

Förderverein für Elektrotechnische Normung (FEN) e. V.
 Genelec Electronic Components Committee

CECC



Système Harmonisé d'Assurance de la Qualité
 des Composants Electroniques

SPECIFICATION PARTICULIERE CADRE:

● **CONDENSATEURS FIXES A
 DIELECTRIQUE EN PAPIER
 OU A DIELECTRIQUE EN
 PAPIER ET PLASTIQUE**

Harmonized System of Quality Assessment for
 Electronic Components

BLANK DETAIL SPECIFICATION:

● **FIXED CAPACITORS
 WITH PAPER OR PAPER/PLASTIC
 DIELECTRICS**

Harmonisiertes Gütebestätigungssystem für
 Bauelemente der Elektronik

VORDRUCK
 FÜR BAUARTSPEZIFIKATION:

**FESTKONDENSATOREN
 MIT EINEM DIELEKTRIKUM
 AUS PAPIER ODER
 PAPIER-/KUNSTSTOFF-FOLIEN**

1

Edition
 Issue
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CECC 31601

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Information about the System may be obtained from:



FEN Secretariat
and
CECC General Secretariat
Stresemannallee 15
D-6000 Frankfurt/Main 70
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or from the National Authorized Institutions
of the participating countries listed
who can supply copies of:

- 1 The Internal Regulations of the FEN e.V.
- 2 CECC Specifications of the FEN and National Specifications for the System
- 3 CECC 00 200: Qualified Products List (QPL) (biannual issues January and July, with three-monthly amendments)
- 4 CECC 00 300: CECC Publications and their related national documents (biannual issues June and December, with three-monthly amendments)

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1, Eschenbachgasse 9
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Boîte 11
B-1000 Brussels

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Dansk Elektroteknisk Komite
Strandgade 36
DK-1401 Copenhagen K

Finland

Finnish Electrotechnical
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SF-00211 Helsinki 21

France

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Participation française au CECC
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Deutsche Elektrotechnische
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Homansbyen
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Comissão Electrotécnica Portuguesa
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Direcção-Geral de Qualidade
Rua Infanteria 16 41-2º
P-1200 Lisbon

Spain

Asociación Electrotécnica y Electrónica Española
Comité Español del CECC
Avda. de Brasil, 7
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Box 5177
S-10244 Stockholm 5

Switzerland

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CH-8034 Zürich

United Kingdom

British Electrotechnical Committee
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2 Park Street
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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 CAPACITORS WITH PAPER OR PAPER/PLASTIC DIELECTRICS. 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 blank detail specification was prepared by the British National Committee in accordance with RP4 Part III.

It is based, wherever possible, on the publications of the International Electrotechnical Commission.

The text of this 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/UK)02	August 1983	CECC(Secretariat/UK)04 CECC(Secretariat/UK)04A

KEY FOR PAGE 3

The numbers between square brackets on page 3 correspond to the following indications which should be given:

Identification of the harmonized detail specification

- [1] The name of National Standards Organization under whose authority the detail specification is drafted.
- [2] The CECC symbol and the number allotted by the CECC General Secretariat to the completed detail specification.
- [3] The number and issue number of the national generic and sectional specifications.
- [4] The national number of the detail specification, date of issue and any further information required by the national system.

Identification of the capacitor

- [5] A short description of the type of capacitor.
- [6] Information on typical construction (see examples given on page 3).
- [7] Outline drawing with main dimensions which are of importance for interchangeability and/or reference to the national or international documents for outlines.
- [8] Quick reference data (see examples given on page 3) and level of quality assessment.
- [9] Circuit diagram (if applicable).

NATIONAL STANDARDS ORGANIZATION [1]	CECC 31 601 XXX [2]
ELECTRONIC COMPONENTS OF ASSESSED QUALITY IN ACCORDANCE WITH: (Number of the national generic and sectional specifications) [3]	(National number of the detail specification, date of issue. National type number, if any) [4]
DETAIL SPECIFICATION FOR FIXED PAPER OR PAPER/PLASTIC DIELECTRIC CAPACITORS [5]	
TYPICAL CONSTRUCTION: Impregnated paper/metallized paper/paper and plastic (Examples) with foil or metallization cyclindrical/rectangular single/multiple/modular unit non metallic/metallic case insulated/non insulated case axial/radial terminations type of seal wire/tag/screw terminations sealed/non sealed type of sealing [6]	
OUTLINE DRAWING [7]	QUICK REFERENCE DATA: RATED CAPACITANCE RANGE CAPACITANCE TOLERANCE RATED VOLTAGE RANGE CLIMATIC CATEGORY ASSESSMENT LEVEL E [8]

Circuit diagram (if applicable) [9]

Information about manufacturers who have components qualified to this detail specification is available in the current CECC 00 200: Qualified Products List.

1. DIMENSIONS

TABLE 1.

Case size reference	Dimensions (1)					
	$\emptyset$ max.	L max.	H max.	d $\pm$ tol.	(2)	(2)

(1) Body dimensions should preferably be expressed as maxima but, where necessary, be nominal with tolerance.

(2) Other important dimensions shall be included as additional information.

2. SPECIFIC METHOD OF MOUNTING FOR VIBRATION, SHOCK AND BUMP TESTING

3. RATINGS AND CHARACTERISTICS

Capacitance range (See table 2)

Capacitance tolerance(s) in percent (See table 2)

Rated voltage (See table 2)

Rated temperature

Tangent of loss angle (See table 3)

Insulation resistance (See table 3)

Voltage proof

Climatic category

NOTE. Information on the above characteristics may be given in tabular form if necessary.

