



**SLOVENSKI STANDARD**  
**SIST EN 175500:2002**  
**01-september-2002**

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**Sectional specification: Cable outlet accessories for connectors, including qualification approval and capability approval**

Sectional specification: Cable outlet accessories for connectors, including qualification approval and capability approval

Rahmenspezifikation: Kabelausgangszubehör für Steckverbinder einschließlich Bauartanerkennung und Befähigungsanerkennung

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**ICS:**

31.220.10 Xcā 7ē Ácā } 3^Á [ } ^\ d !lā Plug-and-socket devices.  
Connectors

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**en**

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**Sectional specification:  
Cable outlet accessories for connectors,  
including qualification approval and capability approval**

Rahmenspezifikation:  
Zubehör für Kabelausgang für  
Steckverbinder einschließlich  
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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

This European Standard was prepared by CLC/TC CECC/SC 48B, LF connectors.

It is based, wherever possible, on the Publications of the International Electrotechnical Commission, and in particular on IEC 512, Electromechanical components for electronic equipment - Basic testing procedures and measuring methods.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 175500 on 1996-10-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement dop 1997-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn dow 1997-12-01

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## 1 General

### 1.1 Title

Sectional specification for cable outlet accessories for connectors for frequencies below 3 MHz.

### 1.2 Scope

This Sectional Specification (SS) is applicable to cable outlet accessories for connectors. It shall be used in conjunction with the relevant Detail Specifications (DS).

The object of this SS is to establish uniform specifications, type test requirements and quality assessment procedures for cable outlet accessories and to establish rules for the preparation of detail specifications for cable outlet accessories of assessed quality.

In the event of conflict between this sectional specification and the detail specification, the requirements of the detailed specification, shall prevail.

NOTE: When selecting an approved rear accessory and connector, guidance shall be sought from the manufacturer or ONS to ensure compatibility.

### 1.3 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this specification. At the time of publication, the editions were valid. All standards are subject to revision, and parties to agreements based on this specification are encouraged to investigate the possibility of applying the most recent editions of the standard indicated below. Members of CECC, IEC and ISO maintain registers of currently valid International Standards.

ISO/R/129	Technical drawings - Dimensioning - General principles, definitions, methods of extraction and special indications
ISO/R/286-1	ISO system of limits and fits - Part 1: Bases of tolerances, deviations and fits
ISO/R/286-2	ISO system of limits and fits - Part 2: Tables of standard tolerances grades and limit deviations for holes and shafts
ISO/R/1000	Rules for the use of the units of the International system of units and selection of the decimal multiples and submultiples of the SI units

ISO/R/1101	Technical drawings - Geometrical tolerancing - Tolerancing of form, orientation, location and run-out - Generalities, definitions, symbols, indications on drawings
IEC 27	Letter symbols to be used electrotechnology
IEC 50 (581)	International electrotechnical vocabulary Chapter 581: Electromechanical components for electronic equipment
IEC 68	Basic environmental testing procedures
IEC 410	Sampling procedures and tables for inspection by attributes for electronic components for assessed quality (See CECC 00 007)
IEC 512	Electromechanical components for electronic equipment; basic testing procedures and measuring methods (See CECC 00 009)
CECC 00 007	Harmonisation document for IEC 410: Sampling procedures and tables for inspection by attributes for electronic components of assessed quality <i>(standards.iteh.ai)</i>
CECC 00 009	Harmonisation document for IEC 512: Basic testing procedure and measuring methods for Electromechanical Components <i>https://standards.iteh.ai/catalog/standards/sist-en-175500-2002/07568cb8cccc/sist-en-175500-2002</i>
CECC 00 100	Basic Rules (1974)
CECC 00 111-4	Rule of procedure 11: Specifications - Part 4: Regulations for CECC DSs
EN 100114-1	Rule of procedure 14: Quality assessment procedures - Part 1: CECC requirements for the approval of an organisation
CECC 00 114-2	Rule of procedure 14: Quality assessment procedures - Part 2: Qualification approval of electronic components
CECC 00 114-3	Rule of procedure 14: Quality assessment procedures - Part 3: Capability approval of an electronic component manufacturing activity
CECC 00 109	Rule of procedure 9: Certified test records

## 2 Technical

### 2.1 Terminology

The terminology used in and applicable to this specification is included in IEC 50(581). IEC 512 also contains applicable terms.

