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**Hand crimping tools - Tools for the crimp termination of electric cables and wires for low frequency and radio frequency applications - Part 2-2: Particular requirements for radio frequency connectors and concentric contacts + Open throat tools with removable and interchangeable dies, sizes A to G, V and W**

Hand crimping tools - Tools for the crimp termination of electric cables and wires for low frequency and radio frequency applications -- Part 2-2: Particular requirements for radio frequency connectors and concentric contacts - Open throat tools with removable and interchangeable dies, sizes A to G, Q to T, V and W

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Handcrimpwerkzeuge - Werkzeuge für den Crimpanschluß von elektrischen Leitungen und Drähten für Niederfrequenz- und für Hochfrequenzanwendungen -- Teil 2-2: Spezielle Anforderungen für Hochfrequenzsteckverbinder und konzentrische Kontakte - Werkzeuge mit Maulöffnung und losbaren austauschbaren Crimpbacken, Größen A bis G, Q bis T, V und W

Outils de sertissage manuels - Outils pour sertir les câbles et fils électriques basse fréquence et radio-fréquence -- Partie 2-2: Connecteurs radio-fréquence et contacts concentriques - Pincés à mâchoires amovibles et interchangeables, tailles A à G, Q à T, V et W

**Ta slovenski standard je istoveten z: EN 50109-2-2:1995**

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**ICS:**

25.140.30	Orodja za ročno uporabo	Hand-operated tools
33.120.30	Radiofrekvenčni konektorji (RF)	R.F. connectors

**SIST EN 50109-2-2:1996**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 50109-2-2**

June 1995

UDC 621.315.684.002.54.621.753.4

Descriptors: Hand crimping tools, RF connectors, concentric contacts

English version

**Hand crimping tools**  
**Tools for the crimp termination of electric cables and wires**  
**for low frequency and radio frequency applications**  
**Part 2-2: Particular requirements for radio frequency connectors**  
**and concentric contacts - Open throat tools with removable and**  
**interchangeable dies, sizes A to G, Q to T, V and W**

Outils de sertissage manuels  
Outils pour sertir les câbles et fils  
électriques basse fréquence et  
radio-fréquence

Partie 2-2: Connecteurs radio-fréquence  
Pincés à mâchoires amovibles et  
interchangeables, tailles A à G, Q à T,  
V et W

Handcrimpwerkzeuge

Werkzeuge für den Crimpanschluß von  
elektrischen Leitungen und Drähten für  
Niederfrequenz- und für  
Hochfrequenzanwendungen

Teil 2-2: Spezielle Anforderungen für  
Hochfrequenzsteckverbinder und  
konzentrische Kontakte - Werkzeuge mit  
Maulöffnung und lösbaren  
austauschbaren Crimpbacken, Größen A  
bis G, Q bis T, V und W

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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.

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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 the British Electrotechnical Committee (BT(GB/NOT)11).

The text of the draft was submitted to the Unique Acceptance Procedure (UAP) in November 1992 and was approved by CENELEC as EN 50109-2-2 on 1993-09-22.

NOTE: Finland has no obligation to implement this European Standard.

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) 1995-12-15
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 1995-12-15

For products which have complied with the relevant national standard before 1995-12-15, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2000-12-15.

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## Introduction

Part 1 of this European Standard provides general requirements and tests for hand crimping tools for the termination of electrical cables and wires for low frequency and radio frequency applications.

The Parts 2 cover hand crimping tools for radio frequency crimped type connectors such as those listed in radio frequency connector detail specifications based on CECC 22 000 and is subdivided as follows:

Part 2-1 covers hand crimping tools with fixed dies, sizes A to E, V and W.

Part 2-2 covers hand crimping tools with removable and interchangeable dies, sizes A to G and Q to T, V and W.

Part 2-3 covers hand crimping tools for contacts of electrical connectors.

Part 2-4 covers hand crimping tools for centre contacts of RF connectors, series SMZ.

Part 2-5 covers hand crimping tools for the termination of twin-ax cable for databus applications.

