



SLOVENSKI STANDARD
SIST EN 60682:2001

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Method of measuring the pinch temperature of quartz glass lamps

Method of measuring the pinch temperature of quartz glass lamps

Verfahren zur Messung der Quetschungstemperatur von Lampen in Quarzglasausführung

Méthode de mesure de la température au pincement des lampes à verre de quartz

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Ta slovenski standard je istoveten z: EN 60682:1993

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ICS:

29.140.20 Žarnice z žarilno nitko Incandescent lamps

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ENGLISH VERSION

Standard method of measuring the pinch temperature
of quartz-tungsten-halogen lamps
(IEC 682:1980 + A1:1987)

Méthode normale pour la mesure
de la température au pincement
des lampes
tungstène-halogène-quartz
(CEI 682:1980 + A1:1987)

Standardmethode zur Messung der
Quetschungstemperatur von
Halogenglühlampen in
Quarzglasausführung
(IEC 682:1980 + A1:1987)

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B-1050 Brussels

FOREWORD

The CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 682:1980 and its amendment 1:1987 could be accepted without textual changes, has shown that no common modifications were necessary for the acceptance as European Standard.

The reference document was submitted to the CENELEC members for formal vote and was approved by CENELEC as EN 60682 on 22 November 1993.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1994-08-01
- latest date of withdrawal of conflicting national standards (dow) 1994-08-01

ENDORSEMENT NOTICE

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The text of the International Standard IEC 682:1980 and its amendment 1:1987 was approved by CENELEC as a European Standard without any modification.

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Méthode normale pour la mesure de la température
au pincement des lampes tungstène-halogène-quartz

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Mots clés: Lampes tungstène-halogène-quartz; mesure de la température. **Key words:** quartz-tungsten-halogen lamps; temperature measurement.



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CONTENTS

	Page
FOREWORD	5
PREFACE	5
Clause	
1. Scope	7
2. Definitions	7
3. Lamp preparation	7
4. Thermocouples	7
5. Temperature measurement	9
6. Result	11

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SIST EN 60682:2001

<https://standards.iteh.ai/catalog/standards/sist/7f0c5114-6115-443e-bf14-a831ff24bd63/sist-en-60682-2001>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**STANDARD METHOD OF MEASURING THE PINCH TEMPERATURE
OF QUARTZ-TUNGSTEN-HALOGEN LAMPS**

FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

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PREFACE

This standard has been prepared by Sub-Committee 34A: Lamps, of IEC Technical Committee No. 34: Lamps and Related Equipment.

A draft, prepared by Working Group PRESCO, was discussed at the meeting held in The Hague in 1975. As a result of this meeting a revised draft, Document 34A(Central Office)105, was submitted to the National Committees for approval under the Six Months' Rule in October 1976.

The National Committees of the following countries voted explicitly in favour of publication:

Australia	Netherlands
Austria	Norway
Belgium	Poland
Canada	Portugal
Denmark	Romania
Egypt	South Africa (Republic of)
Finland	Switzerland
France	Turkey
Germany	Union of Soviet
Hungary	Socialist Republics
Italy	United Kingdom
Japan	United States of America

STANDARD METHOD OF MEASURING THE PINCH TEMPERATURE OF QUARTZ-TUNGSTEN-HALOGEN LAMPS

1. Scope

This standard specifies details of the type of thermocouple to be used to measure the pinch temperature of quartz-tungsten-halogen lamps, the methods of preparation of the lamp and thermocouple, and the measurement to be made.

2. Definitions

For the purposes of this standard, the definitions relating to quartz-tungsten-halogen lamps in the relevant IEC publications shall apply.

3. Lamp preparation

The lamp shall be prepared by one of the methods specified in Sub-clauses 3.1 and 3.2. Whichever method is adopted, the T-formed edges of the pinch, if present, shall be split to ensure a good thermal connection between the pinch and the thermocouple junction.

3.1 Method 1

An incision shall be made in the pinch so that the bottom of the incision coincides with the surface of the pin (see Figure 1, page 12). The incision shall be cut using a diamond wheel having a maximum width of 0.5 mm and an outside diameter of about 100 mm. Because the wheel cuts a curved surface as shown by the line A'B', the edges shall be flattened to give an incision as shown by the line AB. The corners shall be rounded to ensure that the thermocouple is in thermal contact with the pin. The incision shall be made abreast of the pin-to-foil weld at the side adjacent to the pin. The slope of the incision, α , shall be chosen so that the foil does not appear in the incision.

3.2 Method 2

A hole 1 mm in diameter shall be made in the pinch opposite the pin-to-foil weld (see Figure 2, page 13) using an ultrasonic drill. The depth of the hole shall be such that the pin is exposed.

4. Thermocouples

4.1 Type of thermocouple

The thermocouples recommended for the temperature measurement are nickel/nickel-chromium, or iron/copper-nickel (Type J). Each wire forming the couple shall have a maximum diameter of 200 μ m.

Method 1

The wires should meet at an angle of 150°, and after the ends have been welded together, the wires are then brought into an approximate straight line with the weld projecting slightly to one side.

Method 2

The thermocouple junction shall be formed by laying the two wires parallel, welding them together with both wires extending in the same direction from the point at which the weld is made.

Note. — The relationship between e.m.f. and temperature can be obtained from IEC Publication: Thermocouple Reference Tables (under consideration) for iron/copper-nickel (Type J) thermocouples.

4.2 *Fixing of thermocouples*

The thermocouple shall be fixed using the method specified in Sub-clause 4.2.1 or 4.2.2. In order to achieve good thermal contact between the thermocouple junction and the pin, it is preferable to solder or weld the junction to the pin. If this is not possible, the thermocouple junction may be cemented to the pin. When cement is used, electrical contact between the thermocouple junction and the pin is taken to indicate sufficient thermal contact between them.

Figures 3, 4, 5, 6 and 7, pages 14 to 18, illustrate the details of examples of using methods 1 and 2 for attaching the thermocouples to lamps fitted with various types of caps.

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4.2.1 *For method 1:*

For lamps that have been prepared according to method 1 (of Sub-clause 3.1), the thermocouple shall be pulled over the pinch, in the incision, so that the junction is in thermal contact with the pin and the junction soldered or welded to the pin. The entire incision shall then be plugged with cement (see Sub-clause 4.2.3). The use of an anchoring tab for leading the wires from the pinch is recommended (see Sub-clause 4.2.4).

4.2.2 *For method 2:*

For lamps that have been prepared according to method 2 (of Sub-clause 3.2), the thermocouple junction shall be placed in the hole so that the junction is in contact with the pin and each wire wound once round the pinch. The junction is then soldered or welded to the pin and the hole filled with cement (see Sub-clause 4.2.3). The use of an anchoring tab for leading the wires from the pinch is recommended.

4.2.3 The cement shall be either a basing cement for halogen lamps, or a mixture of one part of sodium silicate and two parts of talcum powder.

4.2.4 An anchoring tab may conveniently be made using twin-capillary ceramic tube manufactured for use with thermocouples.

5. **Temperature measurement**

The e.m.f. produced by the thermocouple shall be measured by a millivoltmeter having an input resistance about 100 times the resistance of the thermocouple or by another suitable measuring device.