
British Standard Guide to
**Construction and use of 130 mm (5.25 in)
flexible disk cartridges for data interchange using
modified frequency modulation recording at
7958 ftrrad, 1.9 tpmm (48 tpi) on both sides**
Part 1. Dimensional, physical and magnetic characteristics

[ISO title: Information processing — Data interchange on 130 mm (5.25 in) flexible disk cartridges using modified frequency modulation recording at 7 958 ftrrad, 1,9 tpmm (48 tpi), on both sides — Part 1 : Dimensional, physical and magnetic characteristics]

Guide pour la construction et l'utilisation des cartouches à disquette de 130 mm (5,25 in) pour échange de données, utilisant un enregistrement à modulation de fréquence modifiée à 7958 ftrrad, 1,9 tpmm (48 tpi) sur deux faces
Partie 1. Caractéristiques dimensionnelles, physiques et magnétiques

Leitfaden für die Herstellung und Verwendung von 130-mm- (5,25 in)-Disketten für den Datenaustausch, unter Verwendung von modifizierten Wechseltaktschrift mit 7958 Flußwechsel/rad, 1,9 Spuren/mm (48 tpi), auf beiden Seiten
Teil 1. Maße, physikalische und elektromagnetische Eigenschaften

Contents

	Page		Page
National foreword	Inside front cover	B Measurement of light transmittance	13
Committees responsible	Back cover	C Method for measuring the effective track width	15
		D Use of hub support rings	16
Guide		Figures	
0 Introduction	1	1 Flexible disk cartridge	8
1 Scope and field of application	1	2 Section A-A	8
2 Conformance	1	3 Protective envelope with cartridge	8
3 References	1	4 Jacket dimensions	9
4 Definitions	1	5 Cartridge thickness	10
5 General description	2	6 Disk dimensions	10
6 General requirements	2	7 Disk thickness	10
7 Dimensional characteristics	3	8 Pressure pad area	10
8 Physical characteristics	5	9 Measuring gauge	11
9 Magnetic characteristics	6	10 Measuring gauge	12
10 Bibliography	10	11 Stylus	14
		12 Electronic circuitry	14
Annexes		13 Track width	15
A Measurement of the cartridge thickness	11		

National foreword

This Part of BS 7024, prepared under the direction of the Information Systems Technology Standards Committee, is identical with ISO 7487/1-1985 'Information processing — Data interchange on 130 mm (5.25 in) flexible disk cartridges using modified frequency modulation recording at 7 958 ftprad, 1,9 tpmm (48 tpi), on both sides — Part 1 : Dimensional, physical and magnetic characteristics' published by the International Organization for Standardization (ISO).

The purpose of this standard is to define those characteristics necessary for successful data interchange using flexible disk cartridges. 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 : Part 3, but the BSI Technical Committee considers the text is useful as a guide when cartridges are being described or specified. For this reason this Part of BS 7024 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 7024 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 7487' and 'ISO 7487' appear, they should be read as 'Part of BS 7024' and 'BS 7024' respectively.

Cross-references

International standard	Corresponding British Standard
	BS 7024 Guide to construction and use of 130 mm (5.25 in) flexible disk cartridges for data interchange, using modified frequency modulation recording at 7958 ftprad, 1.9 tpmm (48 tpi) on both sides
ISO 7487/2-1985	Part 2 : 1988 Track format A (Identical)
ISO 7487/3-1986	Part 3 : 1988 Track format B (Identical)
ISO 7665-1983	BS 6542 File structure and labelling of flexible disk cartridges for information interchange Part 1 : 1984 Specification for sequential file allocation structure (Identical)

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

Amendment No. 1
published and effective from 28 February 1992
to BS 7024 : Part 1 : 1988

**Guide to construction and use of 130 mm
(5.25 in) flexible disk cartridges for data
interchange using modified frequency modulation
recording at 7958 ftprad, 1.9 tpmm (48 tpi) on
both sides**

**Part 1. Dimensional, physical and magnetic
characteristics**

NOTE. The European Committee for Standardization (CEN) has accepted ISO 7487/1-1985 as a European Standard designated as EN 27487-1 : 1989. This amendment implements EN 27487-1 : 1989 as a British Standard.

