
INTERNATIONAL STANDARD



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Microcopying of technical drawings and other drawing office documents —

Part III : Unitized 35 mm microfilm carriers

*Microcopie des dessins techniques et autres documents de bureau d'études —
Partie III : Microcopies unitaires sur film de 35 mm*

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Descriptors : document reproduction, microcopies, motion-picture film-35 mm, aperture cards, engineering drawings, technical documents, dimensions.

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3272/III was drawn up by Technical Committee ISO/TC 46, *Documentation*, and circulated to the Member Bodies in November 1973.

It has been approved by the Member Bodies of the following countries :

Australia	Hungary	South Africa, Rep. of
Belgium	India	Spain
Bulgaria	Israel	Thailand
Canada	Italy	Turkey
Czechoslovakia	Mexico	United Kingdom
Denmark	Netherlands	U.S.A.
Egypt, Arab Rep. of	New Zealand	U.S.S.R.
Finland	Poland	Yugoslavia
France	Portugal	
Germany	Romania	

The Member Body of the following country expressed disapproval of the document on technical grounds :

Switzerland

Microcopying of technical drawings and other drawing office documents —

Part III : Unitized 35 mm microfilm carriers

0 INTRODUCTION

Drawing offices produce, in addition to drawings, documents which differ in purpose, form and intention. Easy exchanges of such documentation between organizations should be possible without ambiguities arising from the use of the information they contain.

Microcopying procedures allow the information contained in drawing office documents to be reduced to small dimensions thus facilitating transport, handling and storage. Faithful reconstitution of a microcopy can only be accomplished readily if the microcopy satisfies precise requirements with respect to dimensions and quality. The quality requirements themselves can be fulfilled readily only if the original document is prepared in accordance with strict specifications adapted to microcopy size and the selected reduction ratios.

Part III is concerned with the exchange of information using unitized microfilm carriers for 35 mm microfilm images of technical drawings or associated documents which have been produced by the operating procedures given in part I and which satisfy the quality requirements given in part II.

1 SCOPE

This International Standard specifies requirements for aperture cards, the mounting of 35 mm microfilm of technical drawings or associated documents in them, camera cards and copy cards used to reproduce 35 mm microfilm images from these cards.

2 FIELD OF APPLICATION

This International Standard is applicable to the microcopying of all documents prepared by drawing offices, such as technical drawings, architect's plans, calculation notes, specifications, vocabularies and parts lists.

It deals with the requirements for the microcopying of such data onto single frames of 35 mm microfilm mounted individually in cards, bearing in mind their subsequent use

for the interchange of information by reproduction, enlargement and viewing.

3 REFERENCES

ISO 1681, *Information processing — Unpunched paper cards — Specification*.

ISO 3272/I, *Microcopying of technical drawings and other drawing office documents — Part I: Operating procedures*.¹⁾

ISO 3272/II, *Microcopying of technical drawings and other drawing office documents — Part II: Quality criteria and control*.¹⁾

ISO . . . , *Documentary reproduction — Vocabulary*.¹⁾

ISO . . . , *Method of measuring thickness of build-up area on unitized microfilm carriers*.¹⁾

ISO . . . , *Method for determining adhesion of protection sheet to aperture adhesive of unitized microfilm carrier (aperture card)*.¹⁾

4 VOCABULARY

For definitions of the technical terms for reproduction employed in this International Standard, see ISO . . .

5 UNPUNCHED PAPER CARDS

Cards used for creating aperture cards shall be unpunched paper cards conforming to ISO 1681. For cards not conforming to ISO 1681, see annex A.

6 DIMENSIONS

The dimensions and the location of the microimage aperture and built-up areas shall be as shown in the figure. The external dimensions and tolerances of the card,

1) In preparation.

including those for the corner cut and corner rounding, shall conform to the dimensions specified in ISO 1681.

