
British Standard

**Harmonized system of quality
assessment for electronic components
Sectional specification: Fixed metallized
polyethylene-terephthalate film dielectric
capacitors for direct current**

Système harmonisé d'assurance de la qualité des composants électroniques

Spécification intermédiaire: Condensateurs fixes à diélectrique en film de polytéréphtalate d'éthylène métallisé pour courant continu

Harmonisiertes Gütebestätigungssystem für Bauelemente der Elektronik

Rahmenspezifikation: Festkondensatoren mit metallisierter Kunststoff – Folie aus polyethylen für Gleichstrom

National foreword

This British Standard has been prepared under the direction of the Electronic Components Standards Committee. It is identical with CENELEC Electronic Components Committee (CECC) 30400 : 1984 'Harmonized system of quality assessment for electronic components: Sectional specification: Fixed metallized polyethylene terephthalate film dielectric capacitors for direct current'. It supersedes BS CECC 30400 : 1978 which is withdrawn.

This standard is a harmonized specification within the CECC system.

Terminology and conventions. The text of the CECC specification has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

The comma has been used throughout as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Cross-references

International Standards	Corresponding British Standards
CECC 30000 : 1983	BS CECC 30000 : 1984 Specification for harmonized system of quality assessment for electronic components: Generic specification: Fixed capacitors (Identical)
ISO 3:1973	BS 2045 : 1965 Preferred numbers (Technically equivalent)
IEC 62 : 1974	BS 1852 : 1975 Marking codes for resistors and capacitors (Identical)
IEC 63 : 1963	BS 2488 : 1966 Schedule of preferred numbers for the resistance of resistors and the capacitance of capacitors for telecommunications equipment (Technically equivalent)
IEC 68-1 : 1982	BS 2011 Basic environmental testing procedures Part 1.1 : 1983 General and guidance (Identical)
IEC 384-14 : 1981	BS 6201 Fixed capacitors for use in electronic equipment Part 3 : 1982 Specification for fixed capacitors for radio interference suppression. Selection of methods of test and general requirements (Identical)
IEC 410 : 1973	BS 6001 : 1972 Sampling procedures and tables for inspection by attributes (Technically equivalent)

Compliance with a British Standard does not of itself confer immunity from legal obligations

English version

Harmonized System of Quality Assessment for
Electronic Components

SECTIONAL SPECIFICATION: FIXED METALLIZED POLY- ETHYLENE-TEREPHTHALATE FILM DIELECTRIC CAPACITORS FOR DIRECT CURRENT

Système Harmonisé d'Assurance de la Qualité
des Composants Electroniques

SPECIFICATION INTERMEDIAIRE: CONDENSATEURS FIXES A DIELECTRIQUE EN FILM DE POLYTEREPHTALATE D'ETHYLENE METALLISE POUR COURANT CONTINU

Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik

RAHMENSPEZIFIKATION: FESTKONDENSATOREN MIT METALLISIERTER KUNSTSTOFF-FOLIE AUS POLYETHYLEN FÜR GLEICHSTROM



2 Issue
Edition
Ausgabe

CECC 30400

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FOREWORD

The CENELEC Electronic Components Committee (CECC) is composed of those member countries of the European Committee for Electrotechnical Standardization (CENELEC) who wish to take part in a harmonized System for electronic components of assessed quality.

The object of the System is to facilitate international trade by the harmonization of the specifications and quality assessment procedures for electronic components, and by the grant of an internationally recognized Mark, or Certificate, of Conformity. The components produced under the System are thereby accepted by all member countries without further testing.

This specification has been formally approved by the CECC, and has been prepared for those countries taking part in the System who wish to issue national harmonized specifications for FIXED METALLIZED POLYETHYLENE-TEREPHTHALATE FILM DIELECTRIC CAPACITORS FOR DIRECT CURRENT. It should be read in conjunction with the current regulations for the CECC System.

