PS: 17/2012

5th Revision

PAKISTAN STANDARD

TUNGSTEN FILAMENT LAMPS FOR DOMESTIC AND SIMILAR GENERAL LIGHTING PURPOSES- Performance requirements

PAKISTAN STANDARDS AND QUALITY CONTROL AUTHORITY,
STANDARDS DEVELOPMENT CENTRE,
PSQCA Complex Street 7 A Block –3
Scheme –36 Gulistan –e- johar Karachi

TUNGSTEN FILAMENT LAMPS FOR DOMESTIC AND SIMILAR GENERAL LIGHTING PURPOSES- Performance requirements

0. FOREWORD

0.1 This Pakistan Standard was adopted by the authority of the Board of Directors for Pakistan Standard and Quality Control Authority after the draft prepared by the Technical Committee for "Rotating Electrical Machines (EDC-5)" had been approved and endorsed by the National Standards Committee on _____.

0.2 This Pakistan Standard was prepared in 1979 on the basis of IEC: 60064/1979. Since IEC Standard have been revised in 1987, hence it is deemed necessary to revise our standard to keep abreast with the latest technology and at par with IEC Standard.

0.3 This standard is based on IEC: 60064/2009 "Tungsten filament lamps for domestic and similar general lighting purposes-Performance requirements" alonhwith Amendment-5 and its use hereby acknowledged with thanks.

0.4 This Standard is subject to periodical review in order to keep pace with the changing requirements and latest development in the industry. Any suggestions for improvement will be recorded and placed before the revising committee in due course.

0.5 This Standard covers technical provisions and it does not purport to include all the necessary provision of a contract.

CONTENTS

SECTION 7 : ANNEXES

SECTION 8 : LAMP DATA SHEETS

TUNGSTEN FILAMENT LAMPS FOR DOMESTIC AND SIMILAR GENERAL LIGHTING PURPOSES –

Performance requirements

Section 1: General

1.1 Scope

This Pakistan Standard applies to tungsten filament incandescent lamps for general lighting service (GLS) which comply with the safety requirements in PS: IEC 60432-1 and having:

– rated wattage of 25 W to 200 W, inclusive;
– rated voltage 100 V to 250 V, including marked voltage range not exceeding ±2,5 % of the mean voltage[1)];
– bulbs of the A or PS shapes;
– bulbs with clear, frosted or equivalently coated finishes, or white finishes;
– caps B22d, E26 or E27

Specific lamp types are covered in Section 8.

This standard states the performance requirements for lamps, including test methods and means of confirming compliance with the requirements. Whole production appraisal methods regarding a lamp manufacturer's test record on finished products are defined. This method can be applied for certification purposes. Details of a batch test procedure, which can be used to make an assessment of specific batches, are included, but it is not suitable for certification purposes.

For some of the requirements given in this standard, reference is made to "the relevant data sheet". For some lamps, these data sheets are contained in this standard. For other lamps, falling under the scope of this standard, the relevant data are supplied by the lamp manufacturer or responsible vendor.

The test and measurement methods contained in this standard are also applicable for the assessment of tungsten filament incandescent lamps not directly covered by the scope of this standard e.g. other bulb shapes, finishes etc.

NOTES

1 A lamp used in China having a rated wattage 15 W and rated voltage 220 V is included.

2 A lamp used in Japan having a rated wattage 18 W and rated voltage 100 V or 110 V is included.

3 Separate references are made to E26/24 caps used in North America and E26/25 caps used in Japan. The two are not compatible.

4 W here reference is made to the cap E27/27, the use of the cap E27/25 is also allowed.

1.2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

---

1) In countries in the process of changing from 220 V to 230 V nominal supply voltage, a range of ±3,5 % will apply temporarily.

PS: IEC 60061-1, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 1: Lamp caps*

PS: IEC 60061-2, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 2: Lampholders*

PS: IEC 60061-3, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 3: Gauges*

PS: IEC 60432-1, *Incandescent lamps – Safety specifications – Part 1: Tungsten filament lamps for domestic and similar general lighting purposes*

PS: IEC 60630, *Maximum lamp outlines for incandescent lamps*

PS: IEC 60887, *Glass bulb designation system for lamps*

1.3 General format

This standard is divided into several sections with self-descriptive titles. These sections are:

Section 1: General
Section 2: Lamp characteristics and specifications
Section 3: General, dimensional, electrical, photometric, and life requirements
Section 4: Conditions of compliance
Section 5: Sampling
Section 6: Principles of dimensioning
Section 7: Annexes
Section 8: Lamp data sheets

1.4 Bulb shape

Nomenclature for bulbs used as envelopes for lamps specified in this standard can be found in IEC Technical Report 60887: *Glass bulb designation system for lamps.*

1.5 Definitions

For the purpose of this International Standard the following definitions apply:

1.5.1 **type:** Lamps which, independent of type of cap, are identical in photometric and electrical characteristics.

1.5.2 **group:** Lamps of the same rated wattage, from the same lamp data sheet (normal or high luminous flux), whose rated voltage falls within the same voltage range (e.g. 100 V - 150 V; 200 V - 250 V).

1.5.3 **white finish:** A low-loss white bulb finish, usually applied internally, that provides diffused light.

1.5.4 **manufacturer:** An organization making lamps within the scope of this standard at one or more nominated factories, not necessarily in the same country, but having a common quality management.

1.5.5 **production:** The number of lamps, within the scope of this standard, manufactured in a factory within a 12-month period.

1.5.6 **total production:** The number of lamps, within the scope of this standard, manufactured in all the nominated factories of a single manufacturer within a 12-month period.

1.5.7 **whole production:** The production of all types of lamps within the scope of this standard manufactured during a period of 12 months and nominated in a list by the manufacturer for inclusion in any certificate provided by a certification authority.

1.5.8 **batch:** All the lamps of one type put forward at one time for test and for checking compliance.

1.5.9 **light centre length:** In the sense of this standard and where specified on a lamp data sheet, light centre length is the distance from the geometrical centre of the filament to the contact plate of the cap, including solder.

NOTE - This definition applies regardless of the type of cap used. A light centre length specification applies only to lamps with a clear finish.

1.5.10 **inspection test quantity (ITQ):** The number of lamps to be tested with the intention of determining acceptability, either of the whole production or of the batch, as to dimensional requirements.

1.5.11 **rating test quantity (RTQ):** The number of lamps to be tested with the intention of determining acceptability, either of the whole production or of the batch, as related to initial readings.

1.5.12 **life test quantity (LTQ):** The number of lamps to be tested with the intention of determining acceptability, either of the whole production or of the batch, as related to life.

1.5.13 **initial readings:** The photometric and electrical measurements made at the end of the ageing period.

1.5.14 **rated voltage:** Voltage or voltage range specified in the relevant lamp standard or assigned by the manufacturer or responsible vendor.

NOTE - If lamps are marked with a voltage range, it shall be interpreted that they are appropriate for use on any line voltage within that range.

1.5.15 **test voltage:** The rated voltage unless otherwise specified. If lamps are marked with a voltage range, the test voltage shall be taken as the mean of the voltage range unless otherwise specified.

1.5.16 **rated wattage:** Wattage specified in the relevant lamp standard or assigned by the manufacturer or responsible vendor.

1.5.17 **rated luminous flux (unit: lumen [lm]):** The lumen value declared by the manufacturer.

1.5.18 **lumen maintenance:** The ratio of luminous flux at 75 % of rated life to the initial luminous flux, expressed as a percentage.

1.5.19 **life:** The total time for which a lamp has been operated before it becomes useless, or to any other criterion of life performance laid down in this standard.

1.5.20 **rated life:** The life value specified on a lamp data sheet. Within the context of the life testing method of this standard, it represents the mean value of the truncated life distribution.

NOTE - Since the specified life test method of this standard is a truncated life test, all the lamps that may have been commercially rated relative to the arithmetic mean of full duration life tests must be rerated. The correction from arithmetic mean life to truncated mean life is based on statistical factors of the normal distribution. Considering the lower limit on individual lamp life of sub-clause 3.6.2 the statistical concepts of annex E and sensoring at 125 % of the truncated life rating, the truncated life rating is approximately
90 % of the arithmetic life rating. As an example, the E26 capped, 60 W HE lamp of data sheet
60064-IEC-1050 is a USA design with a commercial life rating of 1 000 h; its truncated life rating becomes
900 h.

1.5.21 **normal life test:** A life test wherein the lamps are operated at their rated voltage.

1.5.22 **accelerated life test:** A life test wherein the lamps are intentionally operated at a voltage above the rated voltage with results converted to equivalent life at rated voltage.

1.5.23 **truncated life test:** A censored life test wherein the test is terminated at a fixed point, 125 % of rated life.

Section 2: Lamp characteristics and specifications

2.1 Lamp characteristics and specifications

2.1.1 Lamp characteristics and specific performance limits are listed on the individual lamp data sheets. These data sheets are filed in section 8.

2.1.2 Each lamp data sheet defines a particular lamp "group" by listing the characteristics and limiting values that apply. The technical specifications on each sheet are: dimensions, minimum rated luminous flux, lumen maintenance, rated life, and information for luminaire design.

2.1.3 The sequence of the data sheets in section 8 is by wattage within the following subdivisions.

Category	Data sheet numbers
Lamps with E26 caps, rated life varying with rated wattage	1000 – 1999
Lamps with E26 caps, rated life 1 000 h	2000 – 2999
Reserve	3000 – 3999
Lamps with B22 caps, rated life 1 000 h	4000 – 4999
Lamps with E27 caps, rated life 1 000 h	5000 – 5999
Reserve	6000 – 6999

2.1.4 Numbering system for lamp data sheets

A lamp data sheet number is made up of four parts as follows:

– the first number represents the number of this publication (IEC 60064);
– the second part is the letter grouping "IEC";
– the third part is the basic data sheet number from the series in sub-clause 2.1.3;
– the fourth part is a number indicating the edition of the sheet.

