# SLOVENSKI STANDARD
# SIST EN 60684-3-121 to 124:2002

**01-oktober-2002**

**Nadomeģļ a:**
**SIST EN 60684-3-123 TO 124:1998**

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**Flexible insulating sleeving - Part 3: Specifications for individual types of sleeving - Sheets 121 to 124: Extruded silicone sleeving (IEC 60684-3-121 to 124:2001)**

Flexible insulating sleeving -- Part 3: Specifications for individual types of sleeving -- Sheets 121 to 124: Extruded silicone sleeving

Isolierschläuche -- Teil 3: Anforderungen für einzelne Schlauchtypen -- Blätter 121 und 124: Extrudierte Siliconschläuche

Gaines isolantes souples -- Partie 3: Spécifications pour types particuliers de gaines -- Feuilles 121 à 124: Gaines en silicone extrudé



**Ta slovenski standard je istoveten z:** **EN 60684-3-121 to 124:2001**

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**ICS:**

| | | |
|---|---|---|
| 29.035.20 | Plastiļ ni in gumeni izolacijski materiali | Plastics and rubber insulating materials |

**SIST EN 60684-3-121 to 124:2002** **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 60684-3-121 to 124

October 2001

ICS 29.035.20

Supersedes HD 523.3.121 & 122 S1:1990 and EN 60684-3-123 & 124:1995

English version

## Flexible insulating sleeving
## Part 3: Specifications for individual types of sleeving
## Sheets 121 to 124: Extruded silicone sleeving
(IEC 60684-3-121 to 124:2001)

Gaines isolantes souples
Partie 3: Spécifications pour types particuliers de gaines
Feuilles 121 à 124: Gaines en silicone extrudé
(CEI 60684-3-121 à 124:2001)

Isolierschläuche
Teil 3: Bestimmungen für einzelne Schlauchtypen
Blätter 121 und 124: Extrudierte Siliconschläuche
(IEC 60684-3-121 bis 124:2001)



This European Standard was approved by CENELEC on 2001-09-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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 text of document 15C/1215/FDIS, future edition 2 of IEC 60684-3-121 to 124, prepared by SC 15C, Specifications, of IEC TC 15, Insulating materials, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60684-3-121 to 124 on 2001-09-01.

This European Standard supersedes HD 523.3.121 & 122 S1:1990 and EN 60684-3-123 & 124:1995.

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) | 2002-06-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2004-09-01 |

Annexes designated "normative" are part of the body of the standard.
In this standard, annex ZA is normative.
Annex ZA has been added by CENELEC.

## Endorsement notice

The text of the International Standard IEC 60684-3-121 to 124:2001 was approved by CENELEC as a European Standard without any modification.

# INTRODUCTION

This International Standard is one of a series which deals with flexible insulating sleeving for electrical purposes.

The series consists of three parts:

Part 1 : Definitions and general requirements (IEC 60684-1);

Part 2 : Methods of test (IEC 60684-2);

Part 3 : Specification requirements for individual types of sleeving (IEC 60684-3).

This standard contains four of the sheets comprising part 3 as follows:

Sheet 121: Extruded silicone sleeving – General purpose, flame retarded

Sheet 122: Extruded silicone sleeving – General purpose, flame retarded, low volatile content

Sheet 123: Extruded silicone sleeving – General purpose

Sheet 124: Extruded silicone sleeving – General purpose, low volatile content.

# FLEXIBLE INSULATING SLEEVING –

## Part 3: Specifications for individual types of sleeving – Sheets 121 to 124: Extruded silicone sleeving

## 1 Scope

These sheets of IEC 60684-3 gives the requirements for four types of non-heatshrinkable sleeving, extruded from silicone elastomer.

These sleevings are normally available with internal diameter up to 25 mm and in a range of wall thicknesses between 0,1 mm and 2,0 mm. National standards may select a restricted list of preferred combinations of internal diameter and wall thickness.

These sleevings are normally available in the following opaque colours: black, brown, red, orange, yellow, green, blue, violet, grey, white and pink. They are also available in a translucent form.

Sizes or colours other than those specifically listed in this standard may be available as custom items. These items shall be considered to comply with this standard if they comply with the other property requirements listed in table 2.



