
INTERNATIONAL STANDARD



1681

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Information processing — Unpunched paper cards — Specification

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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.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, International Standard ISO 1681 replaces ISO Recommendation R 1681-1970 drawn up by Technical Committee ISO/TC 97, *Computers and information processing*.

The Member Bodies of the following countries approved the Recommendation :

Australia	Greece	Spain
Belgium	Israel	Sweden
Brazil	Italy	Switzerland
Canada	Japan	Thailand
Czechoslovakia	New Zealand	Turkey
Egypt, Arab Rep. of	Peru	United Kingdom
France	Poland	U.S.A.
Germany	Romania	

No Member Body expressed disapproval of the Recommendation.

Information processing — Unpunched paper cards — Specification

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the characteristics of general purpose unpunched paper cards to be used for information interchange between different punched card equipments.

2 REFERENCES

ISO/R 534, *Determination of the thickness of single sheets of paper.*

ISO/R 536, *Determination of paper substance.*

ISO/R 1974, *Paper — Determination of tearing resistance.*

ISO/R 2144, *Paper and board — Determination of ash.*

ISO 2493, *Paper and board — Determination of stiffness — Static bending method.*

ISO 2494, *Paper and board — Determination of roughness — Constant-pressure air-flow method.*¹⁾

ISO 2758, *Paper — Determination of bursting strength.*¹⁾

3 DETAIL REQUIREMENTS

3.1 Grain

The grain of the paper shall be in the direction of the card length.

3.2 Defects

Cards shall be free from defects which may cause excessive wear or interfere with the normal operation of data processing equipment.

Among these defects are: holes, magnetic particles, electrically conductive particles, dust, fibres protruding from edges or surfaces of the card, abrasive materials, residual chemicals, slime spots, other brittle areas and translucent spots which could cause reading errors in equipment.

3.3 Card dimensions

3.3.1 Nominal dimensions (see figure 1).

The card shall be a nominal rectangle of 187,32 × 82,55 mm (7.375 × 3.250 in).

3.3.2 Actual dimensions

All points on the edges of the card except as modified by 3.6 (Corners) shall fall between two concentric, similarly aligned, parallelograms which are dimensioned as follows:

— outer parallelogram:

height 82,73 mm (3.257 in)

base length 187,45 mm (7.380 in)

— inner parallelogram:

height 82,47 mm (3.247 in)

base length 187,20 mm (7.370 in)

angles comprised between $90^{\circ} + 5'$ et $90^{\circ} - 5'$ (equivalent to 0,12 mm (0.004 7 in) projection of short side onto long side).

1) At present at the stage of draft.

Dimensions in millimetres
(inch values in parentheses)

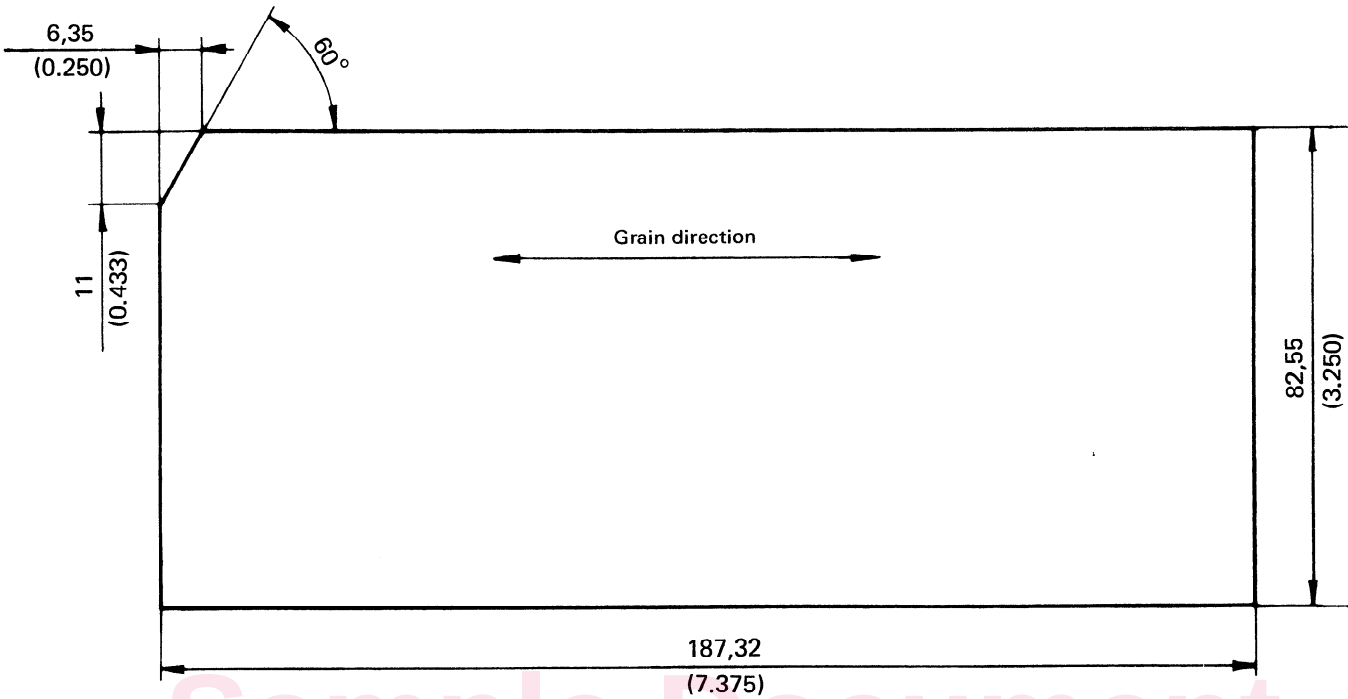


FIGURE 1 – Nominal dimensions

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Dimensions in millimetres
(inch values in parentheses)