For the purpose of this specification, the following additional terms and definitions shall apply:

Backshell:	Non-preferred term, use Cable Outlet.
Cable Tie:	A flexible strap or cord for securing a cable bundle to a cable outlet.
Coupling Nut:	An accessory or part of a component which secures the cable outlet to the body of the connector.

### 2.2 Classification into climatic categories

The cable outlet accessories are classified into climatic categories in accordance with the general rules given in IEC 68-1 Basic Environmental Testing Procedures, Part 1: General and Guidance.

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The following preferred temperature ranges and severities of the damp heat steady state tests have been selected, see Table 1.

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Table 1

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Climatic Category	Temperature range	Identification code *)
65/350/-	-65°C to +350°C	
65/260/-	-65°C to +260°C	
65/200/-	-65°C to +200°C	
65/175/-	-65°C to +175°C	
65/155/-	-65°C to +155°C	
55/155/-	-55°C to +155°C	
55/125/-	-55°C to +125°C	
55/125/-	-55°C to +125°C	
40/100/-	-40°C to +100°C	
40/100/-	-40°C to +100°C	
25/085/-	-25°C to + 85°C	
25/070/-	-25°C to + 70°C	
10/070/-	-10°C to + 70°C	

\*) Under consideration

### 2.3 Material

The materials to be used shall be in accordance with the requirements of the DS. When dissimilar materials are employed in intimate contact with each other, adequate protection against corrosion shall be used.



## 2.4 Finish

The finish shall be in accordance with the DS. The following preferred finishes have been selected, see Table 2.

Table 2

Finish	Code
Black Anodise	A
Electroless Nickel	N
Cadmium plated, bronze-green chromate conversion (48 h NaCl)	B
Nickel, cadmium plated, bronze-green chromate conversion (500 h NaCl)	W
Copper alloy, passivated	C
Stainless steel, passivated	K
Zinc-nickel	D
Zinc-cobalt	E
Without finish	X

## 2.5 Styles

The cable outlet shall be divided into the following styles. See Table 3.

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Table 3

Style	Code
Cable outlet, unsealed	A
Cable outlet, sealed	B
Cable outlet, shielded, unsealed	C
Cable outlet, shielded, sealed	D
Conduit adaptor, unsealed	E
Conduit adaptor, sealed	F
Adaptor, unsealed	G
Adaptor, sealed	H
Adaptor for heat shrinkable moulded part (shrinkboot)	I
Adaptor for heat shrinkable moulded part (shrinkboot) shielded	K

## 2.6 Marking

## 2.6.1 On the cable outlet

Each cable outlet shall have the following information upon it:

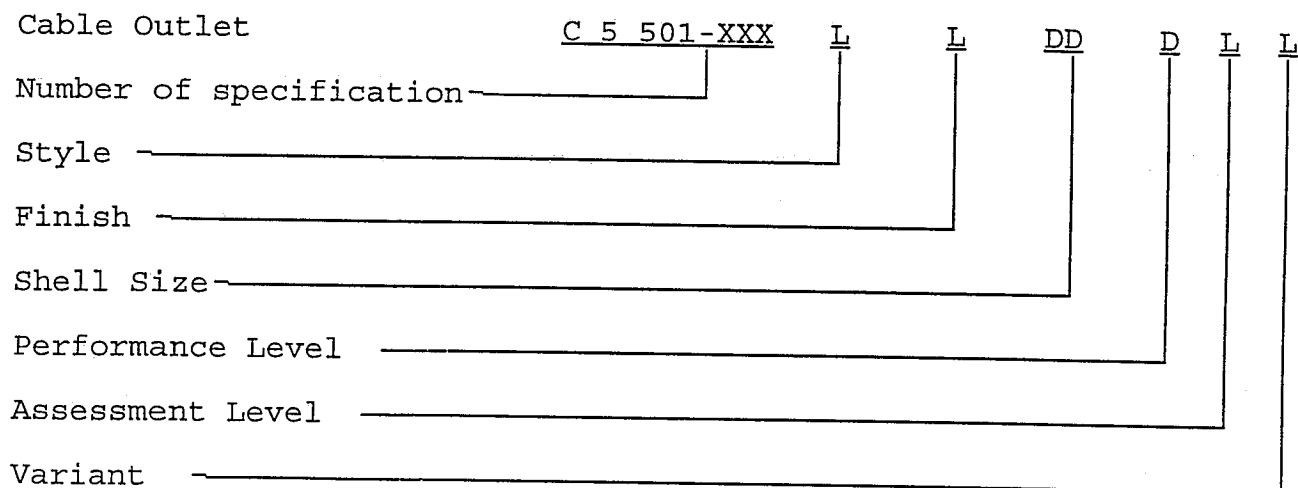
- Mark of origin (manufacturer's name or trade mark)
- Type designation, if required in the DS
- Date code (year/week), if required in the DS

