

CECC



**CONDENSATEURS FIXES
POUR COURANT CONTINU EN FILM
DE POLYTEREPHTALATE DIETHYLENE
ET A ARMATURES EN FEUILLES
METALLIQUES**

FIXED POLYETHYLENE-TEREPHTHALATE FILM DIELECTRIC METAL FOIL CAPACITORS FOR DIRECT CURRENT

**FESTKONDENSATOREN MIT KUNSTSTOFF-
FOLIE AUS POLYÄTHYLENTEREPHTHALAT
UND BELÄGEN AUS METALLFOLIEN
FÜR GLEICHSTROM (KT)**

2 Edition
Issue
Ausgabe

CECC 30101

1985

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Cette page bleue doit être insérée après la page de garde de la CECC 30 101 (Edition 2) 1985

MODIFICATION 2 A LA CECC 30 101 (Edition 2)

SPECIFICATION PARTICULIERE CADRE:

CONDENSATEURS FIXES POUR COURANT CONTINU EN FILM DE POLYTEREPHTALATE D'ETHYLENE ET A ARMATURES EN FEUILLES METALLIQUES

La modification suivante doit être effectuée:

Remplacer les pages 8/9 et 10/11 par les nouvelles pages 8/9 et 10/11. [Dans la Sous-Groupe C1B les essais de secousses (ou de chocs) et de chocs (ou de secousses) ont été introduits].

Enregistrer cette modification sur la feuille jaune "Enregistrement des modifications".

Le texte de cette modification a été soumis au vote du CECC dans le document indiqué ci-dessous et a été ratifié par le Président du CECC pour être publié.

Document: CECC(Secrétariat)2179
Date de vote: Décembre 1987
Rapport de vote: CECC(Secrétariat)2208

CECC 30 101 Edition 2 Modification 2 1988

This blue page should be inserted after the title page of CECC 30 101 (Issue 2) 1985

AMENDMENT 2 TO CECC 30 101 (Issue 2)

BLANK DETAIL SPECIFICATION:

FIXED POLYETHYLENE-TEREPHTHALATE FILM DIELECTRIC METAL FOIL CAPACITORS FOR DIRECT CURRENT

The following amendment shall be made:

Remove pages 8/9 and 10/11 and replace with new pages 8/9 and 10/11. [In Sub-Group C1B, the tests Bump (or Shock) and Shock (or Bump) have been introduced].

Enter this amendment on the yellow "Record of amendments" sheet.

The text of this amendment was circulated to the CECC for voting in the document indicated below and was ratified by the President of the CECC for publication.

Document: CECC(Secretariat)2179
Date of voting: December 1987
Report on the voting: CECC(Secretariat)2208

CECC 30 101 Issue 2 Amendment 2 1988

Dieses blaue Blatt ist nach dem Titelblatt der CECC 30 101 (Ausgabe 2) 1985 einzufügen

ÄNDERUNG 2 ZU CECC 30 101 (Ausgabe 2)

VORDRUCK FÜR BAUARTSPEZIFIKATION:

FESTKONDENSATOREN MIT KUNSTSTOFF-FOLIE AUS POLYÄTHYLENTEREPHTHALAT UND BELÄGEN AUS METALLFOLIEN FÜR GLEICHSTROM (KT)

Folgende Änderung ist vorzunehmen:

Die Seiten 8/9 und 10/11 sind herauszunehmen und durch die neuen Seiten 8/9 und 10/11 zu ersetzen. [In Untergruppe C1B wurden die Prüfungen Dauerschocken (oder Schocken) und Schocken (oder Dauerschocken) aufgenommen].

Diese Änderung ist auf dem gelben Blatt "Verzeichnis der Änderungen" einzutragen.

Der Text dieser Änderung wurde dem CECC mit dem unten aufgeführten Schriftstück zur Abstimmung vorgelegt und vom Präsidenten des CECC zur Veröffentlichung freigegeben.

