

Guide to

Construction and use of 90 mm (3.5 in) flexible disk cartridges for data interchange, using modified frequency modulation recording at 7 958 ftprad, 5.3 tpmm (135 tpi) on 80 tracks on each side —

Part 1: Dimensional, physical and magnetic characteristics

[ISO title: Information processing — Data interchange on 90 mm (3.5 in) flexible disk cartridges using modified frequency modulation recording at 7 958 ftprad on 80 tracks on each side — Part 1: Dimensional, physical and magnetic characteristics]

The European Standard EN 28860-1:1989 has the status of a British Standard

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Committees responsible for this British Standard

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- Association for Payment Clearing Services
- British Computer Society
- British Telecommunications plc
- Business Equipment and Information Technology Association
- Department of Trade and Industry (National Physical Laboratory)
- HM Treasury (Central Computer and Telecommunications Agency)
- Institute of Administrative Management
- Institute of Quality Assurance
- Institution of Electrical Engineers
- Institution of Electronic and Radio Engineers
- Institution of Mechanical Engineers
- National Computing Centre Ltd.
- Post Office
- Coopted members

This British Standard, having been prepared under the direction of the Information Systems Technology Standards Committee, was published under the authority of the Board of BSI and comes into effect on 30 September 1988

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National foreword

This Part of BS 6958, prepared under the direction of the Information Systems Technology Standards Committee, is identical with ISO 8860-1:1987 “*Information processing — Data interchange on 90 mm (3.5 in) flexible disk cartridges using modified frequency modulation recording at 7 958 ftrpad on 80 tracks on each side — Part 1: Dimensional, physical and magnetic characteristics*”, including Technical Corrigendum 1, published by the International Organization for Standardization (ISO).

In 1989 the European Committee for Standardization (CEN) accepted ISO 8860-1 as European Standard EN 28860-1:1989.

The purpose of this standard is to define those characteristics necessary for successful data interchange using magnetic disks. The information contained is intended as a guide to writing complete specifications for manufacture, purchasing and/or testing. The text of the International Standard does not accord with the recommendations for drafting product specifications given in the ISO Directives, or in BS 0-3, but the BSI Technical Committee considers the text is useful as a guide when disks are being described or specified. For this reason this Part of BS 6958 has a different title from the International Standard; it is issued as a British Standard guide, and it should only be used as such. It should not be used on its own as a British Standard product specification, and, in particular, no claims of compliance with this Part of BS 6958 should be made.

Terminology and conventions. The text of the International Standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

For metric units the comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Wherever the words “part of ISO 8860” and “ISO 8860” appear, referring to this standard, they should be read as “Part of BS 6958” and “BS 6958” respectively.

Cross-references

International Standard	Corresponding British Standard
ISO 8860-2:1987	BS 6958 <i>Guide to construction and use of 90 mm (3.5 in) flexible disk cartridges for data interchange, using modified frequency modulation recording at 7 958 ftrpad, 5.3 tpm (135 tpi) on 80 tracks on each side</i> Part 2:1988 <i>Track format</i> (Identical)
ISO 9293:1988	BS 6542 <i>File structure and labelling of flexible disk cartridges for information interchange</i> Part 2:1988 <i>Specification for variable file allocation structure</i> (Identical)

The Technical Committee has reviewed the provisions of ISO 683-13, to which reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard. A related British Standard to ISO 683-13:1974 is BS 1449 “*Steel plate, sheet and strip*” Part 2:1983 “*Specification for stainless and heat-resisting steel plate, sheet and strip*”.

NOTE *Typographical error.* In the title of E.3.5, “waverform” should be read as “waveform”.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, the EN title page, pages 2 to 22, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

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Descriptors: Data processing, information interchange, flexible disk cartridges, magnetic recording, frequency modulation, dimensions, physical properties, magnetic properties

English version

Information processing — Data interchange
on 90 mm (3,5 in) flexible disk cartridges
using modified frequency modulation recording
at 7 958 ftprad, 5,3 tpmm (135 tpi) on both sides —
Part 1: Dimensional, physical and magnetic characteristics

(ISO 8860-1, 1st edition, 1987)

Traitement de l'information. Echange de données sur cartouches à disquette de 90 mm (3,5 in) utilisant un enregistrement à modulation de fréquence modifiée à 7 958 ftprad, 5,3 tpmm (135 tpi) sur deux faces. Partie 1: Caractéristiques dimensionnelles, physiques et magnétiques (ISO 8860-1, 1ère édition, 1987)