Revised text

AMD 7044
February 1992

Front and back covers

In the top right-hand corner of the front cover and twice on the back cover, immediately above 'ISO 7487/1-1985' insert 'EN 27487-1 : 1989'.

At the foot of the front cover insert the following:

'The European Standard EN 27487-1 : 1989 has the status of a British Standard'.

AMD 7044
February 1992

National foreword

At the end of paragraph 1, insert the following new paragraph:

'In 1989 the European Committee for Standardization (CEN) accepted ISO 7487/1 as European Standard EN 27487-1 : 1989.'

AMD 7044
February 1992

New EN title page and brief history page

Insert the attached new EN title page and brief history page immediately after the national foreword.

UDC 681.327.634

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

English version

Information processing. Data interchange on 130 mm (5,25 in) flexible disk cartridges using modified frequency modulation recording at 7 958 ftprad, 1,9 tpmm (48 tpi), on both sides.

Part 1: Dimensional, physical and magnetic characteristics

(ISO 7487-1, 1st edition, 1985)

Traitement de l'information. Echange de données sur cartouches à disquette de 130 mm (5,25 in) utilisant un enregistrement à modulation de fréquence modifiée à 7 958 ftprad, 1,9 tpmm (48 tpi), sur deux faces.
Partie 1: Caractéristiques dimensionnelles, physiques et magnétiques
(ISO 7487-1, 1ère édition, 1985)

Informationsverarbeitung. Datenaustausch auf 130 mm (5,25 in) Disketten mittels modifizierter Frequenzmodulationsaufzeichnung bei 7 958 ftprad, 1,9 tpmm (48 tpi), auf beiden Seiten.
Teil 1: Mechanische physikalische und Grössenanforderungen
(ISO 7487-1, 1 Ausgabe, 1985)

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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Ref. No. EN 27487-1 : 1989 E

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Brief history

The Technical Board has decided to submit the International Standard

ISO 7487-1, 1st edition, 1985 'Information processing; Data interchange on 130 mm (5,25 in) flexible disk cartridges using modified frequency modulation recording at 7 958 ftrpad, 1,9 tpmm (48 tpi), on both sides; 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 7487-1, 1st edition, 1985, was approved by CEN as a European Standard without any modification.

British Standard Guide to

Construction and use of 130 mm (5.25 in) flexible disk cartridges for data interchange using modified frequency modulation recording at 7958 ftprad, 1.9 tpmm (48 tpi) on both sides

Part 1. Dimensional, physical and magnetic characteristics

0 Introduction

ISO 7487 specifies the characteristics of 130 mm (5.25 in) flexible disk cartridges recorded at 7 958 ftprad, 1,9 tpmm (48 tpi), on both sides using modified frequency modulation recording.

ISO 7487/2 and ISO 7487/3 each specify the quality of recorded signals, the track layout, and a track format to be used on such a flexible disk cartridge, which is intended for data interchange between data processing systems.

Together with the labelling scheme specified in ISO 7665, ISO 7487/1 and ISO 7487/2 provide for full data interchange between data processing systems.

1 Scope and field of application

This part of ISO 7487 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 measurement system in this International Standard 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 re-converted. The original design was made using Imperial units and further developments were made using SI units.

2 Conformance

A flexible disk cartridge shall be in conformance with ISO 7487 when it meets all the requirements of ISO 7487/1 and those of either ISO 7487/2 or ISO 7487/3.

3 References

ISO 7487, *Information processing — Data interchange on 130 mm (5.25 in) flexible disk cartridges using modified frequency modulation recording at 7 958 ftprad, 1,9 tpmm (48 tpi), on both sides* —

Part 2 : Track format A

Part 3 : Track format B

ISO 7665, *Information processing — File structure and labelling of flexible disk cartridges for information interchange.*

4 Definitions

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

4.1 flexible disk : A flexible disk which accepts and retains on the specified side or sides magnetic signals intended for input/output and storage purposes of information data processing and associated systems.