Schriftstück: CECC(Sekretariat)2179
Abstimmungsdatum: Dezember 1987
Abstimmungsbericht: CECC(Sekretariat)2208

CECC 30 101 Ausgabe 2 Änderung 2 1988

Cette page bleue doit être insérée après la page de garde de la CECC 30 101 (Edition 2)

MODIFICATION 1 A LA CECC 30 101 (Edition 2) :

SPECIFICATION PARTICULIERE CADRE :

CONDENSATEURS FIXES POUR COURANT CONTINU EN FILM DE POLYTÉREPHTHALATE DIÉTHYLENE ET A ARMATURES EN FEUILLES MÉTALLIQUES

La modification suivante doit être effectuée à la main:

Page 3, 1.1 :

Modifier "Voir 1.4.2 de la CECC 30 100 ..." en "Voir 1.3.2 de la CECC 30 100 ..."

This blue page shall be inserted after the title page of CECC 30 101 (Issue 2)

AMENDMENT 2 TO CECC 30 101 (Issue 2) :

BLANK DETAIL SPECIFICATION :

FIXED POLYETHYLENE-TEREPHTHALATE FILM DIELECTRIC METAL FOIL CAPACITORS FOR DIRECT CURRENT

The following amendment shall be made in manuscript:

Page 3, 1.1 :

Change "See 1.4.2 of CECC 30 100 ..." into "See 1.3.2 of CECC 30 100 ..."

Dieses blaue Blatt ist nach dem Titelblatt der CECC 30 101 (Ausgabe 2) einzufügen

ÄNDERUNG 1 ZU CECC 30 101 (Ausgabe 2) :

VORDRUCK FÜR BAUARTSPEZIFIKATION :

FESTKONDENSATOREN MIT KUNSTSTOFF-FOLIE AUS POLYÄTHYLENTEREPHTHALAT UND BELÄGEN AUS METALL-FOLIEN FÜR GLEICHSTROM (KT)

Folgende Änderung ist handschriftlich vorzunehmen:

Seite 3, 1.1 :

Statt "Siehe 1.4.2 der CECC 30 100 ..." ist einzufügen "Siehe 1.3.2 der CECC 30 100 ..."

CECC 30 101, Edition 2, Modification 1, 1986

CECC 30 101, Issue 2, Amendment 1, 1986

CECC 30 101, Ausgabe 2, Änderung 1, 1986

Information about the System may be obtained from:



FEN Secretariat
and
CECC General Secretariat
Stresemannallee 15
D-6000 Frankfurt/Main 70
Telefon: (069) 6308283
Telex 4-12871 vdetz d

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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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 blank detail 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 POLYETHYLENE-TEREPHTHALATE FILM DIELECTRIC METAL FOIL 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 blank detail specification was prepared by CECC Working Group 3: "Capacitors", and it is an editorially revised version of CECC 30 101 Issue 1.

It is one of a series of blank detail specifications all relating to the sectional specification CECC 30 100, Issue 2.

It is based, wherever possible, on the Publications of the International Electrotechnical Commission and in particular on IEC 384-11-1: Part 11: Blank detail specification: Fixed polyethylene-terephthalate film dielectric metal foil capacitors for direct current. Assessment level E.

The text of this blank detail specification was circulated to the CECC for voting in the document indicated 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)1528	March 1984	CECC(Secretariat)1649

This second issue of CECC 30 101 shall become effective for all new qualification approvals on 1 December 1985. Issue 1 will continue to remain effective to cover all past approvals.

KEY FOR PAGE 3

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

Identification of the 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] Level of quality assessment
- [9] Quick reference data

/1/ Specification available from: (National Standards Organization)	CECC number and mark /2/ 
ELECTRONIC COMPONENTS OF ASSESSED QUALITY - DETAIL SPECIFICATION IN ACCORDANCE WITH : /3/ (Number of national generic and sectional specification)	(National number of detail specification, date of issue, National type number, if any) /4/
Outline and dimensions: /7/ (first angle projection)	DETAIL SPECIFICATION FOR /5/ FIXED POLYETHYLENE-TEREPHTHALATE FILM DIELECTRIC METAL FOIL D.C. CAPACITORS
	TYPICAL CONSTRUCTION: /6/ (Examples) cylindrical/ rectangular non metallic/ metallic case insulated/ non insulated axial/ radial terminations
	Assessment level E /8/

QUICK REFERENCE DATA: Rated capacitance range, capacitance tolerance, /9/
d.c. rated voltage range, climatic category, performance grade

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

1. General data

1.1. Recommended method of mounting



See 1.3.2 of CECC 30 100, Issue 2.