TABLE 2. VALUES OF CAPACITANCE AND OF VOLTAGE RELATED TO CASE SIZES

Rated capacitance (F)	Tolerance (%)	Case size reference - voltage	
		(Smallest)	(Largest)

TABLE 3. OTHER CHARACTERISTICS

This table is to be used for defining characteristics which are additional to or tighter than those given in the sectional specification.

4. RELATED DOCUMENTS

Generic specification : CECC 30 000 (Issue 3)

Sectional specification: CECC 31 600 (Issue 1)

5. MARKING

The following details selected from those listed in 1.4 of CECC 31 600 shall be marked on the capacitor.

6. ORDERING INFORMATION

Detail specification number
Case size reference
Rated capacitance
Tolerance on rated capacitance
Rated voltage

Other information to identify a specific size, construction details, etc. as necessary.

An example of the ordering information shall be given.

7. QUALIFICATION APPROVAL AND QUALITY CONFORMANCE INSPECTION

For qualification approval testing and quality conformance inspection, the test schedule, severities and requirements given in the sectional specification, shall apply.

In addition tables 4A and 4B specify the test severities and requirements which shall be included in the detail specification.

NOTE. Additional tests and additional or more severe requirements may also be specified in these tables.

8. CERTIFIED TEST RECORDS

As required in accordance with CECC 31 600.

TABLE 4A. LOT BY LOT INSPECTION (GROUP A AND B)

Clause number and test (1)	D or ND (3)	Conditions of test	IL (2)	AQL % (2)	Performance requirements (1)
GROUP A		To be conducted on a sampling basis: Lot by lot			
<u>Sub-group A1</u>	ND		S4	2,5	
4.2 Visual examination and dimensions					Dimensions as in table 1
<u>Sub-group A2</u>	ND		II	1,0	
4.3 Voltage proof		The method of applying test and test points shall be prescribed in the detail specification			There shall be no breakdown or flashover
4.4 Capacitance		The measuring frequency shall be prescribed in the detail specification			Shall be within the specified selection tolerance (see table 2)
4.5 Tangent of loss angle		The measuring frequency shall be prescribed in the detail specification			Shall be within the limits prescribed in the detail specification
4.6 Insulation resistance					Shall be within the limits prescribed in the detail specification
4.7 Sealing (if required by the detail specification)		The test method shall be prescribed in the detail specification			
4.8 Inductance (if required by the detail specification)					Shall be within the limits prescribed in the detail specification
4.9 Outer foil terminations (where applicable)					

(1), (2) and (3): See page 19

TABLE 4A. LOT BY LOT INSPECTION (GROUP A AND B) (concluded)

Clause number and test (1)	D or ND (3)	Conditions of test	IL (2)	AQL % (2)	Performance requirements (1)
GROUP B		To be conducted on a sampling basis: Lot by lot.			
<u>Sub-group B1</u>	D		S3	2,5	
4.11.2 Solderability					
4.7 Sealing (if required by detail specification)					

(1), (2) and (3): See page 19

TABLE 4B. PERIODIC TESTS

Clause number and test (1)	D or ND (3)	Condition of test	p (3)	n (3)	c (3)	Performance requirements (1)
GROUP C		To be conducted on a sampling basis at the periodicity given in column p in months				
<u>Sub-group Cla</u>	D	Part of the sample	6	9	1	
4.10.2 Robustness of terminations		Test Ua, Ub and Uc as prescribed in the detail specification				There shall be no visible damage
4.10.3 Resistance to soldering heat		The method shall be prescribed by the detail specification				There shall be no visible damage
<u>Sub-group Clb</u>	D	Other part of sample	6	18	1	
4.11.1 <u>Initial measurement</u>						
Capacitance		As in 4.4				The value shall be recorded
Tangent of loss angle		As in 4.5				The value shall be recorded
4.11.3 Rapid change of temperature		The degree of severity shall be prescribed in the detail specification				
Visual examination		After recovery:				
4.11.4 Vibration		Method of mounting as stated in clause 2. The frequency and (if required) the method of measuring electrical intermittencies shall be prescribed by the detail specification				There shall be no visible damage

(1) and (3): See page 19

TABLE 4B. PERIODIC TESTS (continued)

Clause number and test (1)	D or ND (3)	Condition of test	p (3)	n (3)	c (3)	Performance requirements (1)
<u>Sub-group Clb (continued)</u>						
4.11.5 Shock		Method of mounting as stated in clause 2. The severity shall be prescribed in the detail specification				
or						
4.11.6 Bump		Method of mounting as stated in clause 2. The severity shall be prescribed in the detail specification				
<u>4.11.7 Final measurements</u>						
Visual examination						There shall be no visible damage
Capacitance		As in 4.4				The percentage difference from that recorded in 4.11.1 shall be within the limits prescribed in the detail specification
Tangent of loss angle		As in 4.5				The percentage difference from that recorded in 4.11.1 shall be within the limits prescribed in the detail specifi- cation

(1) and (3): See page 19

TABLE 4B. PERIODIC TESTS (continued)

Clause number and test (1)	D or ND (3)	Condition of test	p (3)	n (3)	c (3)	Performance requirements (1)
<u>Sub-group Cl</u>	D	Cl a and Cl b combined	6	27	2	
4.12 Climatic sequence						
4.12.1 <u>Initial measurements</u>						Figures obtained in 4.11.7 may be used where applicable. The remainder to be recorded
4.12.2 Dry heat		The severity shall be as prescribed in the detail specification				
4.12.3 Damp heat, cyclic, first cycle		Not applicable for category -/-/04				
4.12.4 Cold		Duration to be prescribed in the detail specification				To be stated in the detail specification
4.12.5 Low air pressure		Temperature, duration and degree of severity shall be as prescribed in the detail specification				
4.12.6 Damp heat cyclic remaining cycles		After recovery				

(1) and (3): See page 19