INTERNATIONAL STANDARD

ISO 4090

Second edition
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Photography — Film dimensions — Medical radiography

Photographie — Dimensions des films — Radiographie médicale

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 4090 was prepared by Technical Committee ISO/TC 42, *Photography*.

This second edition cancels and replaces the first edition (ISO 4090:1982), which has been technically revised.

Annexes A and B of this International Standard are for information only.

International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

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Photography — Film dimensions — Medical radiography

1 Scope

This International Standard specifies the nominal sizes and aim dimensions, with their cutting tolerances, of photographic films in sheets and rolls, used for medical radiography by direct exposure or with intensifying screens.

It also specifies the requirements for shape of sheets, core dimensions for films in rolls, and package marking.

It does not apply to films for photofluorography and similar uses, nor does it apply to periapical and occlusal X-ray films, nor to films for digital radiography.

In this International Standard, metric units are prime.

2 Normative references

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

ISO 1:1975, *Standard reference temperature for industrial length measurements.*

ISO 554:1976, *Standard atmospheres for conditioning and/or testing — Specifications.*

3 Conditions for measurement of dimensions

The dimensions and tolerances specified in this International Standard apply at the time of manufacture, measured under atmospheric conditions of (23 ± 2) °C, and (50 ± 5) % relative humidity, as specified in ISO 554[1] (see annex A).

4 Films in sheets

4.1 Dimensions

4.1.1 Preferred sizes

Nominal and aim dimensions for preferred sizes shall conform to the values given in table 1.

Table 1 — Preferred sizes of films in sheets

Nominal cm	Aim mm
13 × 18	128 × 178
18 × 24	178 × 238
20 × 40	198 × 398
24 × 30	238 × 298
30 × 40	298 × 398
35 × 35 [1]	354 × 354
35 × 43 [1]	354 × 430

1) These nominal sizes are the rounded values commonly used for 35,6 cm and 43,2 cm, formerly 14 in and 17 in, respectively.

1) All measuring instrument calibrations shall be referred to a temperature of 20 °C (as specified in ISO 1) and a relative humidity of 50 %.

4.1.2 Recognized sizes

Nominal and aim dimensions for temporarily recognized sizes shall conform to the values given in table 2.

Table 2 — Recognized sizes of films in sheets

Nominal		Aim	
cm	in	mm	in
15 × 30		148,0 × 298,0	
20,3 × 25,4 [1]	8 × 10	201,6 × 252,8	7,94 × 9,95
24 × 24		238,0 × 238,0	
25,4 × 30,5 [1]	10 × 12	252,8 × 303,2	9,95 × 11,94
27,9 × 35,6 [1]	11 × 14	278,6 × 354,8	10,97 × 13,97
30 × 35 [2]		298,0 × 354,0	
30 × 90 [3]		298,0 × 897,5	
30 × 120 [3]		298,0 × 1 197,5	
30,5 × 38,1 [1]	12 × 15	303,2 × 379,4	11,94 × 14,94
40 × 40		398,0 × 398,0	

1) This size was originated in inches, see 4.1.3.

2) The 35 cm nominal size is the rounded value commonly used for 35,6 cm, formerly 14 in.

3) This size may be formed from three smaller sheets which are taped together. The resultant sheet may be folded at the splices to facilitate shipping.

Equipment manufacturers are encouraged, however, to design future equipment to accept only the preferred sizes listed in table 1.

4.1.3 Cutting and tolerance rules

The cutting and tolerance rules for current sizes of sheets shown in tables 1 and 2, and for new metric sizes, shall be as follows:

— For the current metric sizes shown in tables 1 and 2 and for new metric sizes, the cutting and tolerance rules are given in table 3.

— For inch sizes, there is no cutting rule and the tolerances on the cutting dimensions shown in table 2 are ± 0,8 mm (± 0,03 in).

Table 3 — Cutting and tolerance rules for metric sizes of films in sheets

Nominal (N) cm	Aim mm	Tolerance mm
$N \leqslant 12$	$N - 1,5$	± 0,5
$12 < N \leqslant 65$	$N - 2,0$	± 1,0
$65 < N$	$N - 2,5$	± 1,5

4.2 Squareness and edge straightness

Squareness, edge straightness, shape and compliance with specified dimensions shall be checked at the same time by comparison of any given sheet with two perfect rectangles, independently located, one made to the minimum dimensional tolerance specified in this International Standard and the other to the maximum tolerance. No point on the perimeter of the sheet shall fall within the smaller rectangle nor shall any point fall outside the larger rectangle.

4.3 Identification of the sensitized side

Notches may be used to distinguish the sensitized side of films coated on only one side.

When a sheet of film is held with the longer edges in a vertical orientation, the notches shall be in a shorter edge, near the upper right-hand corner or the lower left-hand corner, when the sensitized side is facing the observer.

The shape and number of notches are left to the discretion of the manufacturer. They may additionally be used as a code to identify the type of film.

Notches shall not exceed 2,5 mm in depth.

4.4 Corner rounding

If the four corners of the film are rounded, the actual edge of the corner shall be inside the hatched area shown in figure 1.

The corners shall have no steps or sharp features.

NOTE 1 Any areas removed either by notching or corner rounding are not judged to be in violation of 4.2.