NOTE — In some cases the maximum document image area is the same size as the minimum microimage aperture defined by the location dimensions. Actual working tolerances of the location dimensions for the microimage aperture should, therefore, preclude encroachment on the maximum document image area.

7 THICKNESS BUILD-UP

The total thickness of card and microfilm retainer, or card and microfilm (as applicable), shall be measured and compared with the thickness of the card alone.¹⁾ All samples shall be conditioned for 6 h at a temperature of 23 ± 2 °C and at a relative humidity of 50 ± 2 % before the

measurements are taken. The difference between the two measurements shall be not greater than 0,14 mm.

NOTE — Aperture cards using different methods of retaining the microfilm in the carrier have different build-up thicknesses. Cards that have the same build-up thickness can be processed in data processing equipment. Difficulties will arise when cards of different build-up thicknesses are mixed. Cards with the smallest build-up thickness process best in data processing equipment.

8 RETENTION OF MICROFILM IN THE CARRIER

The microfilm shall be retained firmly in the carrier under all conditions of use. In view of the wide range and different types of carrier available, it is not possible to recommend objective tests which users should apply. However, two tests, for adhesion and for blocking, which many users have found helpful, are given for information in annexes B and C.

1) See ISO . . . , *Method of measuring thickness of build-up area on unitized microfilm carriers*.