NOTE – When amendments are made to data sheets, the affected pages are issued with an updated edition number. For example, if data sheet 60064-IEC-1050-1 were amended, the new issue would be numbered 60064-IEC-1050-2.

Section 3: General, dimensional, electrical, photometric, and life requirements

3.1 General

3.1.1 The lamps on which compliance with this standard is claimed shall comply with the requirements of IEC 60432-1.

3.1.2 Lamps shall be so designed that their performance is reliable in normal and accepted use. In general, this can be achieved by satisfying the requirements of this section (section 3).

3.1.3 Lamps shall be tested under the procedures of annex A, Test procedure.

3.2 Marking

Information identifying the finish of white lamps shall be either marked on the lamp or on the packaging.

3.3 Lamp dimensions

3.3.1 Lamps shall comply with the dimensional requirements specified on the appropriate lamp data sheet.

3.3.2 Lamps with screw caps shall comply with the relevant contact making gauges as described in IEC 60061-3.

3.3.3 Lamps with E26 caps shall comply with the gauge for testing contact-making, sheet 7006-29 of IEC 60061-3

3.4 Characteristics and tolerances of initial readings

3.4.1 Wattage

The initial wattage of individual lamps shall not exceed 104 % of the rated wattage specified on the relevant lamp data sheet plus 0,5 W.

3.4.2 Luminous flux initial

3.4.2.1 Rated luminous flux of the lamps shall not be less than the values shown on the relevant lamp data sheet.

3.4.2.2 The initial luminous flux readings of individual frosted, frosted equivalently coated or clear lamps shall not be less than 93 % of the rated luminous flux.

3.4.2.3 The initial luminous flux readings of individual white-coated lamps shall not be less than 90 % of the rated luminous flux.

3.5 Lumen maintenance

The lumen maintenance of individual lamps at 75 % of rated life shall be not less than the minimum value specified on the relevant lamp data sheet.

NOTES

1 For the compliance conditions of subclauses 4.1.2.6, 4.1.3.3 and 4.2.3, lamps that do not satisfy this requirement are treated as life failures.

2 In some countries, particularly North America, manufacturers' records may yield data at 70 % of rated life rather than the defined 75 % of rated life. This is due to long-established domestic and regulatory practices. Such data will have to be linearly extrapolated to the 75 % point.

3.6 Life test requirements

3.6.1 The truncated average life of a normal life test or the equivalent truncated average life of an accelerated life test, calculated by the method of subclause B.1.1 of annex B, shall be equal to or greater than the limits in subclause B.1.2, as related to rated life and the LTQ.

3.6.2 Individual lamps shall have a life of not less than 70 % of rated life.

Section 4: Conditions of compliance

4.1 Whole production of a manufacturer

Compliance is proven by satisfying the requirements of section 3 (general, dimensional, electrical, photometric, and life requirements) assessed on the following basis.

4.1.1 Pre-compliance testing for certification purposes

NOTE - For certification purposes a recommended pre-compliance test is given in annex C. Such a test provides temporary recognition of a supplier as explained in C.1.

4.1.2 Compliance of manufacturer's test data

4.1.2.1 The assessment shall be based on the test data in the manufacturer's records from all nominated factories under the common quality management, grouped together, meeting the requirements of subclause 4.1.2.3. For certification purposes, one certificate may cover all the nominated factories, but the Certification Authority shall have the right to visit each site, examine the local records and quality control procedures in respect of finished products.

4.1.2.2 For certification purposes, the manufacturer shall declare a list of lamp types and marks of origin which are to be within the scope of this standard, and this shall be taken to include all lamps so listed made by the manufacturer. Notifications of additions or deletions may be made at any time.

4.1.2.3 The whole production of a manufacturer shall be considered as satisfying the requirements of this standard if the conditions of subclauses 4.1.2.4, 4.1.2.5 and 4.1.2.6 are fulfilled for at least 75 % (rounded to the nearest whole number) of the total number of types, as selected in subclause 5.2.2, for which test data has been submitted.

4.1.2.4 Dimensions

A type from the whole production of a manufacturer shall be considered to comply if, for that type, the number of lamps in the manufacturer's records failing the dimensional requirements of clause 3.3 does not exceed the qualifying limit shown in table D.2, annex D. (This number of lamps is established from data supplied by the manufacturer.)

4.1.2.5 Initial readings

A type from the whole production of a manufacturer shall be considered to comply with the initial reading requirements, if for that type:

1) the number of lamps in the manufacturer's records whose wattage is above the limitation of subclause 3.4.1 does not exceed the value given in table D.3, annex D;

2) the number of lamps in the manufacturer's records having luminous flux values below the limitation of subclauses 3.4.2.2 or 3.4.2.3, does not exceed the value given in table D.3, annex D.

4.1.2.6 Life and lumen maintenance

A type from the whole production of a manufacturer shall be considered to comply if for that type:

1) the manufacturer's records show that the truncated average life results satisfy the requirements of subclause 3.6.1; and

2) the total number of individual lamps failing the requirement of subclause 3.6.2 together with those failing clause 3.5 does not exceed the number given in table D.4, annex D.

4.1.2.7 A manufacturer who has met, but no longer meets, the specified acceptance levels for subclauses 4.1.2.4, 4.1.2.5 and 4.1.2.6 shall not be disqualified from claiming compliance with this standard providing he can show that either:

a) action was taken to remedy the situation as soon as the trend was reasonably confirmed from his data and the specified acceptance level was re-established within a period of six months. When corrective action has been taken, compliance is assessed excluding the test records for the period of non-compliance from the 12-month summation. Such data shall form part of the record;

b) or the type which does not meet the specified acceptance level is deleted from the list of lamp types which he may claim are in conformity with this specification.

4.1.2.8 In the case of a lamp type which has been deleted under subclause 4.1.2.7 from the list (see 4.1.2.2), it may be reinstated if satisfactory results are obtained from tests on a number of lamps equivalent to the minimum 12-month period sample in the clause for which failure occurred. This sample may be collected over a short period.

4.1.3 Compliance to comparability test

Samples for a comparability test are selected for the purpose and by the methods defined in subclause 5.2.3. For each condition, each lamp type shall be dealt with separately.

4.1.3.1 Dimensions

For clause 3.3, calculate the percentage of non-conforming lamps, p, recorded in the manufacturer's records. Enter through this value of p in table D.1, annex D, to determine the allowable number of non-conforming lamps in the market sample. If the actual number of non-conforming lamps in the market sample exceeds the allowable number, the market sample shall be deemed to be inconsistent with the manufacturer's records.

4.1.3.2 Initial readings

Use the same procedure as in subclause 4.1.3.1. The wattage and the luminous flux shall be appraised separately. Wattage non-conforming lamps are those that do not satisfy subclause 3.4.1. Luminous flux non-conforming lamps are those that do not satisfy subclause 3.4.2.2 or 3.4.2.3.

4.1.3.3 Life and lumen maintenance

Use the procedure given in subclause 4.1.3.1. Non-conforming lamps are those that do not meet the requirement of subclause 3.6.2 for life together with those failing to meet the requirements of clause 3.5 for lumen maintenance.

4.2 Compliance of individual batches

Sampling for a batch shall be made in accordance with clause 5.3. A batch shall be considered as satisfying the requirements of this standard if the conditions contained in subclauses 4.2.1, 4.2.2 and 4.2.3 are fulfilled. If the batch fails to satisfy any of these subclauses, it shall be deemed as not complying with the standard.

4.2.1 Dimensions

A batch shall be considered to comply to the dimensional requirements if the number of lamps failing clause 3.3 does not exceed four.

4.2.2 Initial readings

A batch shall be considered to comply to initial requirements if:

1) the number of lamps whose wattage is above the maximum value specified in subclause 3.4.1 does not exceed 12;

2) the number of lamps whose lumen are below the minimum values specified in subclause 3.4.2.2 or 3.4.2.3 does not exceed 12.

4.2.3 Life and lumen maintenance

A batch shall be considered to comply to life requirements if:

1) the truncated average life of the LTQ satisfies subclause 3.6.1;

2) the total number of individual lamps failing the requirement of subclause 3.6.2 together with those failing clause 3.5 does not exceed eight.

4.2.4 Summary of compliance conditions for individual batches

A summary of the above conditions are given in the following table.

Characteristics	Sample size n	Qualifying limit c
ITQ Dimensional requirements	50	4
RTQ Wattage	100	12
RTQ Luminous flux	100	12
LTQ Avarage life	50	98 % of rated life
LTQ Life < 70 % of rated life plus lumen maintenance < minimum value on data sheet	50	8

Section 5: Sampling

5.1 Principles of sampling

The lamps for testing shall be selected so as to ensure proper representation.

NOTE - It should first be ascertained that the values of the rated luminous flux comply with the requirements of the relevant lamp data sheet.

It is not necessary to replace an accidentally broken lamp if the result of the test (approval or rejection) is not affected by its replacement, provided the required quantity of lamps for any subsequent test is available. If replaced, a broken lamp shall be neglected in calculating the test results.

NOTE - Accidentally broken lamps include, for example, lamps damaged during handling and transportation and also lamps becoming defective for reasons which are not connected with the purpose of a particular test being applied.

For batch and comparability testing, some lamps additional to the test quantity shall be selected. These lamps shall only be substituted for lamps of the test quantity, if necessary to make up the required number of lamps for the test.

5.2 Sampling for whole production testing

5.2.1 Pre-compliance testing for certification purposes

Sampling for the pre-compliance test is given in annex C, clause C.2.

5.2.2 Manufacturer's test data

The manufacturer shall make available all the data of his finished product tests so far as these relate to the lamp types on the manufacturer's nominated list and are pertinent to the requirements of this standard.

