GZ4 Base e.g. M29, M35, M48 and M51.



GL 1212

For lamps with G4/GZ4 Base e.g. M29, M35, M48 and M51.



SUL 150

For use with 150W K12 TH lamp.

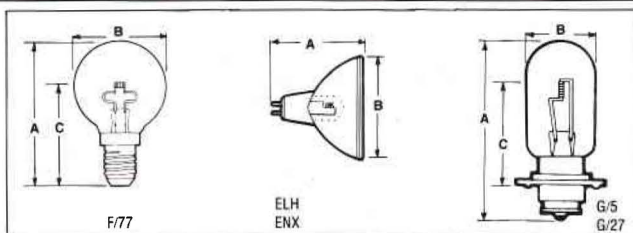
PHOTOGRAPHIC, AUTO AND MINIATURE LAMPS

Projector lamps	278
Theatre Spotlight lamps	279
Photographic lamps	280
Lamp caps	281
Auto and miniature lamps	282

PROJECTOR LAMPS, CLASS A1, F, & G

THORN EMI manufacture a wide range of photographic, studio and theatre lamps.

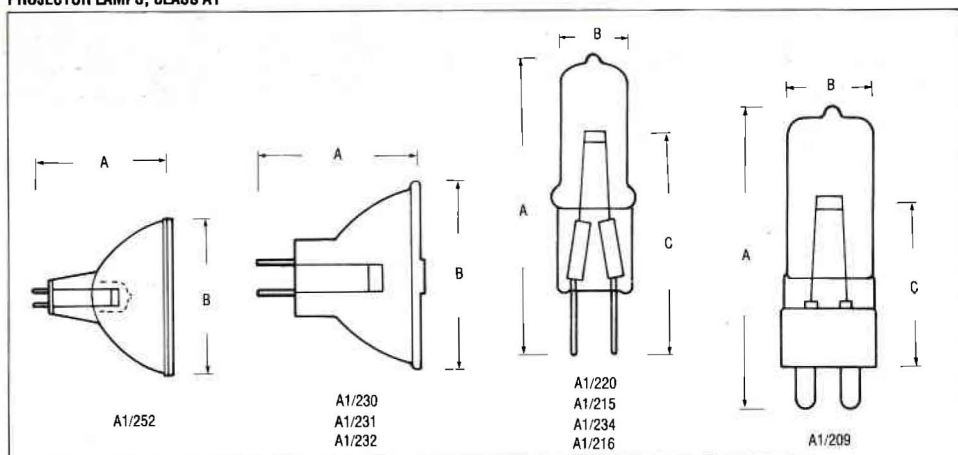
Only a few representative types are shown here. A full listing appears in the Comprehensive Price List. Specialist brochures and data sheets for some lamps are available from your nearest THORN EMI Lighting Regional Sales Office.



PROJECTOR LAMPS CLASSES F AND G

Lamp ref.	ANSI code	Voltage	Watts	Cap	A Maximum overall length	B Maximum bulb diameter	C Light centre length	Nominal lumens	Rated average life hrs.	Operating position	
F/77		12	50	SES	70	40.0	48 ± 3	950	50*	BD ± 135°	*At 13.5v
	ELH	120	300	GY5.3	44.5	50.6	—	—	35	BD ± 90°	Focal distance 152.5 mm
	ENX	82	360	GY5.3	44.5	50.6	—	—	75	BD ± 90°	Focal distance 289 mm
G/27	BRK	4	0.75	P30s	50	16.5	28.5 ± 0.5	30	50	Universal	Vertical filament
G/5	BSS	6	1.0	P30s	57	16.5	28.5 ± 0.5	80	100	BD ± 45°	Vertical filament

PROJECTOR LAMPS, CLASS A1

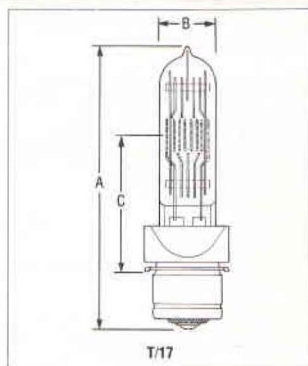
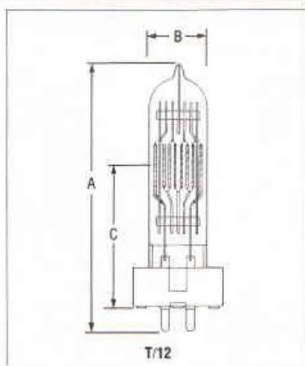
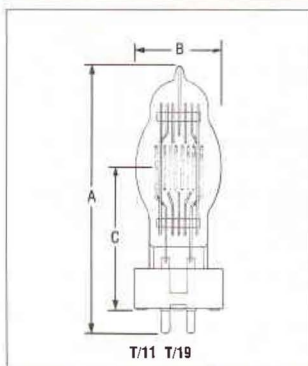


