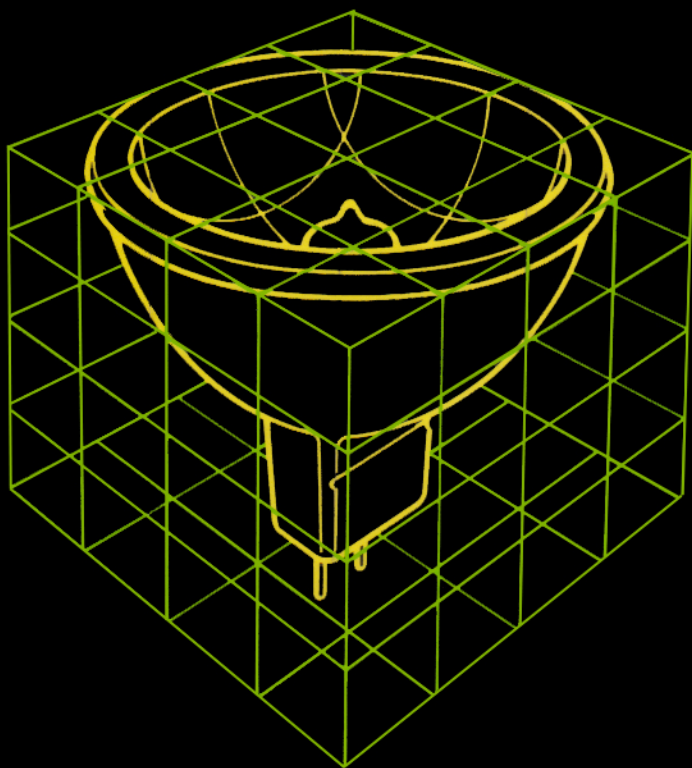


THE
COMPREHENSIVE
CATALOGUE
1987/8



 **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