These data shall refer to a sufficient number of lamps, selected over a 12-month period, so as to be representative of the whole production. To meet this requirement there shall be provided:

1) in respect of each factory, test data on:

- for the four largest groups (or all groups if there are less than four), at least 200, 300 and 200 lamps for, respectively, ITQ, RTQ and LTQ with a minimum of 40, 60 and 40 lamps per group for, respectively, ITQ, RTQ and LTQ. If the LTQ of 200 represents more than 0,01 % of the production, then only 0,01 % or 40 lamps, whichever is the greater, need be tested;

- for each of the other groups, which together with the four largest groups make up at least 75 % of the production, a minimum of 20, 30 and 20 lamps for, respectively, ITQ, RTQ and LTQ;

- where a number of types make up a group, test quantities shall be selected from each of those types which make up at least 50 % of the production for that group;

- for each type for which data has to be presented to meet the above requirements a minimum of 20, 30 and 20 lamps for, respectively, ITQ, RTQ and LTQ;

2) in respect of all the manufacturer's factories, taken together:

- if the selected types do not make up at least 75 % of the total production of the manufacturer, additional types shall be selected to meet this requirement.

Providing the above requirements have been met, any types in the manufacturer's records for which there are less than the quantities for ITQ, RTQ and LTQ of 20, 30 and 20, respectively, shall not be considered.

All tests need not necessarily be carried out on the same lamps. The RTQ may contain other individuals than the ITQ, but the LTQ shall be carried out on individuals selected at random from lamps which have passed the rating test.

NOTE - This is because the life test results are dependent on the rating test results, this not being the case for the inspection test results.

As it may be difficult at the time of sampling to forecast the 12-month production of a type, as a fraction of the whole, percentage values in this section are to be regarded as guidelines, and some flexibility is permitted, provided that the manufacturer's selection of test samples is designed to give proper representation and the minimum test quantities are met.

Where a major change in types made by a factory creates a situation where the minimum test quantities are not met in the 12-month period, it shall be sufficient to show that the rate of testing at the time was compatible with the requirements of this clause.

5.2.3 Sampling for comparability test

5.2.3.1 In the case of an independent test authority, operating a certification scheme, there shall be an open-market selection of 20 lamps of three different lamp types taken in a representative manner through the production year.

Each of the samples of 20 lamps shall be tested primarily for the purpose of checking the validity of the manufacturer's own test information. The manufacturer shall make available

to the test authority the means by which the factory and approximate date of manufacture of the market selection may be determined.

NOTE - In order to ensure that the market sample is taken at random, it is recommended that the lamps be obtained at intervals evenly distributed over the year from a minimum of two sales outlets. The sample would not be random if these precautions were not taken and the results of the market sample could not then be compared with the manufacturer's records.

5.2.3.2 The lamps from subclause 5.2.3.1 shall be submitted to the inspection test.

5.2.3.3 The lamps from subclause 5.2.3.1 shall be submitted to the rating test.

5.2.3.4 The lamps from subclause 5.2.3.1 shall be submitted to the life test.

5.3 Sampling for batch testing

5.3.1 There shall be selected a random sample for an ITQ consisting of 50 lamps.

5.3.2 There shall be selected at random an RTQ comprising 100 lamps. The ITQ can be used as part of the RTQ.

5.3.3 From lamps which have passed the rating test, there shall be selected at random an LTQ of 50 lamps.

Section 6: Principles of dimensioning

6.1 Principles of dimensioning incandescent lamps with bulb shape A or PS, and cap B22d

6.1.1 All dimensions specified on the lamp data sheets of section 8 are in millimetres (mm).

6.1.2 Figure 1 presents graphical definitions of the dimensional codes for B22d capped lamps.

6.1.3 In the bulb designations on the lamp data sheets, the numerals shown indicate the nominal bulb diameter and are not to be used for assessing the dimensions of the lamps.

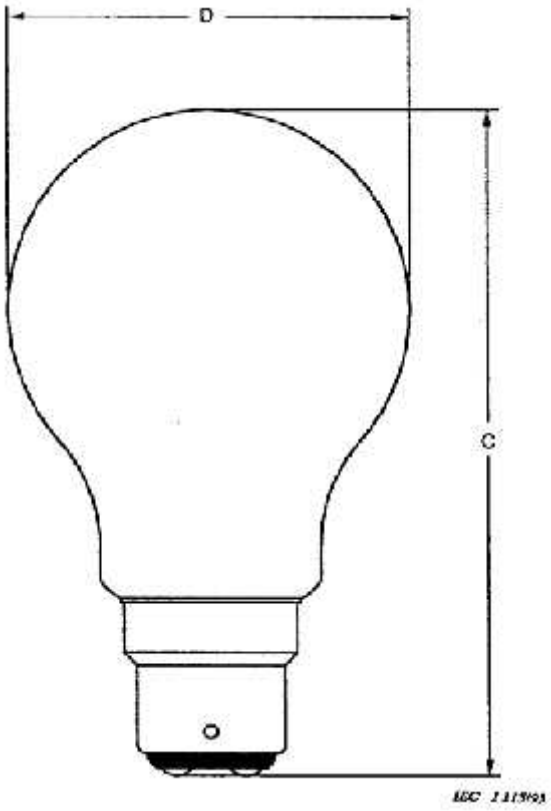

Figure 1 - Lamp with B22d cap

6.2 Principles of dimensioning incandescent lamps with bulb shape A or PS, and Edison screw cap

6.2.1 All dimensions specified on the lamp data sheets of Section 8 are in millimeters (mm).

6.2.2 Figure 2 presents graphical definitions of the dimensional codes for Edison screw-capped lamps.

6.2.3 In the bulb designations on the lamp data sheets, the numerals shown indicate the nominal bulb diameter and are not to be used for assessing the dimensions of the lamps.

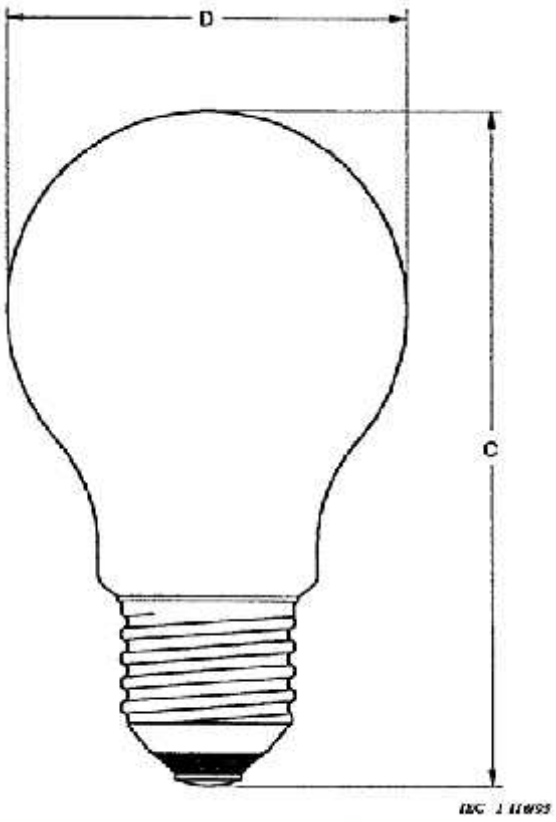

Figure 2 - Lamp with Edison screw cap

Section 7: Annexes

Annex A
(normative)

Test procedure

A.1 Test voltage for measurements

Measurements at the required intervals shall be made at the rated voltage of the lamps under test. Lamps marked with a voltage range shall be measured at a test voltage that is half-way between the range limits.

A.2 Ageing procedure

Before the initial readings are taken, lamps shall be aged at a voltage between rated voltage and 110 % of rated voltage for a period equivalent to 0,04 % to 0,1 % of rated life.

NOTE - In North America, test lamps are aged for a period of up to the equivalent of 1 % of rated life.

A.3 Photometry procedure

Measurements shall be carried out while utilizing a suitable integrating photometer. This applies both for initial readings and lumen maintenance readings. When taking photometric measurements the test voltage shall be adjusted to be within ±0,2 % of the rated voltage of the lamp.

A.4 Test procedure for lumen maintenance and life

A.4.1 Operating position

Lamps shall be operated in a vertical position, cap up. The lampholder's axis on a test rack shall not deviate from the vertical by more than 5°.

A.4.2 Mechanical stability

Lamps shall operate free from noticeable vibration. No vibration or shock shall be perceptible when touching the lampholders, either during operation or during switching on or off.

A.4.3 Lampholders

A.4.3.1 Lampholders on the life test racks shall be of sturdy construction and shall be designed to ensure adequate electrical contact and to avoid overheating.

A.4.3.2 The voltage drop between the point of voltage measurement and the cap contacts shall not exceed 0,1 % of the test voltage.

A.4.3.3 Bayonet lampholders shall have an earthed metal barrel.

A.4.3.4 Lampholders shall be so designed that the torque necessary to insert or extract a lamp shall not exceed the values specified in IEC 60432-1 for the relevant lamp cap.

A.4.4 Operating temperature

A.4.4.1 The lamp's cap temperature during operation shall not exceed the maximum cap operating temperature as specified in table K.1 of IEC 60432-1.

A.4.4.2 Lamps shall not be operated at excessive ambient temperatures; neither shall there be undue heating of a lamp by other lamps.

A.4.5 Life test voltage

A life test shall be made at rated voltage of the lamps or at a higher value. The test voltage shall be a stable voltage per subclause A.4.7 between 100 % and approximately 110 % of the rated voltage. For certification purposes, the value of the life test voltage is to be selected by mutual agreement.

NOTES

1 In general, testing at voltages in excess of the rated voltage is practised for reasons of economy.

2 In some countries such as Japan, test voltages up to 140 % of rated voltage have been mutually agreed for certification purposes. In such cases the exponent n of the formula in subclause A.4.6 may become a different value.