TUNGSTEN HALOGEN PROJECTOR LAMPS CLASS A1 (50-200W)

Lamp ref.	ANSI code	Voltage	Watts	Cap	A Maximum overall length	B Maximum bulb diameter	C Light centre length	Nominal lumens	Rated average life hrs.	Operating position	
A1/220	BRL	12	50	G6-35	44	11.5	30 ± 0.25	1400	50	BD ± 90°	Focal distance 32mm
A1/230	EFN	12	75	G6-35	42	50	—	—	50	HOR	Focal distance 32mm
A1/209	FDX	12	100	G6-35	44	11	24 - 0.5	3000	50	BD ± 90°	
A1/215	FCR	12	100	G6-35	44	11	30 ± 0.25	3000	50	BD ± 90°	
A1/231	EPF	12	100	G6-35	42	50	—	—	50	HOR	Focal distance 32mm
A1/232	EFR	15	150	G6-35	42	50	—	—	50	HOR	Focal distance 32mm
A1/234	BRJ	15	150	G6-35	44	11	30 ± 0.25	4650	50	BD ± 90°	
A1/216	FCS	24	150	G6-35	47	13.5	32 - 0.5	5000	50	BD ± 90°	
A1/252	EJL	24	200	GX5.3	44.5	50.6	—	—	50	HOR	Focal distance 32mm

All these projector lamps should have a minimum bulb wall temperature of 350°C for the tungsten halogen cycle to function fully.

THEATRE SPOTLIGHT LAMPS, CLASS T



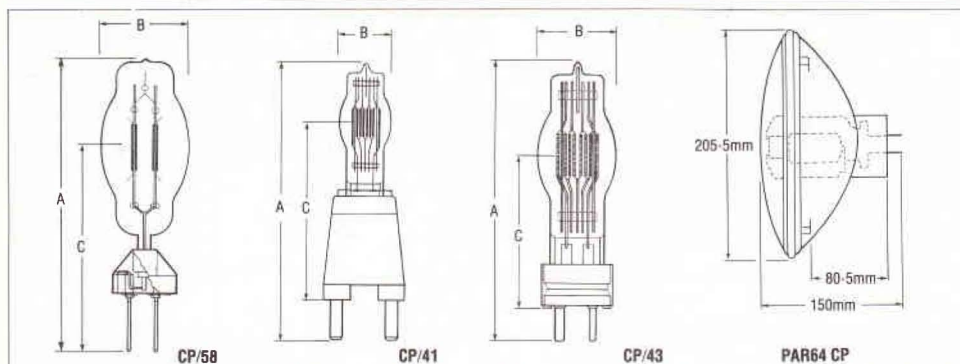
THEATRE SPOTLIGHT LAMPS CLASS T

Lamp ref.	Voltage	Watts	Cap	A Maximum overall length	B Maximum bulb diameter	C Light centre length	Nominal lumens	Rated average life hrs.	Operating position	Replaces
T/17*	240	500	P28s	130	25	55	13500	750	BD $\pm 90^\circ$	Replaces T/1
T/12*	240	650	GX9-5	110	25	55	13500	750	BD $\pm 90^\circ$	Replaces T/10
T/11†	240	1000	GX9-5	110	35	55	23000	750	BD $\pm 90^\circ$	Replaces T/9
T/19†	240	1000	GX9-5	110	35	55	21000	750	BD $\pm 90^\circ$	