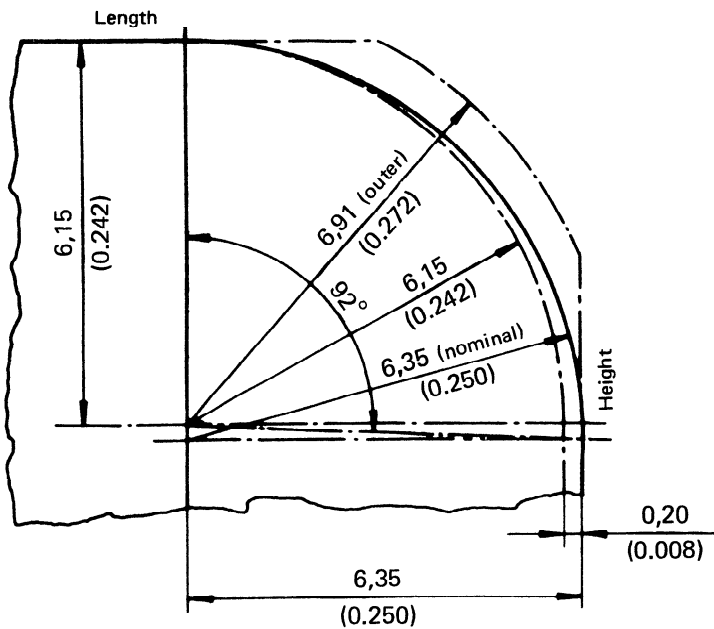


FIGURE 2 – Rounded corners

3.4 Card edge

3.4.1 Condition

All edges shall be smooth and free from burrs.

3.4.2 Straightness

All points on the edge of a card shall fall between two straight parallel lines 0,08 mm (0.003 in) apart.

3.4.3 Parallelism

The distance by which the linearized edges depart from true parallelism to each other shall not exceed 0,08 mm (0.003 in).

For the purpose of this measurement the linearized edge is defined as the outer of the two closest, straight parallel lines which wholly contain all points of the edge of the card.

3.4.4 Squareness

The distance by which the linearized right-hand edge and the linearized left-hand edge depart from parallelism with a line perpendicular to the linearized top edge shall not exceed 0,12 mm (0.004 7 in) total.

Linearized edges are defined as in 3.4.3.

3.5 Measuring requirements

For the purpose of measuring a card and locating the edge of a card, a point on the edge of the card shall be the centre of a line 10 mm (0.375 in) in length on a flat, contacting, metal surface at least 10 mm (0.375 in) long which is being pressed against the edge of the card with a force of approximately 50 mN per millimetre of its length in contact with the card¹⁾.

NOTE — The method of measuring physical dimensions is not specified in this International Standard. However, any measurement of physical dimensions shall be made by using the appropriate apparatus that can measure adequately the physical dimensions within the specified tolerances.

3.6 Corners

3.6.1 Diagonal corner cut

3.6.1.1 DIMENSIONS

The corner cut shall remove $6,35 \pm 0,4$ mm (0.250 ± 0.016 in) from the long edge and $11 \pm 0,4$ mm (0.433 ± 0.016 in) from the short edge of the card (at a reference angle of 60° to the long edge of the card). (See also annex B.)

3.6.1.2 LOCATION

3.6.1.2.1 Preferred location

The preferred location for the cut shall be at the upper left corner (see 3.4.4 and figure 1).

3.6.1.2.2 Alternative location

An alternative location for the cut shall be at the upper right corner.

3.6.2 Other corners

3.6.2.1 PREFERRED CORNERS

All corners, except the diagonally cut corner, shall be square (see 3.4.4 and figure 1).

3.6.2.2 ALTERNATIVE CORNERS

An alternative corner, for all corners except the diagonally cut corner, shall be rounded to a nominal radius of 6,35 mm (0.250 in) (see figure 2).

The edge of the rounded corner shall fall between two concentric arcs. The centre of the arcs is located 6,15 mm (0.242 in) from the long edge and 6,35 mm (0.250 in) from the short edge of the card.

The inner arc is 92° and has a radius of 6,15 mm (0.242 in); the outer arc has a radius of 6,91 mm (0.272 in) (see figure 2). The edge is also bounded by the line parallel to the top linearized edge and passing through the lower end of the 92° arc.

3.7 Curl

3.7.1 Requirements

The maximum curl of cards, when at equilibrium with any relative humidity between 20 and 75 %, shall not exceed the following values when tested according to 3.7.2 :

- axis of curl parallel to the grain of the paper : 3,04 mm (0.12 in)
- axis of curl at right angles to the grain of the paper : 6,35 mm (0.25 in)
- axis of curl diagonal to the grain of the paper : 6,35 mm (0.25 in)

3.7.2 Measuring procedure

This test is performed at 20 ± 2 % relative humidity and 75 ± 2 % relative humidity. In each case, the temperature is maintained at $23 \pm 2^\circ\text{C}$ ($73 \pm 3.5^\circ\text{F}$).

A deck of 10 cards is laid on a smooth, horizontal surface with the wire side of the paper up.

A similar deck is laid on a smooth, horizontal surface with the felt side of the paper up.

After 24 h, the cards are examined and, if necessary, the deck is turned so that the concave side of the deck is up. A straightedge, having a mass of $2,5 \pm 0,1$ g, is placed across

1) In common practice, this value is equivalent to 5 gf/mm.