At the date of printing of this specification the member countries of the CECC are Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. Copies of it can be obtained from the addresses shown on the blue fly-sheet.

PREFACE

This sectional specification was prepared by CECC Working Group 3: "Capacitors", and is an editorially revised version of CECC 30 400 Issue 1.

It is based, wherever possible, on the Publications of the International Electrotechnical Commission and in particular on IEC 384-2: Part 2: Sectional specification: Fixed metallized polyethylene-terephthalate film dielectric capacitors for direct current.

The text of this sectional specification was circulated to the CECC for voting in the document listed below and was ratified by the President of the CECC for printing as a CECC Specification.

<u>Document</u>	<u>Voting Date</u>	<u>Report on the Voting</u>
CECC(Secretariat)1236	August 1982	CECC(Secretariat)1334

This second issue of CECC 30 400 shall become effective for all new qualification approvals on 1 May 1985. Issue 1 will continue to remain effective to cover all past approvals.

SECTION 1 - GENERAL

1.1 Scope

This specification applies to fixed capacitors for direct current, with metallized electrodes and polyethylene-terephthalate dielectric for use in electronic equipment. These capacitors may have "self-healing properties" depending on conditions of use. They are primarily intended for applications where the a.c. component is small with respect to the rated voltage. Two performance grades of capacitors are covered, Grade 1 for long-life application and Grade 2 for general application.

It prescribes preferred ratings and characteristics and to select from the specification CECC 30 000 the appropriate quality assessment procedures, test and measuring methods and to give general performance requirements for this type of capacitor.

Capacitors for radio interference suppression are not included, but are covered by IEC Publication 384-14.

1.2 Related documents

ISO 3	(1973)	Preferred numbers - Series of preferred numbers
IEC Publication 62	(1974)	Marking codes for resistors and capacitors
IEC Publication 63	(1963)	Preferred number series for resistors and capacitors
Amendment No. 1	(1967)	
Amendment No. 2	(1977)	
IEC Publication 68		Basic environmental testing procedures
CECC 30 000 Issue 3	(1983)	Fixed capacitors for use in electronic equipment. Generic specification.
IEC Publication 410	(1973)	Sampling plans and procedures for inspection by attributes

Note: The above references apply to the current editions except for IEC Publication 68.

1.3 Information to be given in a detail specification

The detail specification shall be derived from the relevant blank detail specification.

Detail specifications shall not specify requirements inferior to those of the generic, sectional or blank detail specification. When more severe requirements are included, they shall be listed in 1.9 of the detail specification and indicated in the test schedules, for example by an asterisk.

Note: The information given in 1.3.1 may for convenience, be presented in tabular form.

The following information shall be given in each detail specification and the values quoted shall preferably be selected from those given in the appropriate clause of this sectional specification.

1.3.1 Outline drawing and dimensions

There shall be an illustration of the capacitor as an aid to easy recognition and for comparison of the capacitor with others. Dimensions and their associated tolerances, which affect interchangeability and mounting, shall be given in the detail specification. All dimensions shall preferably be stated in mm.

Normally the numerical values shall be given for the length, the width and height of the body and the wire spacing or for cylindrical types the body diameter, and the length and diameter of the terminations. When necessary, for example when a number of items (capacitance values/ voltage ranges) are covered by a detail specification, the dimensions and their associated tolerances shall be placed in a table below the drawing.

When the configuration is other than described above, the detail specification shall specify such dimensional information as will adequately describe the capacitor. When the capacitor is not designed for use on printed boards, this shall be clearly stated in the detail specification.

1.3.2 Mounting

The detail specification shall specify the method of mounting to be applied for normal use and for the application of the vibration and the bump or shock tests. The capacitors shall be mounted by their normal means. If the design of the capacitor is such that special mounting fixtures are required in its use, the detail specification shall describe the mounting fixtures to be used for the vibration and bump or shock tests.