A.4.6 Equivalent life for rated voltage

The equivalent life for rated voltage of an accelerated life test shall be determined in accordance with the following equation:

$$L_o = L\left(\frac{U}{U_o}\right)^n$$

where

L_o is the life at rated voltage

L is the life at test voltage

U_o is the rated voltage

U is the test voltage

n = 13 for vacuum lamps and 14 for gas-filled lamps

A.4.7 Supply and voltage control

Lamps shall be operated on alternating current at a frequency of a nominal value of 50 Hz or 60 Hz.

Voltage variations on the test racks shall not exceed 1 % of the test voltage.

NOTES

1 It is normally necessary to provide voltage stabilization equipment, and where one stabilizer serves several groups of lamps, fine voltage control for each group is usually necessary to compensate for small voltage variations due to changes in load. Voltage checks and the resetting of the voltage as near as pos- sible to the test voltage are desirable on a daily basis but the interval should not exceed 100 h.

2 The response of voltage stabilizers to changes in supply voltage should be such that changes greater than 1 % are corrected within 1 min.

3 For the case of high-voltage short-duration surges, see annex F.

4 Mains resistance and inductance values relate to the resistance and inductance values when looking back from the lamp position into the mains. When these parameters are measured, voltage stabilizers and devices for providing voltage adjustment should be in circuit at approximately their normal settings. If small resistors or inductors have to be added to achieve the specified values, these should be in place.

A.4.8 Test cycle

Lamps shall be switched off twice daily for periods of not less than 15 min. Such off periods are not to be considered as part of the operating hours of the lamp.

NOTE - In North America, test lamps are switched off once daily for a period of 30 min.

A.4.9 Test rack circuit characteristics

The test rack circuit is to have the characteristics given in annex F.

A.4.10 Intermediate measurements

Lamps subjected to the life test shall be measured for luminous flux at the rated voltage, at 75 % ± 2,5 % of rated life or its equivalent if accelerated testing is used.

A.4.11 Termination of test

The life test shall be considered to have terminated at 125 % of rated life, or its equivalent if accelerated testing is used.

Annex B
(normative)

Life calculation and limits

B.1 Truncated average life

B.1.1 The truncated average life or equivalent truncated average life is obtained by the summation of the lives of individual lamps divided by the number of lamps. Those lamps still operating at the termination of the test per annex A, subclause A.4.11 (125 % of rated life) are treated as having lives of 125 % of rated life.

B.1.2 The minimum limit of truncated average life is given in the following table.

LTQ	Minimum, truncated average or equivalent truncated average life in percent of rated life
20 to 24 inclusive	96 %
25 to 249 inclusive	98 %
250 and more	100 %

Annex C
(normative)

Recommended pre-compliance tests for certification purposes

C.1 Scope

This annex recommends a pre-compliance testing scheme for certification purposes to establish confidence between the testing authority and the manufacturer before relying on reference to the manufacturer's own test data for whole production testing.

C.2 Sampling

C.2.1 Sampling shall be subject to an agreement between the manufacturer and the testing authority and shall be representative of a 12-month period of manufacture.

C.2.2 The type with the larger production percentage shall be tested.

C.2.3 For this type the lamps for testing shall be selected so as to be distributed as evenly as possible throughout a period of 12 consecutive months.

C.2.4 Lamps shall be selected at the same time, one lot for measurement by the manufacturer and the other lot for measurement by the testing authority.

C.2.5 For this selected type a quantity of 60 lamps shall be taken for, respectively, the ITQ, RTQ and LTQ.

C.3 Conditions of compliance

The pre-compliance selected type shall be considered as satisfying the requirements of this standard, if the requirements contained in subclauses C.3.1, C.3.2 and C.3.3 are fulfilled. If the pre-compliance selected type fails to satisfy the requirements of any of these clauses, it shall be deemed as not complying with the standard.

C.3.1 Dimensions

The pre-compliance selected type shall be considered to comply if the number of lamps failing clause 3.3 does not exceed five.

C.3.2 Initial readings

The pre-compliance selected type shall be considered to comply if:

a) the number of lamps whose wattage is above the maximum value specified in subclause 3.4.1 does not exceed eight;

b) the number of lamps whose lumen values are below the minimum values specified in subclause 3.4.2.2 or 3.4.2.3 does not exceed eight.

C.3.3 Life and lumen maintenance

The pre-compliance selected type shall be considered to comply if:

a) the truncated average life of the LTQ attains the value set in subclause B.1.2 of annex B;

b) the total number of individual lamps failing the requirements of subclause 3.6.2 together with those failing clause 3.5 does not exceed nine.

C.3.4 Summary of conditions for pre-compliance selected type

A summary of the above conditions are given in the following table.

Table C.1

	Characteristics	Sample size *n*	Qualifying limit *c*
ITQ	Dimensional requirements	60	5
RTQ	Wattage	60	8
	Luminous flux		8
LTQ	Average life	60	98 % of rated life
	Life < 70 % of rated life plus lumen maintenance < minimum value on data sheet	60	9

C.3.5 Pre-compliance comparability test

C.3.5.1 Dimensions

For clause 3.3 take the number of non-conforming lamps, K_1, recorded in the manufacturer's test results. Use this value of K_1 in table C.2 to determine the allowable number of non-conforming lamps in the testing authority's test results, K_2. If the actual number of non-conforming lamps in the testing authority's test results exceeds the allowable number, the testing authority's test results shall be deemed to be inconsistent with the manufacturer's test results.

C.3.5.2 Initial readings

Use the same procedure as in subclauses C.3.5.1.

The wattage and the luminous flux shall be appraised separately. Wattage non-conforming lamps are those that do not satisfy subclause 3.4.1. Luminous flux non-conforming lamps are those that do not satisfy subclause 3.4.2.2 or 3.4.2.3.

C.3.5.3 Life

Use the procedures given in subclause C.3.5.1. Non-conforming lamps are those that do not meet the requirements of subclause 3.6.2 for life together with those failing to meet the requirements of clause 3.5 for lumen maintenance.

Table C.2 - Allowable number[1)] of non-conforming lamps

Number of non-conforming lamps in manufacturer's test results K_1	Number of non-conforming lamps, in testing authority's test results K_2
0	6
1	8
2	10
3	11
4	13
5	14
6	15
7	16
8	17
9	18
10	20

1) These limits have been chosen so that the probability of consistency between the manufacturer's test results and the testing authority's test results is as near as possible and at least 0,975 when the two sets of lamps have both come from the same population.

In evaluating the selected type, five assessments have to be made. Following the laws of probability, non-comparability may occur even if consistency exists between the manufacturer's data and tthe esting authority's data. In the complete range of tests on the selected type, allowance should be made for non-comparability on one individual test (for this one individual test, maximum limits are under consideration).

Annex D
(normative)

Statistical compliance tables

Table D.1 - Allowable number [1] of non-conforming lamps in the market sample of 20 lamps

Percentage of non-conforming lamps in manufacturer's records [2]	Allowable number of non-conforming lamps in market sample [1]
0	1
1	1
2	1
3	2
4	2
5	3
6	3
7	4
8	4
9	4
10	5
11	5
12	5
13	5
14	6
15	6

1) These limits have been chosen such that the probability of consistency between manufacturer's results and market results is as near as possible to 0,975 when the two sets of lamps have both come from the same population. The actual probabilities lie between 0,940 and 0,991, with 90 % of them lying between 0,96 and 0,99. In evaluating three market samples, 15 test assessments have to be made. Following the laws of probability, non- comparability may occur even if consistency exists between manufacturer's data and market samples. In the complete range of tests on three market samples, allowance should be made for non-comparability on two individual tests.

2) In the case of a fraction resulting from the calculation of p, the next higher whole number shall be taken.

Table D.2 – Dimensional requirements

Number of lamps in records	Qualifying limit
20 – 34	2
35 – 54	3
55 – 74	4
75 – 95	5
96 – 116	6
117 – 138	7
139 – 161	8
162 – 184	9
185 – 208	10
209 – 231	11
232 – 257	12
258 – 281	13
282 – 307	14
308 – 332	15
333 – 357	16
358 – 383	17
384 – 409	18
410 – 436	19
437 – 461	20
462 – 488	21
489 – 515	22
516 – 542	23
543 – 569	24
570 – 596	25
597 – 623	26
624 – 650	27
651 – 677	28
678 – 706	29
707 – 733	30
734 – 761	31
762 – 789	32
790 – 817	33
818 – 845	34
846 – 873	35
874 – 901	36
902 – 929	37
930 – 958	38
959 – 987	39
988 – 1016	40
1017 and above	See formula in annex E

NOTE – The statistical basis for this table is described in annex E.

Table D.3 – Initial readings

Number of lamps in records	Qualifying limit	Number of lamps in records	Qualifying limit
30 - 34	4		
35 - 41	5	524 - 535	48
42 - 50	6	536 - 547	49
51 - 60	7	548 - 560	50
61 - 70	8	561 - 573	51
71 - 80	9	574 - 586	52
81 - 90	10	587 - 599	53
91 - 101	11	600 - 611	54
102 - 111	12	612 - 624	55
112 - 122	13	625 - 637	56
123 - 133	14	638 - 649	57
134 - 144	15	650 - 661	58
145 - 154	16	662 - 674	59
155 - 165	17	675 - 687	60
166 - 177	18	688 - 699	61
178 - 188	19	700 - 712	62
189 - 200	20	713 - 725	63
201 - 211	21	726 - 737	64
212 - 223	22	738 - 749	65
224 - 234	23	750 - 762	66
235 - 246	24	763 - 775	67
247 - 258	25	776 - 787	68
259 - 270	26	788 - 799	69
271 - 282	27	800 - 811	70
283 - 293	28	812 - 824	71
294 - 305	29	825 - 837	72
306 - 317	30	838 - 849	73
318 - 329	31	850 - 862	74
330 - 340	32	863 - 874	75
341 - 353	33	875 - 887	76
354 - 365	34	888 - 899	77
366 - 376	35	900 - 912	78
377 - 389	36	913 - 924	79
390 - 401	37	925 - 938	80
402 - 413	38	939 - 951	81
414 - 425	39	952 - 964	82
426 - 437	40	965 - 977	83
438 - 449	41	978 - 990	84
450 - 461	42	991 - 1003	85
462 - 473	43	1004 and above	See formula in annex E
474 - 486	44		
487 - 498	45		
499 - 510	46		
511 - 523	47		

NOTE – The statistical basis for this table is described in annex E.

