

Implementation of ISO/IEC 9171-1 : 1990

**Information technology —
130 mm optical disk cartridge,
write once, for information
interchange —**

Part 1: Unrecorded optical disk cartridge

National foreword

This British Standard reproduces verbatim ISO/IEC 9171-1 : 1990 and implements it as the UK national standard.

This British Standard is published under the direction of the Information Systems Technology Standards Policy Committee whose Technical Committee IST/4 has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international committee any enquiries on interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

NOTE. International and European Standards, as well as overseas standards, are available from BSI Sales Department, BSI, Linford Wood, Milton Keynes, MK14 6LE.

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

Amendment No. 1
published and effective from 15 August 1993
to BS ISO/IEC 9171-1 : 1990

Information technology – 130 mm optical disk cartridge, write once, for information interchange –
Part 1. Unrecorded optical disk cartridge

NOTE. The European Committee for Standardization (CEN) has accepted ISO/IEC 9171-1 : 1990 as a European Standard designated as EN 29171-1 : 1993. This amendment implements EN 29171-1 : 1993 as a British Standard in the BS EN series.

Implementation of European Standard

Front cover

Delete the existing cover page and substitute the attached.

AMD 7796/August 1993

National foreword

At the end of paragraph 1 insert the following new paragraph.

'In 1993 the European Committee for Standardization (CEN) accepted ISO/IEC 9171-1 : 1990 as European Standard EN 29171-1 : 1993. As a consequence of implementing the European Standard this British Standard is renumbered as BS EN 29171-1 and any reference to BS ISO/IEC 9171-1 should be read as a reference to BS EN 29171-1.'

AMD 7796/August 1993

New EN title page and foreword

Immediately after the national foreword insert the attached new EN title page and foreword page.

AMD 7796/August 1993

Implementation of ISO/IEC 9171-1 : 1990

**Information technology —
130 mm optical disk cartridge,
write once, for information
interchange —**

Part 1. Unrecorded optical disk cartridge

The European Standard EN 29171-1 : 1993 has the status of a
British Standard

Technologies de l'information – Cartouche de
disque optique de 130 mm, non-réinscriptible,
pour l'échange d'information –
Partie 1. Cartouche de disque optique vierge

Informationstechnik – 130 mm Optische
Plattenspeicher – Einmal beschreibbar, für den
Informationsaustausch –
Teil 1. Unbeschriebene optische Platte

UDC 681.327.68 : 681.327.28

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UDC 681.327.68 : 681.327.28

Descriptors: Data processing, information interchange, document storage, optical disks, packing, testing conditions, dimensions, mechanical properties, optical properties, recording characteristics

English version

Information technology – 130 mm optical disk cartridge, write once, for information interchange – Part 1: Unrecorded optical disk cartridge

(ISO/IEC 9171-1 : 1990)

Technologies de l'information – Cartouche de disque optique de 130 mm, non-réinscriptible, pour l'échange d'information –
Partie 1: Cartouche de disque optique vierge
(ISO/IEC 9171-1 : 1990)

Informationstechnik – 130 mm Optische Plattenspeicher – Einmal beschreibbar, für den Informationsaustausch –
Teil 1: Unbeschriebene optische Platte
(ISO/IEC 9171-1 : 1990)

This European Standard was approved by CEN on 1993-02-09. CEN 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 CEN 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 CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

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Ref. No. EN 29171-1 : 1993 E



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Foreword

The Technical Board has decided to submit the International Standard ISO/IEC 9171-1 : 1990 *Information technology – 130 mm optical disk cartridge, write once, for information interchange – Part 1: Unrecorded optical disk cartridge* for formal vote.

The result of the formal vote was positive.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 1993, and conflicting national standards shall be withdrawn at the latest by September 1993.

In accordance with the Common CEN/CENELEC Rules, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

INTERNATIONAL STANDARD

ISO/IEC 9171-1

First edition
1990-12-15

Information technology — 130 mm optical disk cartridge, write once, for information interchange —

Part 1: Unrecorded optical disk cartridge

*Technologies de l'information — Cartouche de disque optique de 130 mm,
non-réinscriptible, pour l'échange d'information —*

Partie 1: Cartouche de disque optique vierge



Reference number
ISO/IEC 9171-1 : 1990 (E)

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FOREWORD

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 9171-1 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

ISO/IEC 9171 consists of the following parts, under the general title: *Information technology — 130 mm optical disk cartridge, write once, for information interchange*:

Part 1: Unrecorded optical disk cartridge

Part 2: Recording format

Annexes C and D form an integral part of this part of ISO/IEC 9171. Annexes A and B are for information only.