1.2 DimensionsTable 1

Case size reference	Dimensions (in mm)					
	$\emptyset$	L	H	d		

Note 1: When there is no case size reference, Table 1 may be omitted and the dimensions shall be given in Table 2, which then becomes Table 1.

Note 2: The dimensions shall be given as maximum dimensions or as nominal dimensions with a tolerance.

1.3 Ratings and characteristics

Capacitance range	(See Table 2)
Tolerance on rated capacitance	
Rated voltage	(See Table 2)
Category voltage (if applicable)	(See Table 2)
Climatic category	
Rated temperature	
Max. a.c. voltage (if applicable)	
Tangent of loss angle	
Insulation resistance	

Table 2

Values of capacitance related to voltages and case sizes

Rated voltage				
Category voltage (1)				
Rated capacitance (in nF and/or μ F)	Case size	Case size	Case size	Case size

(1) If different from the rated voltage.

1.4 Related document

Generic specification : CECC 30 000 (Issue 3)
Sectional specification : CECC 30 100 (Issue 2)

1.5 Marking

The marking of the capacitor and the packing shall be in accordance with the requirements of 1.5 of CECC 30 100, Issue 2.

Note: The details of the marking of the component and packing shall be given in full in the detail specification.

1.6 Ordering information

Orders for capacitors covered by this specification shall contain, in clear or in coded form, the following minimum information:

- (1) Rated capacitance
- (2) Tolerance on rated capacitance
- (3) Rated d.c. voltage
- (4) Number and issue reference of the detail specification and style reference.

1.7 Certified test records

Required/not required.

1.8 Additional information (not for inspection purposes)

1.9 Additional or increased severities or requirements to those specified in the generic and/or sectional specification

Note: Additions or increased requirements should be specified only when essential.

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.

2. Inspection requirements

2.1 Procedures

2.1.1 For Qualification Approval the procedures shall be in accordance with 3.4 of CECC 30 100, Issue 2.

2.1.2 For Quality Conformance Inspection the test schedule (Table 4) includes sampling, periodicity, severities and requirements. The formation of inspection lots is covered by 3.5.1 of CECC 30 100, Issue 2.

Notes to Tables 4A and 4B

Note 1 : Clause numbers of tests and performance requirements refer to CECC 30 100, Issue 2.

Note 2 : Inspection Levels (IL) and Acceptable Quality Levels (AQL) are selected from IEC 410.

Note 3 : In Tables 4A and 4B : P = periodicity (in months)

n = sample size

c = acceptance criterion (permitted number of defectives)

D = destructive

ND = non-destructive

Note 4 : Provided that requirements of Sub-Group A1 are met after testing.

Table 4A

Lot by lot inspection (Group A and B)

Clause number and test (1)	D or ND (3)	Conditions of test (1)	IL (2)	AQL % (2)	Performance requirements (1)
<u>Sub-Group A1</u> 4.1 Visual examination 4.1 Dimensions (gauging)	ND		S4	2,5	As in 4.1 Legible marking as specified in 1.5 of this specification As specified in Table 1 of this specification
<u>Sub-Group A2</u> 4.2.1 Voltage proof (Measuring point 1a) 4.2.2 Capacitance 4.2.3 Tangent of loss angle 4.2.4 Insulation resistance (Measuring point 1a)	ND		II	1,0	No breakdown or flashover Within specified tolerance as in 4.2.3(2) as in 4.2.4(2)
<u>Sub-Group B1</u> 4.5 Solderability	ND ⁽⁴⁾	Without ageing Method:	S3	2,5	Good tinning as evidenced by free flowing of the solder with wet- ting of the ter- minations or soldering time s, as applicable