4.2 reference flexible disk cartridge : A flexible disk cartridge arbitrarily selected for a given property for calibrating purposes.

4.3 secondary reference flexible disk cartridge : A flexible disk cartridge intended for routine calibrating purposes, the performance of which is known and stated in relation to that of the reference flexible disk cartridge.

4.4 signal amplitude reference flexible disk cartridge : A reference flexible disk cartridge selected as a standard for recording field and signal amplitude.

NOTE — A master standard for signal amplitudes, reference fields, overwrite and resolution characteristics has been established by the Physikalisch-Technische Bundesanstalt (PTB) Bundesallee 100 in Braunschweig, Germany, F. R. Secondary reference flexible disk cartridges can be ordered from PTB Lab 5.11 under part number RM 7487 as long as available.

4.5 typical field (for each side) : The minimum recording field, which, when applied to a flexible disk cartridge, causes a signal output equal to 95 % of the maximum average signal

amplitude when taken as a function of the recording field at the specified track and flux transition frequency of that flexible disk cartridge.

4.6 reference field : The typical field of the signal amplitude reference flexible disk cartridge.

4.7 test recording current (for each side) : The current between 145 % and 155 % of the current which produces the reference field at 125 000 flux transitions per second (ftps) on track 00 on both sides.

4.8 standard reference amplitude (SRA) (for each side) : The average signal amplitudes derived from the reference tracks on the signal amplitude reference flexible disk cartridge using the appropriate test recording current.

SRA_{1f} is the average signal amplitude from a recording written using 125 000 ftps.

SRA_{2f} is the average signal amplitude from a recording written using 250 000 ftps.

4.9 average signal amplitude : The arithmetically averaged value for a track of the output voltages measured peak-to-peak over the whole track.

4.10 in-contact : An operating condition in which the magnetic surface of the disk intended for data storage is in physical contact with the magnetic heads.

4.11 formatting : Writing the proper control information, establishing the physical tracks, and designating the addresses of physical records on the flexible disk's surfaces.

4.12 initialization : Writing the volume label, the ERMAP label and other information initially required to be on the flexible disk cartridge prior to the commencement of general processing or use.

4.13 recording area : That area of each disk surface with which the head may come into contact.

5 General description

5.1 General figures

A typical flexible disk cartridge is represented in figures 1 to 3 as follows :

Figure 1 — Flexible disk cartridge, shows the cartridge seen from above, side 0 up.

Figure 2 — Section A-A, is a cross-section along line A-A in figure 1.

Figure 3 — Protective envelope with cartridge, shows a protective envelope with cartridge, side 1 up.

5.2 Main elements

The main elements of this flexible disk cartridge are :

- the recording disk;
- the liner;
- the jacket.

The cartridge is stored in an envelope.

5.3 Description

The jacket is of a square form. It includes a central window, an index window and a head window in both sides.

The liner is fixed to the inside of the jacket. It comprises two layers of material between which the disk is held. The liner has the same openings as the jacket.

The disk has only a central window and an index window.

5.4 Optional features

The interchange characteristics of the cartridge allow for variations in its construction, as follows :

- the jacket may include flaps (for example three flaps as shown in the figures, or none);
- the jacket may include notches along the reference edge;
- the centre of the disk may be reinforced by hub support rings (see annex D).

6 General requirements

6.1 Environment and transportation

6.1.1 Testing environment

Tests and measurements made on the cartridge to check the requirements of this International Standard shall be carried out under following conditions :

- temperature : 23 ± 2 °C (73 ± 4 °F);
- relative humidity : 40 to 60 %;
- conditioning before testing : 24 h minimum.

The temperature and the relative humidity shall be measured in the air immediately surrounding the cartridge.

The stray magnetic field at any point on the disk surface, including that resulting from the concentrating effect of the recording head, shall not exceed 4 000 A/m (50 Oe).

6.1.2 Operating environment

Cartridges used for data interchange shall be operated under the following conditions :

- temperature : 10 to 51,5 °C (50 to 125 °F);
- relative humidity : 20 to 80 %;
- wet-bulb temperature : less than 29 °C (84 °F).