INTRODUCTION

ISO/IEC 9171 specifies the characteristics of 130 mm optical disk cartridges (ODC) of the type providing for information to be written once and read many times. ISO/IEC 9171-2 specifies two formats for the physical disposition of the tracks and sectors, the error correction codes, the modulation methods used for recording and the quality of the recorded signals.

ISO/IEC 9171-1 and ISO/IEC 9171-2 together with a standard for volume and file structure provide for full data interchange between data processing systems.

Information technology — 130 mm optical disk cartridge, write once, for information interchange —

Part 1: Unrecorded optical disk cartridge

1 Scope

This part of ISO/IEC 9171 specifies

- definitions of essential concepts,
- the environment in which the characteristics are to be tested,
- the environments in which the cartridge is to be operated and stored,
- the mechanical, physical and dimensional characteristics of the case and of the optical disk,
- the optical characteristics and the recording characteristics for recording the information once and for reading it many times, so as to provide physical interchangeability between data processing systems.

2 Conformance

A 130 mm optical disk cartridge is in conformance with this part of ISO/IEC 9171 if it meets all the mandatory requirements specified therein.

3 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 9171. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 9171 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 683-13 *Heat treatable steels, alloy steels and free-cutting steels - Part 13 Wrought stainless steels*

IEC 950 *Safety of information technology equipment including electrical business equipment*

4 Definitions

For the purposes of this part of ISO/IEC 9171, the following definitions apply.

- 4.1 **case:** The housing for an optical disk, that protects the disk and facilitates disk interchange.
- 4.2 **Clamping Zone:** The annular part of the disk within which the clamping force is applied by the clamping device.
- 4.3 **Control Track:** A track containing the information on media parameters and format necessary for writing and reading the remaining tracks on the optical disk.
- 4.4 **cyclic redundancy check (CRC):** A method for detecting errors in data.

- 4.5 defect management:** A method for handling defective areas on the disk.
- 4.6 disk reference plane:** A plane defined by the perfectly flat annular surface of an ideal spindle on to which the clamping zone of the disk is clamped, and which is normal to the axis of rotation.
- 4.7 entrance surface:** The surface of the disk on to which the optical beam first impinges.
- 4.8 error correction code (ECC):** An error-detecting code designed to correct certain kinds of errors in data.
- 4.9 format:** The arrangement or layout of the data on a medium.
- 4.10 groove:** See 4.13.
- 4.11 hub:** The central feature on the disk which interacts with the spindle of the disk drive to provide radial centring and the clamping force.
- 4.12 interleaving:** The process of allocating the physical sequence of units of data so as to render the data more immune to burst errors.
- 4.13 land and groove:** A trench-like feature of the disk, applied before the recording of any information, and used to define the track location. The groove is located nearer to the entrance surface than the land with which it is paired to form a track.
- 4.14 mark:** A feature of the recording layer which may take the form of a hole, a pit, a bubble or any other type or form that can be sensed by the optical system. The pattern of marks represents the data on the disk.
- 4.15 optical disk:** A disk that will accept and retain information in the form of marks in a recording layer, that can be read with an optical beam.
- 4.16 optical disk cartridge (ODC):** A device consisting of a case containing an optical disk.
- 4.17 recording layer:** A layer of the disk on, or in, which data is written during manufacture and/or use.
- 4.18 Reed-Solomon code:** An error detection and/or correction code which is particularly suited to the correction of errors which occur in bursts or are strongly correlated.
- 4.19 spindle:** The part of the disk drive which contacts the disk and/or hub.
- 4.20 substrate:** A transparent layer of the disk, provided for mechanical protection of the recording layer, through which the optical beam accesses the recording layer.
- 4.21 track:** The path which is followed by the focus of the optical beam during one revolution of the disk.
- 4.22 track pitch:** The distance between adjacent track centrelines, measured in a radial direction.

5 General description

The optical disk cartridge which is the subject of this part of ISO/IEC 9171 consists of a case containing an optical disk. An optical beam is used to write data to, or to read data from, the disk.

A disk can be recordable either on one or on both sides.

The disk is intended for use in a drive with optical access from one side only. To gain access to the second side of a disk recordable on both sides, the cartridge must be reversed before insertion into the drive.

A disk recordable on one side only consists of a transparent protective layer acting as a substrate with a recording layer on one side and a hub on the other. The recording layer is accessed by an optical beam through the substrate. A disk recordable on both sides consists of two disks, each recordable on one side, and assembled together with the recording layers on the inside.