Table D.4 – Life test

Number of lamps in records	Qualifying limit	Number of lamps in records	Qualifying limit	Number of lamps in records	Qualifying limit
20- 28	4				
29 - 36	5	342 - 352	37	690 - 700	69
37 - 44	6	353 - 363	38	701 - 711	70
45 - 53	7	364 - 373	39	712 - 722	71
54 - 61	8	374 - 384	40	723 - 733	72
62 - 70	9	385 - 394	41	734 - 744	73
71 - 79	10	395 - 405	42	745 - 755	74
80 - 89	11	406 - 415	43	756 - 767	75
90 - 98	12	416 - 426	44	768 - 778	76
99 - 107	13	427 - 437	45	779 - 789	77
108 - 117	14	438 - 447	46	790 - 800	78
118 - 127	15	448 - 458	47	801 - 811	79
128 - 137	16	459 - 469	48	812 - 822	80
138 - 146	17	470 - 480	49	823 - 833	81
147 - 156	18	481 - 491	50	834 - 844	82
157 - 165	19	492 - 502	51	845 - 855	83
166 - 175	20	503 - 513	52	856 - 867	84
176 - 185	21	514 - 523	53	868 - 878	85
186 - 195	22	524 - 535	54	879 - 889	86
196 - 205	23	536 - 547	55	890 - 901	87
206 - 216	24	548 - 557	56	902 - 912	88
217 - 226	25	558 - 567	57	913 - 924	89
227 - 236	26	568 - 578	58	925 - 935	90
237 - 247	27	579 - 589	59	936 - 947	91
248 - 257	28	590 - 601	60	948 - 958	92
258 - 268	29	602 - 612	61	959 - 969	93
269 - 278	30	613 - 623	62	970 - 980	94
279 - 288	31	624 - 633	63	981 - 991	95
289 - 299	32	634 - 644	64	992 - 1002	96
300 - 310	33	645 - 655	65	1003 and above	See
311 - 320	34	656 - 667	66		formula
321 - 331	35	668 - 678	67		in annex E
332 - 341	36	679 - 689	68		

NOTE – The statistical basis for this table is described in annex E.

Annex E
(normative)

Statistical concepts and basis of this standard

Of the various dimensional and performance characteristics covered by this standard, some may be conveniently checked by gauges on a Go, Not Go basis and some are ascribed a specific numerical value. To provide a uniform approach, the former and latter are classified as non-conformities if either they fail the gauges or they fall below (or above) a specific value. All the results may then be treated on an attribute basis and compliance of each tested parameter assessed by reference to qualifying limits in the various tables.

In selecting the AQL levels and the specified limit for the various parameters, it is possible to call for low AQLs associated with a particular specified limit, or to operate with a higher AQL, and with a specified limit nearer the mean value. If the parameter being assessed forms a distribution which approximates to a Gaussian (or normal) distribution then it is more efficient in quality control procedures to operate in the mode with a tighter limit, but a reasonably high AQL.

Such an approach has been adopted in this standard for many years. One of the reasons for this is that some of the tests are either lengthy or destructive making statistical sampling procedures essential. Thus, if a "non-conformity" is recorded against a particular lamp, it may still be a sound lamp and the probability of it being unsuitable for use is low.

The qualifying limits are such that there is a 0,975 probability of compliance with each condition provided that the bulk from which the sample (or samples) is drawn contains approximately:

1) 3 % failing any single dimensional requirement;
2) 7 % outside either of the requirements for initial rating;
3) 8 % failing the individual life requirements.

NOTE - Because 0,975 probability of compliance applies to each condition separately, it follows that, at the specified level of quality, the overall probability of compliance would be somewhat lower (by how much it is not possible to estimate accurately).

For larger samplings of test data than those given in the relevant tables in annex D, the qualify limit for acceptance shall be obtained from the following formula:

$$QL = \frac{AN}{100} + 1{,}96\sqrt{\frac{AN}{100}}$$

where

A is the appropriate percentage

N is the number of lamps in records

QL is the qualifying limit for acceptance

If a fraction results, it shall be rounded to the nearest whole number.

Annex F
(normative)

Test rack circuit characteristics

For 100 V to 250 V lamps, the test rack circuit has the following characteristics:

		100 V to 150 V	200 V to 250 V
Resistance	:	1)	0,5 ± 0,1
Inductance	P H	1)	500 ± 100 2) 3)
Individual external lamp fuse min.	A	1)	10 slow-acting
Surge limit	V	600 4)	600 4)

1) Under consideration.

2) Manufacturers undertaking their own testing may use higher levels of inductance provided the total impedance does not exceed 0,7 :. On a 60 Hz supply, the inductance should be proportionally lower (values under consideration).

3) The maximum lamp current loading that may be switched on simultaneously is 16 A, for 200 V to 250 V test racks.

4) This information is given to enable surge-limiting means, of the correct rating, to be selected. A 600 V average value is chosen to take into account practical tolerances on such surge-limiting means to ensure that incidental peaks greater then 900 V are suppressed.

Section 8: Lamp data sheets

8.1 List of lamp data sheets and ILCOS codes

As additional information this table shows for each data sheet the ILCOS codes according to IEC/TS 61231 [2].

NOTE 1 The code does not give all the technical characteristics necessary to specify a lamp fully, but it should aid in the correct replacement of lamps concerning their interchangeability and compatibility.

NOTE 2 The code is given here in its standard version (ILCOS D). If needed, the code can be shortened according to subclause 4.3 of IEC/TS 61231.

NOTE 3 Where "*voltage*" is shown here in the code, it is intended that the actual rated lamp voltage or voltage range will be given. In case of a voltage range the two numbers are given separated by a slash.

NOTE 4 Some lamps show the same ILCOS code but are different regarding their luminous flux (normal or high) or regarding their life. According to subclause 4.3 of IEC/TS 61231 this can be indicated by an asterisk (*) and explained in a separate remark.

Sheet No.	Watts W	Bulb	Cap	Finish*	Life h	Luminous flux**	ILCOS code
60064-IEC-1010	25	A60	E26/24	C, F	2 250	N	IAA/C-25-*voltage*-E26/24-60 IAA/F-25-*voltage*-E26/24-60
60064-IEC-1011	25	A60	E26/24	W	2 250	N	IAA/W-25-*voltage*-E26/24-60
60064-IEC-1030	40	A60	E26/24	C, F	1 350	N	IAA/C-40-*voltage*-E26/24-60 IAA/F-40-*voltage*-E26/24-60
60064-IEC-1031	40	A60	E26/24	W	1 350	N	IAA/W-40-*voltage*-E26/24-60
60064-IEC-1040	40	A60	E26/24	C, F	900	N	IAA/C-40-*voltage*-E26/24-60 IAA/F-40-*voltage*-E26/24-60
60064-IEC-1041	40	A60	E26/24	W	900	N	IAA/W-40-*voltage*-E26/24-60
60064-IEC-1050	60	A60	E26/24	C, F	900	H	IAA/C-60-*voltage*-E26/24-60 IAA/F-60-*voltage*-E26/24-60
60064-IEC-1051	60	A60	E26/24	W	900	H	IAA/W-60-*voltage*-E26/24-60
60064-IEC-1060	75	A60	E26/24	C, F	675	H	IAA/C-75-*voltage*-E26/24-60 IAA/F-75-*voltage*-E26/24-60
60064-IEC-1061	75	A60	E26/24	W	675	H	IAA/W-75-*voltage*-E26/24-60
60064-IEC-1070	100	A60	E26/24	C, F	675	H	IAA/C-100-*voltage*-E26/24-60 IAA/F-100-*voltage*-E26/24-60
60064-IEC-1071	100	A60	E26/24	W	675	H	IAA/W-100-*voltage*-E26/24-60
60064-IEC-1090	150	A67	E26/24	C, F	675	H	IAA/C-150-*voltage*-E26/24-67 IAA/F-150-*voltage*-E26/24-67
60064-IEC-1091	150	A67	E26/24	W	675	H	IAA/W-150-*voltage*-E26/24-67
60064-IEC-1110	200	A71	E26/24	C, F	675	H	IAA/C-200-*voltage*-E26/24-71 IAA/F-200-*voltage*-E26/24-71
60064-IEC-1111	200	A67	E26/24	W	675	H	IAA/W-200-*voltage*-E26/24-67