## 1 Scope

Part 2-2 of this European Standard specifies requirements, limiting dimensions and operating forces for hand crimping tools with removable and interchangeable dies, sizes A to G, Q to T, V and W, for the termination of cables to radio frequency connectors. For tool style references see 5.1 and table 1.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to, or revisions of, any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

EN 50109-1	1994 Hand crimping tools - Tools for the termination of electrical cables and wires for low frequency and radio frequency applications - Part 1: General requirements and tests
ISO 426-1	Wrought copper-zinc alloys - Part 1: Non leaded and special copper-zinc alloys
ISO 468	Assessment of surface texture: Methods and instrumentation
ISO 4287/1	Glossary of surface roughness terms: Surface and its parameters
ISO 6507	Method for Vickers hardness test and for verification of Vickers hardness testing machines
CECC 22 000	Generic Specification: Radio frequency coaxial connectors (Parts I, II and III)

## 3 Definitions

For the purpose of this Part 2-2, the definitions in Part 1 apply.

## 4 Requirements

### 4.1 General

With the exception of 4.13 the requirements specified in clause 4 of Part 1 shall apply, together with the requirements specified in 4.2 to 4.11 of this Part 2-2.

### 4.2 Frame design

The frame of the tools shall be of the open throat design.

### 4.3 Outline dimensions and mass

Tools shall comply with following dimensions and mass, which are maxima unless otherwise stated:

- a) total length of crimping tool: 260 mm;
- b) handle span when crimping tool is closed and no load applied: 50 mm  $\pm$  10 mm;
- c) handle span when tool is fully open: 180 mm;
- d) mass of tool: 0,85 kg.

NOTE: The nominal measurements in b) and c) of 50 mm and 180 mm shall be made between a point on the outside of the shorter handle 25 mm to 35 mm from its end, and the nearest point on the outside of the longer handle, (points P1 and P2 in figure 1).

### 4.4 Clearance

In order to allow crimping close to the body of large bodied connectors, the tool shall provide clearance in relation to the dies as follows, and as illustrated in figure 1:

- a 20 mm square centred on the large die cavity shall be able to approach within 0,4 mm max of the die face;
- a 40 mm diameter centred on the large die cavity shall be able to approach within 2 mm of the die face.

### 4.5 Locator

The provision of a locator is permitted as a means of locating the centre contact of an RF connector during the crimping operation.



#### 4.6 Operating force (full closure mechanism)

The operating force for the full closure mechanism shall be tested as specified in 6.6 of Part 1. The dies shall be closed and a force shall be applied to the handles at a point 30 mm to 35 mm from their ends. The force required to operate the release mechanism shall be not less than 20 N.

#### 4.7 Operating force (crimping cycle)

The operating force for the crimping cycle shall be tested as specified in 6.7 of Part 1. The largest appropriate test piece selected from table 2 shall be used and shall be crimped at the end of the test piece sleeve. The compression force required to perform a crimping cycle, applied to the handles between points P1 and P2 (see 4.3 and figure 1) shall not be greater than 425 N. If the test piece is to be gauged subsequently, the crimping cycle shall be taken only to the point where the full closure mechanism allows release.

#### 4.8 Overload force

The crimping tool shall be designed such that it will pass the overload force test (6.8 of Part 1 of this Standard) when a force of 700 N is applied to the handles between points P1 and P2 (see 4.3 and figure 1).

#### 4.9 Crimping dies

The crimping dies shall always be supplied in pairs, and shall be replaceable by hand. They shall have hexagonal die cavities and outline dimensions in accordance with table 1 and figure 2.

#### 4.10 Die alignment

With the dies closed but empty, misalignment of the dies shall not exceed 0,25 mm in any axis, and the A/F dimensions of table 1 shall be maintained. Die alignment on closure may be achieved by the tool frame, or the dies themselves may incorporate alignment features.

#### 4.11 Dynamic test

Tool performance shall be assessed using the procedure of 6.4. This provides a dynamic test comparable to normal operation.