## 2 Normative references



The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60684. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 60684 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

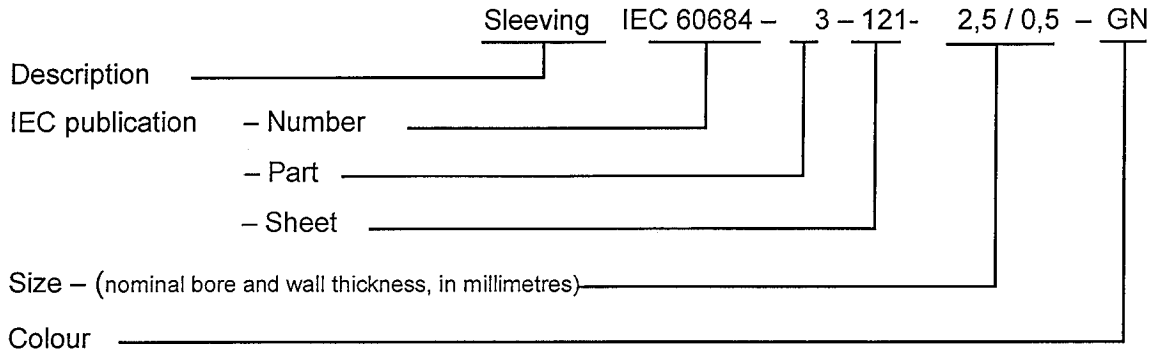
IEC 60684-1:1980, *Specification for flexible insulating sleeving – Part 1: Definitions and general requirements*

IEC 60684-2:1997, *Specification for flexible insulating sleeving – Part 2: Methods of test*

IEC 60757:1983, *Code for designation of colours*

## 3 Designation

The sleeving shall be identified by the following designation:




Any abbreviation used for colour shall comply with IEC 60757, where applicable. Non-standard colours shall be written out in full. The abbreviation for translucent shall be "TL"

## 4 Requirements



In addition to the general requirements given in IEC 60684-1, the sleeving shall comply with the requirements in tables 1, 2 and 3.



## 5 Product qualification



Product qualification shall normally be based on results from 8 mm internal diameter black sleeving. Colour fastness to light shall be qualified for all colours.

**Table 1 – Nominal internal diameter**

| Nominal internal diameter<br>mm | Tolerance on internal diameter<br>mm |
|---|---|
| 0,3 | +0,10<br>–0,05 |
| 0,5 | +0,15<br>–0,10 |
| 0,8 | |
| 1,0 | +0,20<br>–0,15 |
| 1,5 | |
| 2,0 | |
| 2,5 | ±0,20 |
| 3 | |
| 4 | |
| 5 | |
| 6 | ±0,25 |
| 8 | |
| 10 | |
| 12 | |
| 16 | ±0,50 |
| 20 | |
| 25 | |
| NOTE 1 Measurements shall be made to the nearest 0,05 mm.<br>NOTE 2 See table 3 for wall thicknesses. | |

**Table 2 – Property requirements**

| Property | IEC 60684-2 Clause or subclause | Units | Max. or min. | Requirements | Remarks |
|---|---|---|---|---|---|
| Dimensions | 3 | mm | – | Tables 1 and 3 | |
| Volatile content (sheets 122 and 124 only) | 12 | % | Max. | 1,0 | |
| Bending after heating | 13 | – | – | There shall be no cracking. The original colour shall still be clearly recognisable. | Test temperature: 200 °C ± 5 K. The mandrel diameter shall be twice the external diameter of the sleeve |
| Bending at low temperature | 14 | – | – | There shall be no cracking. | Test temperature –60 °C or lower. For nominal internal diameters of 8 mm, and below use a mandrel 18 to 20 times the nominal wall thickness. For nominal internal diameters of above 8 mm, use strips and a mandrel of 8 to 10 times the nominal wall thickness |
| Tensile strength | 19.1 and 19.2 | MPa | Min. | 5,5 | Jaw separation: (500 ± 25) mm/min |
| Elongation at break | 19.1 and 19.2 | % | Min. | 200 | Jaw separation: (500 ± 25) mm/min |
| Breakdown voltage | 21 | kV | Min. | See table 3 | |
| Volume resistivity – at room temperature | 23.4.2 | MΩ | Min. | $1 \times 10^{11}$ | |
| – after damp heat | 23.4.4 | | | $1 \times 10^{10}$ | |
| Flame propagation (sheets 121 and 122 only) | 26 Method A | s | Max. | 60 | In addition the indicator flag shall not be burned away. The cotton shall not be ignited. |
| Electrolytic corrosion | 31 | – | Max. | Negative pole 1, 4<br>Positive pole A/B | Visual method |
| Thermal endurance | 37 | – | Min. | 180 | The end point shall be 50 % of the initial value of tensile strength |