2) IEC/TS 61231:1999, *International lamp coding system (ILCOS)*

Sheet No.	Watts W	Bulb	Cap	Finish*	Life h	Luminous flux**	ILCOS code
60064-IEC-2010	30	A55,PS55	E26/25	C, F	1 000	H	IAA/C-30-*voltage*-E26/25-55 IAA/F-30-*voltage*-E26/25-55
60064-IEC-2011	29	A55,PS55	E26/25	F	1 000	H	IAA/F-29-*voltage*-E26/25-55
60064-IEC-2012	29	A60,PS60	E26/25	F	1 000	H	IAA/F-29-*voltage*-E26/25-60
60064-IEC-2030	40	A55,PS55	E26/25	C, F	1 000	H	IAA/C-40-*voltage*-E26/25-55 IAA/F-40-*voltage*-E26/25-55
60064-IEC-2031	38	A55,PS55	E26/25	F	1 000	H	IAA/F-38-*voltage*-E26/25-55
60064-IEC-2032	38	A60,PS60	E26/25	F	1 000	H	IAA/F-38-*voltage*-E26/25-60
60064-IEC-2033	36	A55,PS55	E26/25	W	1 000	H	IAA/W-36-*voltage*-E26/25-55
60064-IEC-2050	60	A60,PS60	E26/25	C, F	1 000	H	IAA/C-60-*voltage*-E26/25-60 IAA/F-60-*voltage*-E26/25-60
60064-IEC-2051	57	A60,PS60	E26/25	F	1 000	H	IAA/F-57-*voltage*-E26/25-60
60064-IEC-2052	54	A55,PS55	E26/25	W	1 000	H	IAA/W-54-*voltage*-E26/25-55
60064-IEC-2053	54	A60,PS60	E26/25	W	1 000	H	IAA/W-54-*voltage*-E26/25-60
60064-IEC-2070	100	A60,PS60	E26/25	C, F	1 000	H	IAA/C-100-*voltage*-E26/25-60 IAA/F-100-*voltage*-E26/25-60
60064-IEC-2071	95	A60,PS60	E26/25	F	1 000	H	IAA/F-95-*voltage*-E26/25-60
60064-IEC-2072	90	A60,PS60	E26/25	W	1 000	H	IAA/W-90-*voltage*-E26/25-60
60064-IEC-2090	150	A75,PS75	E26/25	C, F	1 000	H	IAA/C-150-*voltage*-E26/25-75 IAA/F-150-*voltage*-E26/25-75
60064-IEC-2091	150	A75,PS75	E26/25	W	1 000	H	IAA/W-150-*voltage*-E26/25-75
60064-IEC-2110	200	A75,PS75	E26/25	C, F	1 000	H	IAA/C-200-*voltage*-E26/25-75 IAA/F-200-*voltage*-E26/25-75
60064-IEC-2111	200	A75,PS75	E26/25	W	1 000	H	IAA/W-200-*voltage*-E26/25-75
60064-IEC-4005	15	A50, A55, A60,PS60	B22d/25x26	C, F	1 000	N	IAA/C-15-*voltage*-B22d-50 IAA/F-15-*voltage*-B22d-50 IAA/C-15-*voltage*-B22d-55 IAA/F-15-*voltage*-B22d-55 IAA/C-15-*voltage*-B22d-60 IAA/F-15-*voltage*-B22d-60
60064-IEC-4010	25	A50 A55, A60,PS60	B22d/25x26	C, F	1 000	H	IAA/C-25-*voltage*-B22d-50 IAA/F-25-*voltage*-B22d-50 IAA/C-25-*voltage*-B22d-55 IAA/F-25-*voltage*-B22d-55 IAA/C-25-*voltage*-B22d-60 IAA/F-25-*voltage*-B22d-60
60064-IEC-4015	25	A50 A55, A60,PS60	B22d/25x26	C, F	1 000	N	IAA/C-25-*voltage*-B22d-50 IAA/F-25-*voltage*-B22d-50 IAA/C-25-*voltage*-B22d-55 IAA/F-25-*voltage*-B22d-55 IAA/C-25-*voltage*-B22d-60 IAA/F-25-*voltage*-B22d-60
60064-IEC-4030	40	A50 A55, A60,PS60	B22d/25x26	C, F	1 000	H	IAA/C-40-*voltage*-B22d-50 IAA/F-40-*voltage*-B22d-50 IAA/C-40-*voltage*-B22d-55 IAA/F-40-*voltage*-B22d-55 IAA/C-40-*voltage*-B22d-60 IAA/F-40-*voltage*-B22d-60
60064-IEC-4035	40	A60,PS60	B22d/25x26	C, F	1 000	N	IAA/C-40-*voltage*-B22d-60 IAA/F-40-*voltage*-B22d-60

Sheet No.	Watts W	Bulb	Cap	Finish*	Life h	Luminous flux**	ILCOS code
60064-IEC-4050	60	A50 A55, A60,PS60	B22d/25x26	C, F	1 000	H	IAA/C-60-*voltage*-B22d-50 IAA/F-60-*voltage*-B22d-50 IAA/C-60-*voltage*-B22d-55 IAA/F-60-*voltage*-B22d-55 IAA/C-60-*voltage*-B22d-60 IAA/F-60-*voltage*-B22d-60
60064-IEC-4055	60	A60,PS60	B22d/25x26	C, F	1 000	N	IAA/C-60-*voltage*-B22d-60 IAA/F-60-*voltage*-B22d-60
60064-IEC-4060	75	A50 A55, A60,PS60	B22d/25x26	C, F	1 000	H	IAA/C-75-*voltage*-B22d-50 IAA/F-75-*voltage*-B22d-50 IAA/C-75-*voltage*-B22d-55 IAA/F-75-*voltage*-B22d-55 IAA/C-75-*voltage*-B22d-60 IAA/F-75-*voltage*-B22d-60
60064-IEC-4070	100	A50 A55, A60,PS60	B22d/25x26	C, F	1 000	H	IAA/C-100-*voltage*-B22d-50 IAA/F-100-*voltage*-B22d-50 IAA/C-100-*voltage*-B22d-55 IAA/F-100-*voltage*-B22d-55 IAA/C-100-*voltage*-B22d-60 IAA/F-100-*voltage*-B22d-60
60064-IEC-4075	100	A60,PS60	B22d/25x26	C, F	1 000	N	IAA/C-100-*voltage*-B22d-60 IAA/F-100-*voltage*-B22d-60
60064-IEC-4090	150	A68,PS68	B22d/25x26	C, F	1 000	H	IAA/C-150-*voltage*-B22d-68 IAA/F-150-*voltage*-B22d-68
60064-IEC-4095	150	A80,PS80	B22d/25x26	C, F	1 000	N	IAA/C-150-*voltage*-B22d-80 IAA/F-150-*voltage*-B22d-80
60064-IEC-4110	200	A80,PS80	B22d/25x26	C, F	1 000	H	IAA/C-200-*voltage*-B22d-80 IAA/F-200-*voltage*-B22d-80
60064-IEC-4115	200	A80,PS80	B22d/25x26	C, F	1 000	N	IAA/C-200-*voltage*-B22d-80 IAA/F-200-*voltage*-B22d-80
60064-IEC-5005	15	A50 A55, A60,PS60	E27/27	C, F	1 000	N	IAA/C-15-*voltage*-E27-50 IAA/F-15-*voltage*-E27-50 IAA/C-15-*voltage*-E27-55 IAA/F-15-*voltage*-E27-55 IAA/C-15-*voltage*-E27-60 IAA/F-15-*voltage*-E27-60
60064-IEC-5010	25	A50 A55, A60,PS60	E27/27	C, F	1 000	H	IAA/C-25-*voltage*-E27-50 IAA/F-25-*voltage*-E27-50 IAA/C-25-*voltage*-E27-55 IAA/F-25-*voltage*-E27-55 IAA/C-25-*voltage*-E27-60 IAA/F-25-*voltage*-E27-60
60064-IEC-5015	25	A55, A60,PS60	E27/27	C, F	1 000	N	IAA/C-25-*voltage*-E27-55 IAA/F-25-*voltage*-E27-55 IAA/C-25-*voltage*-E27-60 IAA/F-25-*voltage*-E27-60
60064-IEC-5030	40	A50 A55, A60,PS60	E27/27	C, F	1 000	H	IAA/C-40-*voltage*-E27-50 IAA/F-40-*voltage*-E27-50 IAA/C-40-*voltage*-E27-55 IAA/F-40-*voltage*-E27-55 IAA/C-40-*voltage*-E27-60 IAA/F-40-*voltage*-E27-60
60064-IEC-5035	40	A60,PS60	E27/27	C, F	1 000	N	IAA/C-40-*voltage*-E27-60 IAA/F-40-*voltage*-E27-60
60064-IEC-5050	60	A55, A60,PS60	E27/27	C, F	1 000	H	IAA/C-60-*voltage*-E27-55 IAA/F-60-*voltage*-E27-55 IAA/C-60-*voltage*-E27-60 IAA/F-60-*voltage*-E27-60
60064-IEC-5055	60	A60,PS60	E27/27	C, F	1 000	N	IAA/C-60-*voltage*-E27-60 IAA/F-60-*voltage*-E27-60

* C = clear; F = frosted or frosted equivalently coated; W = white

** N = normal luminous flux; H = high luminous flux

Sheet No.	Watts W	Bulb	Cap	Finish*	Life h	Luminous flux**	ILCOS code
60064-IEC-5060	75	A50 A55, A60,PS60	E27/27	C, F	1 000	N	IAA/C-15-*voltage*-E27-60 IAA/F-15-*voltage*-E27-60 IAA/C-25-*voltage*-E27-60 IAA/F-25-*voltage*-E27-60
60064-IEC-5070	100	A50 A55, A60,PS60	E27/27	C, F	1 000	H	IAA/C-25-*voltage*-E27-60 IAA/F-25-*voltage*-E27-60 IAA/C-40-*voltage*-E27-60 IAA/F-40-*voltage*-E27-60
60064-IEC-5075	100	A60,PS60	E27/27	C, F	1 000	N	IAA/C-40-*voltage*-E27-60 IAA/F-40-*voltage*-E27-60
60064-IEC-5090	150	A68,PS68	E27/27	C, F	1 000	H	IAA/C-60-*voltage*-E27-60 IAA/F-60-*voltage*-E27-60
60064-IEC-5095	150	A80,PS80	E27/27	C, F	1 000	N	IAA/C-60-*voltage*-E27-60 IAA/F-60-*voltage*-E27-60
60064-IEC-5110	200	A80,PS80	E27/27	C, F	1 000	H	IAA/C-75-*voltage*-E27-60 IAA/F-75-*voltage*-E27-60
60064-IEC-5115	200	A80,PS80	E27/27	C, F	1 000	N	IAA/C-100-*voltage*-E27-60 IAA/F-100-*voltage*-E27-60

NORMAL LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E26 **25 W** **2 250 h**