## 2.6.2 On the package

- Mark of origin
- Type designation
- Date code

## 2.7 Type designation

All cable outlets to which this specification applies shall be designated by a part number consisting of the elements shown in the following example:



Where the DS provides for a variation of performance and assessment levels, a single letter and a digit shall be used to denote Performance Level (PL) and Assessment Level (AL) respectively. The letter and digit shall be prescribed in the DS.

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2.8 Installation instruction and tools

According to the DS.

### 3 Quality Assessment Procedures

Essentially, the CECC Quality Assessment System for electronic components is based on three concepts:

- the manufacturer shall fulfil certain specified requirements (e.g., regarding organisation, see also 3.5).
- the component shall be qualified (i.e., it shall successfully have passed a qualification approval testing and its qualification be approved, see also 3.6).
- the quality of the components produced for being delivered shall comply with the relevant specification (i.e., the quality shall be inspected and the result of this inspection be recorded, see also 3.7).

Details are given in the Basic Rules and in this specification.

#### 3.1 Primary stage of manufacture

The primary stage of manufacture as defined in CECC 00 114-22, is the first process subsequent to the manufacture of finished piece parts and sub-assemblies. A sub-assembly is defined as the permanent assembly of two or more piece parts.

This primary stage of manufacture and all subsequent processes shall be carried out under the direct surveillance of the manufacturer's approved Chief Inspector. They may be carried out by subcontractors providing equivalent disciplines apply.

#### 3.2 Structurally similar components

Cable outlet accessories having the same basic design, and the same surface finish are considered to be structurally similar components as defined in CECC 00 114-2. They may be different in other features, such as shell size, etc., but they must have been produced by the same manufacturing process and methods.

Structurally similar components may be covered by one common or by several DS.

Components covered by one common DS may usually be considered to be structurally similar. Additional details may be prescribed in the DS.

For different surface finish, material and manufacture method additional specimens have to be defined in the DS.

For the purpose of quality conformance inspection and of sampling, all structurally similar components may be aggregated into one inspection lot.

### 3.3 System of levels

The term "level" is used with the following different meanings and should be clearly distinguished. The DS may contain more than one level or a combination of levels. Details of the levels and their combinations shall be specified in the DS. Their designation shall be in accordance with 2.7.

#### 3.3.1 Performance level

The term "Performance level" reflects a grouping of the environmental and mechanical stresses to which a component is tested and also such features as long-term stability of electrical characteristics. It is based on four factors:

- Climatic category
- The test schedule
- The severities of the test conditions (magnitude and combination of stresses)
- The end-of-test requirements.

It also permits the following differences between levels to be stated:

- Further characteristics to be specified in addition to those that are mandatory
- Different (closer) tolerances on characteristics
- Different severities for environmental testing

A variation in one or more of these factors will result in a different performance level.

Clause 4 of this specification contains a basic (minimum) test schedule, and a full test schedule. Both schedules are explicitly given while an "intermediate test schedule" is mentioned together with the instruction how to specify an intermediate test schedule. These test schedules together with the severities to be applied and requirements to be fulfilled as specified in the DS define the performance levels of the component.

A given component with its type designation has one performance level only. If two components differ in their performance levels, they must be considered as two different components and they must have different type designations.

For designating Performance Levels within any single DS, a number 1 to 9 shall be used. The numbers shall be random.

#### 3.3.2 Assessment level

An assessment level is the combination of sample size and number of defectives permitted.

For fixed sample size, the assessment level is defined by the number of specimens to be tested and the number of defectives permitted. Fixed sample sizes are usually applied for qualification approval testing and for periodic tests within quality conformance inspection.

For variable sample size, the assessment level is defined by the "Inspection Level I.L.", and the Acceptable Quality Level AQL". Variable sample sizes are usually applied for lot-by-lot tests.

For designation Assessment Levels within any single DS, the letters A and H shall be used as indicated in Table 9, where A is the lowest permitted level. For other Assessment Levels, other letters may be used in a random manner (for example Y for military application).

### 3.3.3 Inspection Level (I.L.)

The Inspection Level determines the sample size relative to the lot size (see IEC 410).