1.3.3 Ratings and characteristics

The ratings and characteristics shall be in accordance with the relevant clauses of this specification, together with the following:

(1) Rated capacitance range

See 2.2.1.

Note: When products approved to the detail specification may have different ranges, the following statement should be added: "The range of values available in each voltage range is given in the Qualified Products List".

(2) Particular characteristics

Additional characteristics may be listed, when they are considered necessary to specify adequately the component for design and application purposes.

1.3.4 Marking

The detail specification shall specify the content of the marking on the capacitor and on the package. Deviations from 1.5 of this sectional specification, shall be specifically stated.

1.4 Terminology

In addition to the applicable terms and definitions of CECC 30 000 the following definitions apply:

1.4.1 Performance Grade 1 capacitors (Long life)

Capacitors for long-life applications with stringent requirements for the electrical parameters.

1.4.2 Performance grade 2 capacitors (General purpose)

Capacitors for general application where the stringent requirements for Grade 1 capacitors are not necessary.

1.4.3 Rated voltage

The rated voltage is the maximum d.c. voltage which may be applied continuously to a capacitor at the rated temperature.

Note: The sum of the d.c. voltage and the peak a.c. voltage applied to the capacitor shall not exceed the rated voltage. The value of the peak a.c. voltage shall not exceed the following percentages of the rated voltage at the frequencies stated and shall not be greater than 280 V:

50 Hz	: 20 %
100 Hz	: 15 %
1 000 Hz	: 3 %
10 000 Hz	: 1 %

unless otherwise specified in the detail specification.

1.5 Marking

1.5.1 The information given in the marking is normally selected from the following list; the relative importance of each item is indicated by its position in the list:

- 1) Rated capacitance
- 2) Rated voltage; (d.c. voltage may be indicated by the symbol or).
- 3) Tolerance on rated capacitance
- 4) Category voltage
- 5) Year and month (or week) of manufacture
- 6) Manufacturer's name or trade mark
- 7) Climatic category
- 8) Manufacturer's type designation
- 9) Reference to the detail specification.

1.5.2 The capacitor shall be clearly marked with 1) and 2) above and with as many as possible of the remaining items as is considered necessary. Any duplication of information in the marking on the capacitor should be avoided.

1.5.3 The package containing the capacitor(s) shall be clearly marked with all the information listed in 1.5.1.

1.5.4 Any additional marking shall be so applied that no confusion can arise.

SECTION 2 - PREFERRED RATINGS AND CHARACTERISTICS

2.1 Preferred climatic categories

The capacitors covered by this specification are classified into climatic categories according to the general rules given in IEC Publication 68-1.

The severities for the cold, dry heat and the damp heat steady state tests shall be chosen from the following:

Lower category temperature : - 55°C, - 40°C and - 25°C
Upper category temperature : + 85°C, + 100°C and + 125°C
Duration of the damp heat, steady state test: 4, 10, 21 and 56 days

Note: With continuous operation at 125°C in excess of the endurance test time, accelerated ageing has to be considered (see detail specification).

The severities for the cold and dry heat tests are the lower and upper category temperatures respectively.

2.2 Preferred values of ratings

2.2.1 Rated capacitance (C_R)

Preferred values of rated capacitance are:

1 - 1,5 - 2,2 - 3,3 - 4,7 and 6,8 and their decimal multiples.

These values conform to the E6 series of preferred values given in IEC Publication 63 : Preferred number series for resistors and capacitors.

If other values are required they shall preferably be chosen from the E12 series.

2.2.2 Tolerance on rated capacitance

The preferred tolerances on the rated capacitance are $\pm 10\%$ and $\pm 20\%$.

2.2.3 Rated voltage (U_R)

The preferred values of rated voltage are : 40 - 63 - 100 - 160 - 250 - 400 - 630 - 1 000 - 1 600 V. These values conform to the basic series of preferred values R5 given in ISO 3: Preferred numbers.