Dimensions in millimetres

Bulb designation: A60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E26/24

Rated wattage (W): 25

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
100.	61.9

Rated life (h): 2 250
For reference in the requirements of clause 3.6

Lumen maintenance (%): 74
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm
120	**220**
125	**215**
130	**215**

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

NORMAL LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E26 25 W 2 250 h White

Dimensions in millimetres

Bulb designation: A60

Bulb finish: white

Cap: E26/24

Rated wattage (W): 25

Dimensions: as defined in section 6

For reference in the requirements of clause 3.3

C max.	D max.
100.	61.9

Rated life (h): 2 250

For reference in the requirements of clause 3.6

Lumen maintenance (%): 65

Conditions of clause 3.5 apply

Minimum rated luminous flux:

Conditions of clause 3.4 apply

V	Im
120	175
125	170
130	170

V	Im
120	220
125	215
130	215

Information for luminaire design:

Maximum outline according to IEC 60630: under consideration

NORMAL LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E26 **40 W** **1 350 h**

Dimensions in millimetres

Bulb designation: A60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E26/24

Rated wattage (W): 40

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
112,7	61,9

Rated life (h): 1 350
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm
120	440
125	435
130	430

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

NORMAL LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E 26 40 W 1 350 h White

Dimensions millimeters

Bulb designation: A60

Bulb finish: white

Cap: E26/24

Rated wattage (W): 40

Dimensions: as defined in section 6

For reference in the requirements of clause 3.3

C max.	D max.
112.7	61.9

Rated life (h): 1 350

For reference in the requirements of clause 3.6

Lumen maintenance (%): 84

Conditions of clause 3.5 apply

Minimum rated luminous flux:

Conditions of clause 3.4 apply

V	Lm
120	425
125	420
130	415

Information for luminaire design:

Maximum outline according to IEC 60630: under consideration

NORMAL LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E 26 40 W 900 h

Dimensions millimeters

Bulb designation: A60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E26/24

Rated wattage (W): 40

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
112.7	61.9

Rated life (h): 900
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	Lm
120	460
125	455
130	450

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

NORMAL LUMINOUS FLUX INCANDESCENT LAMP DATA SHEET

E 26 40 W 900 h White

Dimensions millimeters

Bulb designation: A60

Bulb finish: white

Cap: E26/24

Rated wattage (W): 40

Dimensions: as defined in section 6

For reference in the requirements of clause 3.3

C max.	D max.
112.7	61.9

Rated life (h): 900

For reference in the requirements of clause 3.6

Lumen maintenance (%): 84

Conditions of clause 3.5 apply

Minimum rated luminous flux:

Conditions of clause 3.4 apply

V	Lm
120	805
125	795
130	790

Information for luminaire design:

Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX

INCANDESCENT LAMP DATA SHEET

E26/24 75 W 675 h

Dimensions in millimetres

Bulb designation: A60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E26/24

Rated wattage (W): 75

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
112,7	61,9

Rated life (h): 675
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm
120	1 180
125	1 160
130	1 150

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-2010

HIGH LUMINOUS FLUX

INCANDESCENT LAMP DATA SHEET

E26/24 75 W 675 h White

Dimensions in millimetres

Bulb designation: A60

Bulb finish: white

Cap: E26/24

Rated wattage (W): 75

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
112,7	61,9

Rated life (h): 675
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm
120	1 160
125	1 140
130	1 130

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-2010

HIGH LUMINOUS FLUX INCANDESCENT LAMP DATA SHEET

E26 100W 675 h

Dimensions millimeters

Bulb designation: A60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E26/24

Rated wattage (W): 100

Dimensions: as defined in section 6

For reference in the requirements of clause 3.3

C max.	D max.
112.7	61.9

Rated life (h): 675

For reference in the requirements of clause 3.6

Lumen maintenance (%): 85

Conditions of clause 3.5 apply

Minimum rated luminous flux:

Conditions of clause 3.4 apply

V	Im
120	1630
125	1615
130	1600

Information for luminaire design:

Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX INCANDESCENT LAMP DATA SHEET

E26 100W 675 h White

Dimensions millimeters

Bulb designation: A60

Bulb finish: white

Cap: E26/24

Rated wattage (W): 100

Dimensions: as defined in section 6

For reference in the requirements of clause 3.3

C max.	D max.
112.7	61.9

Rated life (h): 675

For reference in the requirements of clause 3.6

Lumen maintenance (%): 84

Conditions of clause 3.5 apply

Minimum rated luminous flux:

Conditions of clause 3.4 apply

V	Im
120	1580
125	1565
130	1550

Information for luminaire design:

Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX INCANDESCENT LAMP DATA SHEET

E 26 150 W 675 h

Dimensions millimseters

Bulb designation: A60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E26/24

Rated wattage (W): 150

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
139,7	68,3

Rated life (h): 675
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm
120	2 650
125	2 625
130	2 600

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX INCANDESCENT LAMP DATA SHEET

E 26 150 W 675 h White

Dimensions millimseters

Bulb designation: A60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E26/24

Rated wattage (W): 150

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
112.7	61.9

Rated life (h): 675
For reference in the requirements of clause 3.6

Lumen maintenance (%): 84
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	Im
120	2 570
125	2 545
130	2 520

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX INCANDESCENT LAMP DATA SHEET

E26 200W 675 h

Dimensions millimeters

Bulb designation: A71

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E26/24

Rated wattage (W): 200

Dimensions: as defined in section 6

For reference in the requirements of clause 3.3

C max.	D max.
160.3	73.0

Rated life (h): 675

For reference in the requirements of clause 3.6

Lumen maintenance (%): 85

Conditions of clause 3.5 apply

Minimum rated luminous flux:

Conditions of clause 3.4 apply

V	Im
120	3 730
125	3 700
130	3 660

Information for luminaire design:

Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX INCANDESCENT LAMP DATA SHEET

E26 200W 675 h White

Dimensions millimeters

Bulb designation: A71

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E26/24

Rated wattage (W): 200

Dimensions: as defined in section 6

For reference in the requirements of clause 3.3

C max.	D max.
139.7	68.3

Rated life (h): 675

For reference in the requirements of clause 3.6

Lumen maintenance (%): 84

Conditions of clause 3.5 apply

Minimum rated luminous flux:

Conditions of clause 3.4 apply

V	Im
120	3 610
125	3 580
130	3 540

Information for luminaire design:

Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E26 **30 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A55 or PS55

Bulb finish: frosted or clear

Cap: E26/25

Rated wattage (W): 30

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
104	56

For clear lamps, light centre length (see subclause 1.5.9) requirements are: 71 mm ± 4 mm

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm
100	340
110	335

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX INCANDESCENT LAMP DATA SHEET

E26 **29 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A55 or PS55

Bulb finish: frosted or frosted equivalently coated

Cap: E26/25

Rated wattage (W): 29

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
104	61

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	Im
100 110	325 320

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-3010

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E26 **29 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A55 or PS55

Bulb finish: frosted or frosted equivalently coated

Cap: E26/25

Rated wattage (W): 29

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
104	61

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	Im
100 110	325 320

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E26 **38 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A55 or PS55

Bulb finish: frosted or frosted equivalently coated

Cap: E26/25

Rated wattage (W): 38

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
104	56

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	Im
100 110	485 475

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E26 **38 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A60 or PS60

Bulb finish: frosted or frosted equivalently coated

Cap: E26/25

Rated wattage (W): 38

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
114	61

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	Im
100 110	485 475

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E26 **60 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A60 or PS60

Bulb finish: frosted or clear

Cap: E26/25

Rated wattage (W): 60

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
114	61

For clear lamps, light centre length (see subclause 1.5.9) requirements are: 78 mm ± 5 mm

Rated life (h): 1 000
For reference in the requirements of clause 3.6
Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:

Conditions of clause 3.4 apply

V	lm
100	850
110	840

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX INCANDESCENT LAMP DATA SHEET

E26 **57 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A60 or PS60

Bulb finish: frosted or frosted equivalently coated

Cap: E26/25

Rated wattage (W): 57

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
114	61

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	Im
100 110	810 800

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-3020

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E26 **100 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A60 or PS60

Bulb finish: frosted or clear

Cap: E26/25

Rated wattage (W): 100

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
114	61

For clear lamps, light centre length (see subclause 1.5.9) requirements are: 78 mm ± 5 mm

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm
100 110	1600 1580

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E26 **95 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A60 or PS60

Bulb finish: frosted or frosted equivalently coated

Cap: E26/25

Rated wattage (W): 95

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
114	61

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm
100 110	1 520 1 500

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-3020

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E26 **150 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A75 or PS75

Bulb finish: frosted or clear

Cap: E26/25

Rated wattage (W): 150

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
160	76

For clear lamps, light centre length (see subclause 1.5.9) requirements are: 118 mm ± 5 mm

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm
100	2 450
110	2 420

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E26 **150 W** **1 000 h** **White**

Dimensions in millimetres

Bulb designation: A75 or PS75

Bulb finish: white

Cap: E26/25

Rated wattage (W): 150

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
160	76

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm
100	2 330
110	2 300

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E26 **200 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A75 or PS75

Bulb finish: frosted or clear

Cap: E26/25

Rated wattage (W): 200

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
160	76

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm
100 110	3450 3410

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E26 **200 W** **1 000 h** **White**

Dimensions in millimetres

Bulb designation: A75 or PS75

Bulb finish: white

Cap: E26/25

Rated wattage (W): 200

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
160	76

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm
100	3 280
110	3 240

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

NORMAL LUMINOUS FLUX

INCANDESCENT LAMP DATA SHEET

B22 15 W 1 000 h

Dimensions in millimetres

Bulb designation: A 50, A55 or A60 or PS60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: B22/25x26

Rated wattage (W): 15

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
108,5	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 72 (100 V – 120 V) or
74 (200 V – 250 V)
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm
220	110

