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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 1: General requirements and tests

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Handcrimpwerkzeuge - Werkzeuge für den Crimpanschluß von elektrischen Leitungen und Drähten für Niederfrequenz- und für Hochfrequenzanwendungen -- Teil 1: Allgemeine Anforderungen und Prüfungen

Outils de sertissage manuels - Outils pour sertir les câbles et fils électriques basse fréquence et radio-fréquence -- Partie 1: Prescriptions générales et essais

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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.

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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)9).

The text of the draft was submitted to the Unique Acceptance Procedure (UAP) in November 1992 and was approved by CENELEC as EN 50109-1 on 1993-09-22.

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– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	1995-12-15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

Contents

Introduction

This Standard provides general requirements and tests for hand crimping tools. Such tools are widely used for crimping terminations and connectors of many types, e.g. insulated and non-insulated terminal ends, butt connectors and cable splices; removable contacts in low frequency and radio frequency connectors and ferrules of radio frequency connectors for coaxial outer conductors.

Part 1 is intended to serve as a general document and deals with features that are likely to be common requirements for most tools.

Subsequent Parts of this standard will cover details of the tools prepared as separate documents and may call up some or all of the requirements and tests of this Part 1, deleting such as are not applicable and adding others when necessary.

Among additional requirements to be specified in the detail tool specification may be the following:

- type of frame;
- dimensions and other particulars of dies, indentors, etc;
- methods of, and devices for, the location of components during the crimping operation;
- test requirements, including details of test pieces; and/or die gauging methods;
- part numbering systems, including additional marking requirements;
- ordering information, including number of tool specification, tool and die references, as applicable.

Compliance with this Standard does not of itself confer immunity from legal obligations.

1 Scope

Part 1 of this European Standard specifies general requirements and tests for hand crimping tools for operation within an ambient temperature range of -15 °C to +40 °C.

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.

HD 323.2.52 S1	1987	Basic environmental testing procedures - Part 2: Tests Test Kb: Salt mist, cyclic (sodium chloride solution) (IEC 68-2-52:1984)
IEC 50(581)	1978	International Electrotechnical Vocabulary Chapter 581: Electromechanical components for electronic equipment

3 Definitions

For the purposes of this European Standard the general electrical and telecommunication terms and definitions given in the appropriate Parts of IEC 50(581) apply.

In addition, the following definitions apply:

3.1 type tests

Tests made to show that hand crimping tools initially meet the requirements of this Part 1 and the relevant Part 2 of this Standard; to be repeated at prescribed intervals thereafter.

3.2 production tests

Selected tests repeated at prescribed intervals on samples from current production to confirm that the quality and performance of the product continues to conform to the requirements of this Part 1 and the relevant Part 2 of this Standard.

3.3 crimping cycle

One complete operation of the hand crimping tool beginning with the closing of the handles and ending when, after completion of the actual crimping operation, the handles have returned to the fully open position.

3.4 full closure mechanism

A mechanical device ensuring that once the closing of the handles has commenced, the handles can only return to the fully open position by completion of the closure of the tool.

3.5 test piece

A device specifically designed to simulate during tests the mechanical characteristics of a component to be crimped.

3.6 crimping dies

The component pairs or set of component parts of a crimping tool which, when applied to a terminal end, contact or other connecting device or portion thereof, deforms it over an electrical conductor or the insulation or braid to make a permanent electrical connection. Crimping dies may be integral with a tool or removable and interchangeable.

3.7 hexagon crimp [1)]

A crimped joint formed by the action of crimping dies shaped to impart a hexagonal form.

3.8 indentor

A substantially wedge-shaped component part or set of component parts of a crimping tool which through the action of the tool deforms a contact crimping barrel enveloping an electrical conductor to form a crimped joint.

3.9 indent crimp [1)]

A crimped joint formed by the action of an indentor or set of indentors.

3.10 locator

A device fitted to a crimping die to serve as an abutment to locate the terminal end, contact or connecting device during the crimping operation.

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1) Other crimping configurations may be adopted in the relevant Part 2 of this Standard.

3.11 positioner

A device fitted to a crimping tool for correctly positioning the item to be crimped prior to and during the crimping operation.

3.12 turret

A device fitted to a crimping tool containing more than one positioner which may be selectively brought into use without removing the turret.

3.13 open throat tool

A tool which allows both axial and lateral access to the termination barrel prior to and after the crimping operation.

4 Requirements

4.1 Materials

Hand crimping tools shall be manufactured from suitable materials which, whenever practicable, shall comply with the requirements of appropriate European Standards.

4.2 Component parts

Parts of hand crimping tools shall be resistant to corrosion and, where necessary, be subjected to an appropriate protective treatment.

4.3 Tool operation

Tools shall operate and correctly form the crimp without damaging the component to be crimped. On completion of the crimp, the handles and dies or indentors shall automatically return to the fully open position.

4.4 Removable parts

Removable parts, such as crimping dies and location devices shall be designed or marked to ensure that they can only be fitted to the tool in the correct manner.

4.5 Clearance and access

Tools shall provide sufficient clearance around the crimp area to permit insertion and withdrawal of components to be crimped without the use of additional tooling.