### 3.3.4 Acceptable Quality Level (AQL)

The Acceptable Quality Level is defined in IEC 410 as the maximum percent defective that can be considered satisfactory as a process average. For further information see IEC 410.

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## 3.4 Grouping of tests

In this specification, two different systems of grouping tests are used which should be clearly distinguished.

### 3.4.1 Test groups for Qualification Approval Testing

Clause 4 of this specification contains test schedules. The test schedules are subdivided in test groups P, AP, BP and CP. In each test group, a specified number of specimens has to undergo a number of specified tests. For qualification approval, Tables 4-9 specify the same test schedules and test groups and additionally preferred acceptance criteria (such as number of specimens to be tested and the number of defectives permitted). By specifying all these details fixed rules are established and the qualification approval becomes a standardised procedure. The groups described in this sub-clause and used for qualification testing are called "Qualification Approval Test Groups" or "Q.A. Test Groups".

### 3.4.2 Inspection groups for Quality Conformance Inspection

For the purpose of Quality Conformance Inspection, usually a smaller number of tests is applied, since certain tests are significant for Qualification Approval Testing only, but not for inspecting the current production. Some of the tests are applied on a lot-by-lot basis, either 100% or using sampling procedures,

while it is sufficient to apply others at shorter or longer intervals only. The periodicity of these tests may be between 1 and 36 months.

For many reasons it is convenient to combine the tests into groups according to the application of the tests. These groups are called "Quality Conformance Inspection Groups" or "Q.C. Inspection Groups" (or shorter "Inspection Groups").

The following grouping has been found convenient:

- Lot-by-lot tests, applied either 100% or using sampling procedures (Q.C. Inspection Groups A and B, see Tables 9.)
- Periodic tests for quality conformance inspection (Q.C. Inspection Group C, see Table 9).
- Periodic tests for attainment or maintenance of qualification approval (Q.C. Inspection Group D, see Table 9).

#### 3.4.3 Delayed delivery

Cable outlet accessories held for a period exceeding 36 months (unless otherwise specified in the DS) following the release of the lot, shall, before delivery, be re-examined as specified in the DS. Once a lot has been satisfactorily reinspected, its quality is reassured for a period of a further 36 months or as specified in the DS.

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#### 3.4.4 Release for deliveries before the completion of Group B Tests

When the conditions of IEC 410 for changing to reduced inspection have been satisfied for all Group B tests, the manufacturer is permitted to release components before the completion of such tests.

#### 3.4.5 Delivery of tested Cable Outlet Accessories

Specimens subjected to non-destructive and non-degrading tests may be included in the lot to be delivered.

Specimens subjected to tests that may affect their quality shall not be included in the lot to be delivered.

Only Inspection Group A is normally non-destructive.

### 3.5 Approval of Manufacturers, Independent Test Laboratories and Distributors

Manufacturers wishing to participate in the CECC System shall comply with the general requirements specified in CECC 00 114, and the requirements regarding the primary stage of manufacture specified in 3.1 of this specification. Independent distributors

and independent test laboratories wishing to participate in the CECC System shall comply with the general requirements specified in CECC 00 114.

### 3.6 Qualification Approval

#### 3.6.1 General

An approved manufacturer (see 3.5) wishing to obtain qualification approval for a component or a range of structurally similar components, shall submit a request to the body designated in the national rules. In this request, he must state that he is in a position to apply all the processes, tests, measurements etc., from the primarily stage onwards, which will result in the approved components.

#### 3.6.2 Granting of qualification approval

Qualification approval will be granted when satisfactory results have been achieved by either of the following methods, and reported in accordance with CECC 00 114-2.

##### Method 1

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On completion of the testing prescribed for qualification approval in this specification, where a fixed sample is subject to sequence of tests. In this case, the sampling shall be performed on components from current production.

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##### Method 2

After the performance of the lot-by-lot tests, as prescribed in the DS, on a specified number of inspection lots (with a minimum of three), taken in the shortest possible period of time, as well as the performance of the periodic tests on a sample taken from at least one of these lots (see CECC 00 114-2).

#### 3.6.3 Maintenance of qualification approval

Maintenance of qualification approval shall be in accordance with Rules of Procedure, i.e., maintenance of qualification approval is assured.

- If the cable outlet accessories are continuously submitted to quality conformance inspection, evidence of which is the certified test record.
- If the qualification is re-assessed, either periodically, if the component is manufactured in short runs or discontinuously.

or