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1010

HIGH LUMINOUS FLUX

INCANDESCENT LAMP DATA SHEET

B22 25 W 1 000 h

Dimensions in millimetres

Bulb designation: A 50, A55 or A60 or PS60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: B22/25x26

Rated wattage (W): 25

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
108,5	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 72 (100 V – 120 V) or
74 (200 V – 250 V)
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	260	200	225	230	220
110	255	220	220	240	215
120	255	225	220	250	215

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1010

NORMAL LUMINOUS FLUX

INCANDESCENT LAMP DATA SHEET

B22 **25 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A50, A55 or A60 or PS60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: B22/25x26

Rated wattage (W): 25

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
108,5	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 72 (100 V – 120 V) or
74 (200 V – 250 V)
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	230	200	225	230	220
110	225	220	220	240	215
120	220	225	220	250	215

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1010

HIGH LUMINOUS FLUX

INCANDESCENT LAMP DATA SHEET

B22 **40 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A50, A55 or A60 or PS60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: B22/25x26

Rated wattage (W): 40

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
108,5	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	510	200	420	230	415
110	500	220	415	240	410
120	495	225	415	250	410

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1010

NORMAL LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

B22 40 W 1 000 h

Dimensions in millimetres

Bulb designation: A60 or PS60

Bulb finish: frosted or clear,

Cap: B22d/25 x 26

Rated wattage (W): 40

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
108.5	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	450	200	360	230	345
	445		350		340
110	435	220	350	240	335

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

B22 60 W 1 000 h

Dimensions in millimetres

Bulb designation: A50, A55, A60 or PS60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: B22/25x26

Rated wattage (W): 60

Dimensions: as defined in section 6

For reference in the requirements of clause 3.3

C max.	D max.
110	62

Rated life (h): 1 000

For reference in the requirements of clause 3.6

Lumen maintenance (%): 85

Conditions of clause 3.5 apply

Minimum rated luminous flux:

Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	850	200	725	230	710
110	840	220	715	240	700
120	830	225	715	250	695

Information for luminaire design:

Maximum outline according to IEC 60630: under consideration

NORMAL LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

B22 60 W 1 000 h

Dimensions in millimetres

Bulb designation: A60 or PS60

Bulb finish: forested or cleared

Cap: B22d/25 x 26

Rated wattage (W): 60

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
108.5	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	780	200	650	230	620
110	770	220	630	240	610
120	760	225	630	250	600

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

NORMAL LUMINOUS FLUX

INCANDESCENT LAMP DATA SHEET

B22 **75 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A60 or PS60

Bulb finish: frosted or clear

Cap: B22d/25x26

Rated wattage (W): 60

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
108.5	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	780	200	650	230	620
110	770	220	630	240	610
120	760	225	630	250	600

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1010

HIGH LUMINOUS FLUX

INCANDESCENT LAMP DATA SHEET

B22 75 W 1 000 h

Dimensions in millimetres

Bulb designation: A50, A55, A60 or PS60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: B22/25x26

Rated wattage (W): 75

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
108,5	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	1110	200	960	230	935
110	1100	220	940	240	925
120	1080	225	940	250	920

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1010

HIGH LUMINOUS FLUX

INCANDESCENT LAMP DATA SHEET

B22 **100 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A50, A55, A60 or PS60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: B22/25x26

Rated wattage (W): 100

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
108,5	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	1 600	200	1 370	230	1 340
110	1 580	220	1 350	240	1 330
120	1 560	225	1 350	250	1 320

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1010

NORMAL LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

B22 100 W 1 000 h

Dimensions in millimetres

Bulb designation: A60 or PS60

Bulb finish: forested or clear

Cap: B22d/25 x 26

Rated wattage (W): 100

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
108.5	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	1440	200	1270	230	1240
110	1420	220	1250	240	1230
120	1400	225	1250	250	1220

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

B22 **150 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A68 or PS68

Bulb finish: frosted or clear

Cap: B22d/25 x 26

Rated wattage (W): 150

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
128,5	70

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm	V	Lm	V	lm
100	2460	200	2200	230	2160
110	2440	220	2180	240	2140
120	2420	225	2160	250	2120

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

NORMAL LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

B22 **150 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A80 or PS80

Bulb finish: frosted or clear

Cap: B22d/25 x 26

Rated wattage (W): 150

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
165	82

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	2 380	200	2 120	230	2 070
110	2 360	220	2 090	240	2 060
120	2 320	225	2 090	250	2 040

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1030

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

B22 **200 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A80 or PS80

Bulb finish: frosted or clear

Cap: B22d/25 x 26

Rated wattage (W): 200

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
165	82

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	3 440	200	3 190	230	3 040
110	3 390	220	3 090	240	2 990
120	3 390	225	3 090	250	2 950

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1030

NORMAL LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

B22 **200 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A80 or PS80

Bulb finish: frosted or clear

Cap: B22d/25 x 26

Rated wattage (W): 200

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
165	82

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	3 300	200	2 960	230	2 900
110	3 250	220	2 920	240	2 880
120	3 250	225	2 920	250	2 860

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1030

NORMAL LUMINOUS FLUX

INCANDESCENT LAMP DATA SHEET

E27 **15 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A50, A55 or A60 or PS60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E27/27

Rated wattage (W): 15

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
110	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 72 (100 V – 120 V) or
74 (200 V – 250 V)
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm
220	110

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1020

HIGH LUMINOUS FLUX

INCANDESCENT LAMP DATA SHEET

E27 **25 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A50, A55, A60 or PS60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E27/27

Rated wattage (W): 25

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
110	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 72 (100 V – 120 V) or
74 (200 V – 250 V)
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm	V	lm	V	Lm
100	260	200	225	230	220
110	255	220	220	240	215
120	255	225	220	250	215

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1020

NORMAL LUMINOUS FLUX

INCANDESCENT LAMP DATA SHEET

E27 25 W 1 000 h

Dimensions in millimetres

Bulb designation: A55, A60 or PS60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E27/27

Rated wattage (W): 25

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
110	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 72 (100 V – 120 V) or
74 (200 V – 250 V)
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	230	200	225	230	220
110	225	220	220	240	215
120	220	225	220	250	215

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1020

HIGH LUMINOUS FLUX

INCANDESCENT LAMP DATA SHEET

E27 40 W 1 000 h

Dimensions in millimetres

Bulb designation: A50, A55, A60 or PS60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E27/27

Rated wattage (W): 40

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
110	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	510	200	420	230	415
110	500	220	415	240	410
120	495	225	415	250	410

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1020

NORMAL LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E22 40 W 1 000 h

Dimensions in millimetres

Bulb designation: A60 or PS60

Bulb finish: frosted or clear,

Cap: E27/27

Rated wattage (W): 40

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
110	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	450	200	360	230	345
110	445	220	350	240	340
120	435	225	350	250	335

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX

INCANDESCENT LAMP DATA SHEET

E27 **60 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A50, A55, A60 or PS60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E27/27

Rated wattage (W): 60

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
110	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	850	200	725	230	710
110	840	220	715	240	700
120	830	225	715	250	695

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1020

NORMAL LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E27 **60 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A60 or PS60

Bulb finish: frosted or clear

Cap: E27/27

Rated wattage (W): 60

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
110	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	780	200	650	230	620
110	770	220	630	240	610
120	760	225	630	250	600

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1020

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E27 75 W 1 000 h

Dimensions in millimetres

Bulb designation: A50, A55, A60 or PS60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E27/27

Rated wattage (W): 75

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
110	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm	V	Lm	V	Lm
100 110 120	1110 1100 1080	200 220 225	960 940 940	230 240 250	935 925 920

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

HIGH LUMINOUS FLUX

INCANDESCENT LAMP DATA SHEET

E27 100 W 1 000 h

Dimensions in millimetres

Bulb designation: A50, A55, A60 or PS60

Bulb finish: clear, frosted or frosted equivalently coated

Cap: E27/27

Rated wattage (W): 100

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
110	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux: Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	1600	200	1 370	230	1 340
110	1 580	220	1 350	240	1 330
120	1 560	225	1 350	250	1 320

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1020

NORMAL LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E27 **100 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A60 or PS60

Bulb finish: frosted or clear

Cap: E27/27

Rated wattage (W): 100

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
110	62

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	1440	200	1 270	230	1 240
110	1 420	220	1 250	240	1 230
120	1 400	225	1 250	250	1 220

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1020

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E27 **150 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A68 or PS68

Bulb finish: frosted or clear

Cap: E27/27

Rated wattage (W): 150

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
130	70

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	2 460	200	2 200	230	2 160
110	2 440	220	2 180	240	2 140
120	2 420	225	2 160	250	2 120

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration

NORMAL LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E27 **150 W** **1 000 h**

Dimensions in millimetres

Bulb designation: A80 or PS80

Bulb finish: frosted or clear

Cap: E27/27

Rated wattage (W): 150

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
166,5	82

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm	V	lm	V	lm
100	2 380	200	2 120	230	2 070
110	2 360	220	2 090	240	2 060
120	2 320	225	2 090	250	2 040

Information for luminaire design:
Maximum outline according to IEC 60630: sheet 60630-IEC-1040

HIGH LUMINOUS FLUX
INCANDESCENT LAMP DATA SHEET

E27 200 W 1 000 h

Dimensions in millimetres

Bulb designation: A80 or PS80

Bulb finish: frosted or clear,

Cap: E27/27

Rated wattage (W): 200

Dimensions: as defined in section 6
For reference in the requirements of clause 3.3

C max.	D max.
166.5	82

Rated life (h): 1 000
For reference in the requirements of clause 3.6

Lumen maintenance (%): 85
Conditions of clause 3.5 apply

Minimum rated luminous flux:
Conditions of clause 3.4 apply

V	lm	V	Lm	V	Lm
100	3440	200	3190	230	3040
110	3390	220	3090	240	2990
120	3390	225	3090	250	2950

Information for luminaire design:
Maximum outline according to IEC 60630: under consideration