Dimensions in millimetres

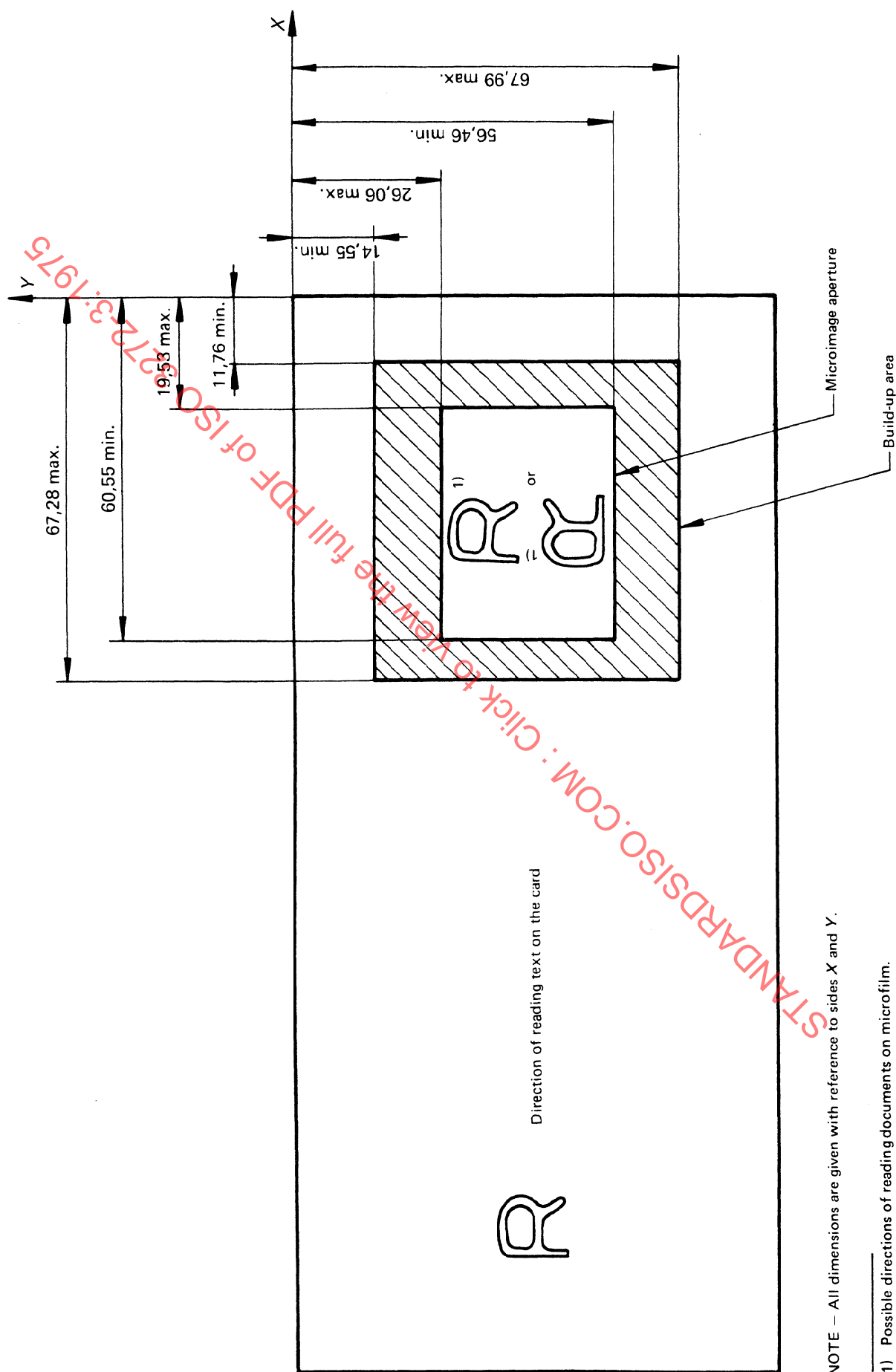


FIGURE 1 Location and dimensions of microimage aperture and build-up areas

ANNEX A

UNPUNCHED PAPER CARDS NOT CONFORMING TO ISO 1681

Where cards not conforming to ISO 1681 are used for internal purposes, they can usually be converted into copy cards conforming to this International Standard by copying onto cards conforming to ISO 1681, provided the location of the image area with respect to the *X* and *Y* co-ordinates in the non-standard card is the same as that illustrated in the figure.

ANNEX B

BLOCKING TEST

B.1 CONDITIONING

Conditioning of the samples of camera cards or copy cards should not be started less than 48 h after manufacture of the carriers. The samples are conditioned, loosely assembled, at a temperature of 23 ± 2 °C and at a relative humidity of 50 ± 2 %.

B.2 PROCEDURE

After conditioning for 24 h in accordance with B.1, the carriers are stored for 24 h at a temperature of 45 ± 3 °C with a load of 5 kg on the aperture. The carriers are conditioned further, under the conditions specified in B.1 for 6 h without load.

After conditioning, the carriers should not be more difficult to fan, and should separate no less well than an equal number of unpunched paper cards.

ANNEX C

ADHESION TEST

C.1 TEST FOR RELEASE OF GLASSINE PROTECTION SHEET¹⁾

After conditioning of the carriers as in B.1 for 6 h, the strength of the bond of the protection sheet to the adhesive coating shall be sufficient to maintain the assembly intact when the card is rolled around a mandrel 35 mm in diameter, with its long side parallel to the axis of the mandrel. The test shall be performed with the carrier against the mandrel.

C.2 TEST FOR ADHESION OF BONDING TAPE TO MICROFILM

The carriers are stored for 6 h in the conditions given in B.1, with a load of 5 kg on the aperture. The carriers are conditioned further, as in B.1, for 6 h without load.

After conditioning, the peel of the bonding tape from the frame of microfilm shall not be more than 13 mm in 1 min under a 10 g load for cold-seal or pressure-sensitive carriers, or a 15 g load for hot-seal carriers.

C.3 TEST FOR ADHESION OF BONDING TAPE TO CARD

The carriers are stored for 6 h in the conditions given in B.1.

After conditioning, the peel of the bonding tape from the card shall not be more than 13 mm in 1 min under a 20 g load for cold-seal or pressure-sensitive carriers, or a 30 g load for hot-seal carriers.

1) See ISO . . . , *Method of determining adhesion of protection sheet to aperture adhesive of unitized microfilm carrier (aperture card)*.