Informationsverarbeitung. Datenaustausch auf 90 mm (3,5 in) Disketten mittels modifizierter Frequenzmodulationsaufzeichnung bei 7 958 ftprad, 5,3 tpmm (135 tpi) auf beiden Seiten. Teil 1: Mechanische physikalische und Grössenanforderungen (ISO 8860-1, 1 Ausgabe, 1987)

This European Standard was approved by CEN on 1988-12-21. 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.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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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Brief history

The Technical Board has decided to submit the International Standard

ISO 8860-1, 1st edition 1987 *“Information processing; Data interchange on 90 mm (3,5 in) flexible disk cartridges using modified frequency modulation recording at 7 958 ftprad on 80 tracks each side; Part 1: Dimensional, physical and magnetic characteristics”* to the formal vote. The result of this vote was positive.

For the time being, this document exists only in the English and the French versions.

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

Statement

The text of the International Standard

ISO 8860-1, 1st edition, 1987, was approved by CEN as a European Standard without any modification.

0 Introduction

ISO 8860 specifies the characteristics of 90 mm (3.5 in) flexible disk cartridges recorded at 7 958 ftprad using modified frequency modulation (MFM) recording on 80 tracks on each side.

ISO 8860-2 specifies the track layout, the track format and the characteristics of the recorded signals.

ISO 8860-1 and ISO 8860-2, together with the labelling scheme specified in ISO 9293, provide for full data interchange between data processing systems.

1 Scope and field of application

This part of ISO 8860 specifies the dimensional, physical and magnetic characteristics of the cartridge, so as to provide physical interchangeability between data processing systems.

NOTE Numeric values in the SI and/or Imperial measurements system in this part of ISO 8860 may have been rounded off and therefore are consistent with, but not exactly equal to, each other. Either system may be used, but the two should be neither intermixed nor reconverted. The original design was made using SI units.

2 Conformance

A 90 mm (3.5 in) flexible disk cartridge shall be in conformance with this part of ISO 8860 if it meets all mandatory requirements contained herein.

3 References

ISO 683-13, *Heat-treated steels, alloy steels and free-cutting steels — Part 13: Wrought stainless steels*.

ISO 8860-2, *Information processing — Data interchange on 90 mm (3.5 in) flexible disk cartridges using modified frequency modulation recording at 7 958 ftprad on 80 tracks on each side — Part 2: Track format*.

ISO 9293, *Information processing — Volume and file structure of flexible disk cartridges for information interchange*.

4 Definitions

For the purpose of this International Standard the following definitions apply.

4.1

recording disk

a flexible disk which accepts and retains, on the specified side or sides, magnetic signals intended for input/output and storage purposes

4.2

hub

a centring and referencing device attached to the centre of the disk which allows torque to be transmitted to the disk. It ensures centring of the disk on the drive shaft in a unique angular position

4.3

shutter

a device which uncovers the head windows upon insertion, and automatically covers them upon removal from the drive

4.4

liner

suitable material positioned between the case and the disk to provide cleaning action and protection from abrasion

4.5

case

a protective enclosure including a shutter mechanism and a write-inhibit hole

4.6

master standard reference flexible disk cartridge

a reference flexible disk cartridge selected as the standard for reference fields, signal amplitudes, resolution, peak shift and overwrite. Track 00 and track 79 on both sides are declared as reference tracks

the reference tracks are calibrated at 600 r/min. The calibration is also valid at 300 r/min

NOTE This master standard has been established by the Physikalisch-Technische Bundesanstalt (PTB), Bundesallee 100, D-3300 Braunschweig, Germany, F.R.

4.7

secondary standard reference flexible disk cartridge

a flexible disk cartridge the performance of which is known and stated in relation to that of the Master Standard Reference Flexible Disk Cartridge

NOTE Secondary Standard Reference Flexible Disk Cartridges can be ordered from PTB Lab. 1.41 under Part Number RM 8860 as long as available. It is intended that these be used for calibrating further cartridges for use in routine calibration.

4.8

typical field

In the plot of average signal amplitude against recording field at the specified track and flux transition density, the Typical Field is the minimum field which causes a signal output equal to 95 % of the maximum Average Signal Amplitude.