(1), (2), (3) and (4): See notes on page 6

Table 4B

Periodic Tests

Clause number and test (1)	D or ND (3)	Condition of test (1)	P (3)	n (3)	c (3)	Performance requirements (1)
<u>Sub-Group ClA</u>	D		6	9	1	
4.1 Dimensions (Detail)						See detail specifications
4.3 Robustness of terminations		Visual examination				No visible damage
4.4 Resistance to soldering heat		No pre-drying Method: (1A or 1B)				
4.4.1 Initial measurements		Capacitance Tangent of loss angle				
4.4.2 Final measurements		Visual examination Capacitance				No visible damage $\left \frac{\Delta C}{C} \right \leq 2\%$ of the value measured initially
<u>Sub-Group ClB</u>	D		6	18	1	
4.6.1 Initial measurements		Capacitance Tangent of loss angle Insulation resistance: method				
4.6 Rapid change of temperature		T _A = Lower category temperature T _E = Upper category temperature Five cycles Duration t = 30 min Visual examination				No visible damage
4.7 Vibration		Method of mounting: See 1.1 of this specification. Procedure B ₄ Frequency range: ... Hz to ... Hz Amplitude 0,75 mm or acceleration 98 m/s ² (whichever is the lower amplitude) Total duration: 6 h Visual examination				No visible damage
4.8 Bump (or Shock) (see 4.9)		Method of mounting: see 1.1 of this specification. Number of bumps: ... Acceleration: ... m/s ² Duration of pulse: ... ms				

(1) and (3): See notes on page 6

Clause number and test (1)	D or ND (3)	Condition of test (1)	P (3)	n (3)	c (3)	Performance requirements (1)
4.9 Shock (or Bump) (see 4.8)		Method of mounting: see 1.1 of this spec. Acceleration: ... m/s ² Duration of pulse:... ms				
4.8.3 or 4.9.3 Final measurements		Visual examination Capacitance Tangent of loss angle				No visible damage $\left \frac{\Delta C}{C} \right \leq 5\%$ of value measured in 4.6.1 See detail specifi- cation
Sub-Group C1	D		6	27	2	
4.10 Climatic sequence						
4.10.2 Dry heat		Temperature: Upper category temperature Duration: 16 h				
4.10.3 Damp heat, cyclic, test Db, first cycle						
4.10.4 Cold		Temperature: Lower category temperature Duration: 2 h				
4.10.5 Low air pressure (if required by the detail spec.)		Air pressure: 8,5 kPa (85 mbar)				
4.10.5(3) Intermediate measurements		Visual examination				No permanent break- flashover or harm- ful deformation of the case
4.10.6 Damp heat, cyclic, test Db, remaining cycles		Within 15 min after removal from the chamber Voltage test with U_R for 1 min, test point 1a				
4.10.6(2) Final measurements		Visual examination Capacitance				No visible damage Legible marking $\left \frac{\Delta C}{C} \right \leq 5\%$ of value measured in 4.4.2, 4.8.3 or 4.9.3

(1) and (3): See notes on page 6

Clause number and test (1)	D or ND (3)	Condition of test (1)	P (3)	n (3)	c (3)	Performance requirements (1)
4.10.6(2) Final measurements (ctd.)		Tangent of loss angle Insulation resistance				$\leq 0,01$ or 1,2 times the values measured in 4.4.1 or 4.6.1 as applicable, whichever is greater ≥ 50 % of values in 4.2.4(2)
<u>Sub-Group C2</u>	D		6	15	1	
4.11 Damp heat, steady state						
4.11.1 Initial measurements		Capacitance Tangent of loss angle at 1 kHz				
4.11.2		Within 15 min after removal from chamber: Voltage test at U_R				
4.11.3 Final measurements		Visual examination Capacitance Tangent of loss angle Insulation resistance				No visible damage Legible marking $ \frac{\Delta C}{C} \leq 5$ % of value measured in 4.11.1 $\leq 0,01$ or 1,2 times the value measured in 4.11.1, whichever is greater ≥ 50 % of values in 4.2.4(2)
<u>Sub-Group C3</u>	D		3	21	1	
4.12 Endurance		Duration: 1 000 h				
4.12.1 Initial measurements		Capacitance Tangent of loss angle				
4.12.5 Final measurements		Visual examination Capacitance				No visible damage Legible marking $ \frac{\Delta C}{C} \leq 5$ % compared to values measured in 4.12.1

(1) and (3): See notes on page 6