* 3 or 4 amp HBC fuse necessary

† 5 or 6 amp HBC fuse necessary

PHOTOGRAPHIC LAMPS, CLASS CP & P

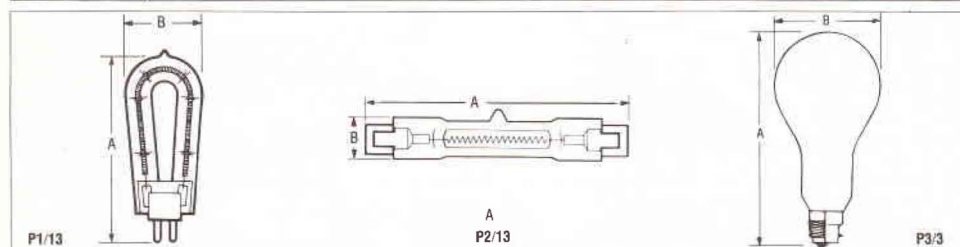


WSTEN HALOGEN PHOTOGRAPHIC LAMPS CLASS CP (Suitable for use with colour film balanced for 3200K)

Lamp ref.	ANSI code	Voltage	Watts	Cap	A Maximum overall length	B Maximum bulb diameter	C Light centre length	Nominal lumens	Rated average life hrs.	Operating position
CP/58		240	1250/2500	GX38q	220	70	143	27000/59000 91000	300	BD \pm 45°
CP/41	FKK	240	2000	G38	210	40	127	54000	400	BD \pm 90°
CP/43		240	2000	GY16	145	40	70	54000	400	BD \pm 90°

PAR 64 SEALED BEAM CP LAMPS

Lamp ref.	ANSI code	Voltage	Watts	Cap	Peak intensity k cds	Beam angle to 1/2 peak (°)	Field angle to 1/10 peak (°)	Rated average life hours	Operating position	
CP/86	EXC	240	500	EMEP	240	V7 x H10	V13 x H16	300	Universal	Clear Spot
CP/87	EXD	240	500	EMEP	140	V9 x H11	V16 x H19	300	Universal	Stipple Spot
CP/88	EXE	240	500	EMEP	65	V10 x H21	V19 x H32	300	Universal	Flood
CP/60		240	1000	EMEP	320	V9 x H12	V17 x H20	300	Universal	Clear Spot
CP/61		240	1000	EMEP	140	V10 x H14	V20 x H22	300	Universal	Stipple Spot
CP/62		240	1000	EMEP	65	V11 x H24	V20 x H38	300	Universal	Flood



PHOTOGRAPHIC LAMPS CLASS P

Lamp ref.	ANSI code	Voltage	Watts	Cap	A Maximum overall length	B Maximum bulb diameter	Nominal lumens	Rated average life hrs.	Operating position
P1/13*	BVM	240/250	650	G6.35	65	28	20000	15	BD \pm 90°
P2/13†	DXX	240/250	800	R7s	80	15	20000	75	Universal
P3/3		240	75	BC, ES	108.5	61	1150	100	Universal

* 3 or 4 amp HBC fuse necessary

† 5 or 6 amp HBC fuse necessary



B22d



B22d-3



B15d



P40s



P28s



E40s



E27s



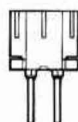
E14s



E12



BA20d



GX38q



PG22



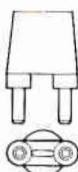
BHP30s



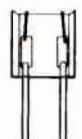
GX9-5



G17q
G17t



G38



G6-35



G4



R7s



GY7-9



GY16



G22



GY9-5



EMEP



5-3mm
GX5-3

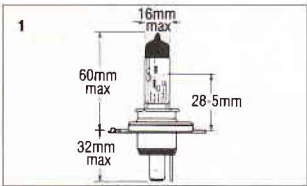


4mm
GZ4

AUTO AND MINIATURE LAMPS

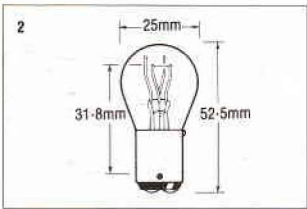
THORN EMI manufacture a wide range of vehicle and miniature lamps. These are supplied to the major European vehicle manufacturers for initial embodiment and the same high quality should be used for lamps for replacement purposes.

Only a few representative types are shown here. A full listing appears in the Comprehensive Price List and specialist brochures and data sheets for some lamps are available from your nearest THORN EMI Lighting Regional Sales Office.



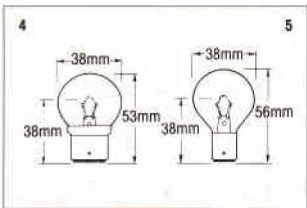
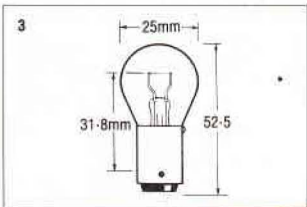
H4 TUNGSTEN HALOGEN HEADLAMP

Lamp ref.	European reference	Voltage	Watts	Cap	Diagram	Standard pack
472	H4	12	60/55	P43t	1	10
475	H4	24	75/70	P43t	1	10
2970		12	100/80	P43t	1	10



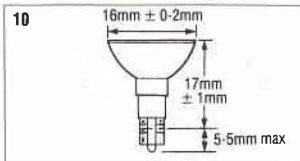
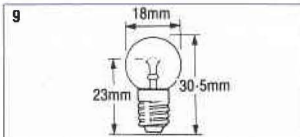
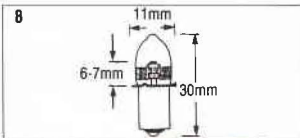
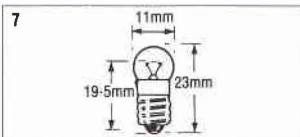
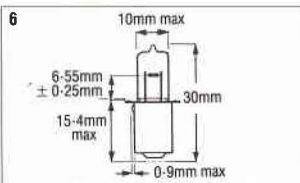
FLASHER, STOP AND STOP/TAIL

Lamp reference	European reference	Voltage	Watts	Cap	Diagram	Standard pack
382	P25-1	12	21	BA15s	2	10
335	P25-1	12	21	BA15d	2	10
380	P25-2	12	21/5	BAY15d	3	10
241	P25-1	24	21	BA15s	2	10
346	P25-1	24	21	BA15d	2	10
334	P25-2	24	24/6	BAY15d	3	10



BUS LAMPS (FOR INTERIOR LIGHTING)

Lamp reference	Voltage	Watts	Cap	Finish	Diagram	Standard pack
804	12	12	B22d	Pearl	4	100
805	12	12	BA15d	Pearl	5	100
809	12	24	B22d	Pearl	4	100
810	12	24	BA15d	Pearl	5	100
816	24	12	B22d	Pearl	4	100
817	24	12	BA15d	Pearl	5	100
821	24	20	B22d	Pearl	4	100
822	24	20	BA15d	Pearl	5	100



MINERS LAMPS

Lamp reference	Voltage	Current	Cap	Nominal lumens	Average life hours	Lampholder	Diagram
GH47	4	1A	P13-5s	48	600	—	6
GH48	4.2	1A	P13-5s	52	600	—	6
GH49	4	1.2A	P13-5s	60	600	—	6

CYCLE LAMPS

Lamp reference	Voltage	Watts	Cap	Nominal lumens	Average life hours	Lampholder	Diagram
GH90	6	2.4	P13-5s	36	100	—	6
GH98	6	2.4	P13-5s	36	100	—	6

BATTERY AND RECHARGEABLE BATTERY TYPES

Lamp reference	Voltage	Watts	Cap	Nominal lumens	Average life hours	Lampholder	Diagram
GH11	6	6	G4	100	100	GL1211/12	5
GH15	6	6	P13-5s	100	100	—	6
GH20	6	10	G4	200	200	GL1211/12	5
GH24	6	10	P13-5s	200	200	—	6
GH82	3.6	6	P13-5s	120	120	—	6
GH95	6	5	G4	75	75	GL1211/12	5

MINERS AND EMERGENCY LAMPS

Lamp reference	Voltage	Amps	Cap	Type	Standard pack	Diagram
5-02315	3.6	1	E10/13	Krypton	25	9
3-70879	4	0.9	E10/13	Krypton	25	9
2-02322	4	1	E10/13	Krypton	25	9
6-78029	4	1	P13-5s	Krypton	25	8
1-70219	4	0.75	P13-5s	Krypton	25	8
9-02312	4	0.46	E10/13	Vacuum	25	7
2-76929	2.4	1.0	E10/13	Krypton	25	9
2-77572	3.6	0.6	E10/13	Krypton	25	9

INTEGRAL OPTIC REFLECTOR LAMP

Accurately focused lamp with solid reflector and dispersive lensing. Surface brightness sufficient for clear visibility under incident sunlight. For dot matrix and other displays.

Lamp ref.	Voltage	Watts	Cap	Standard pack	Diagram
2-79670	12	1.2	W2 x 4-6d	100	10