

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 216

TRIMMED SIZES OF WRITING PAPER
AND CERTAIN CLASSES OF PRINTED MATTER

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 216, *Trimmed Sizes of Writing Paper and Certain Classes of Printed Matter*, was drawn up by Technical Committee ISO/TC 6, *Paper*, the Secretariat of which is held by the Association Française de Normalisation (AFNOR).

Work on this question by the Technical Committee began in 1958 and led in 1959 to the adoption of a Draft ISO Recommendation.

In November 1959, this Draft ISO Recommendation (No. 330) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Austria	India	Sweden
Belgium	Israel	Switzerland
Burma	Japan	Turkey
Chile	New Zealand	United Kingdom
Czechoslovakia	Norway	U.S.S.R.
Denmark	Poland	Yugoslavia
Germany	Portugal	
Greece	<u>Romania</u>	

Two Member Bodies opposed the approval of the Draft:

France Ireland

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in November 1961, to accept it as an ISO RECOMMENDATION.

FOREWORD

In many countries, far more sizes of paper are used than are really necessary. Many of them came into existence under conditions different from those prevailing today, while the origin of others was due to chance. Consequently they do not fulfil the present need for consistency between the sizes of paper and printed matter for various purposes, nor do they meet the many requirements for a coherent relationship between the sizes of paper, printed or not, papermaking, printing and converting machinery and equipment, and storage and filing equipment.

The purpose of this ISO Recommendation is to improve the present position by providing a rationally designed *ISO System* of trimmed sizes which can bring about a reduction in the number of sizes and create more rational, clear and consistent ranges. This will simplify and cheapen ordering, production, use, dispatch and storage and will also provide a sound basis for standardization in related fields.

One of the considerations leading to the present ISO Recommendation was the fact that the standards bodies in the following countries had already adopted this system of sizes in their national standards, and others were known to be using the sizes:

Date of adoption	Countries	Standard No.
1922	Germany	DIN 476
1924	Belgium	NBN 18
1925	Netherlands	NEN 381
1926	Norway	NS 20
1927	Finland	SFS P.I. 1
1929	Switzerland	SNV 10120
1934	U.S.S.R.	GOST 9327
1938	Hungary	MOSz 16
1939	Italy	UNI 923-924
1941	Sweden	SIS 73 01 01
1943	Argentina	IRAM 3001-N.P.
1943	Brazil	—
1947	Spain	UNE 1011
1948	Austria	A 1001
1949	Romania	STAS 570-52
1951	Japan	JIS P 0138
1953	Denmark	DS 910
1953	Czechoslovakia	ČSN 01 0402
1954	Israel	S.I. 117
1954	Portugal	NP-4 and NP-17
1957	India	IS:1064
1957	Poland	PN-55/P-02001
1959	United Kingdom	B.S. 3176

The Universal Postal Union has specified certain of these sizes.

TRIMMED SIZES OF WRITING PAPER AND CERTAIN CLASSES OF PRINTED MATTER

1. SCOPE

This ISO Recommendation applies to trimmed sizes of paper for administrative, commercial and technical use, and also to certain classes of printed matter, such as forms, catalogues, etc.

It does not necessarily apply to

newspapers,
published books,
posters,
other special items which may be the subject of separate ISO Recommendations.

2. UNDERLYING PRINCIPLES

2.1 Basic principles (regularly derived sizes)

The system of paper sizes is built on the following basis: each normal series (regularly derived sizes) consists of a range of sizes formed in such a manner that each size is achieved by dividing the size immediately above it into two equal parts, the division being parallel to the shorter side (the halving principle). Consequently the areas of two successive sizes are in the ratio 2 : 1 (see Fig. 1).

All the sizes in each series are geometrically similar to one another (the principle of similarity) (see Fig. 2). This requirement, combined with that explained in the preceding paragraph, gives the following equation for the sides x and y of a given size:

$$(1) \quad y : x = \sqrt{2} : 1 = 1.414 \quad (\text{see Fig. 3})$$

In other words, the ratio between the sides x and y is equal to the ratio between the side and the diagonal of a square.

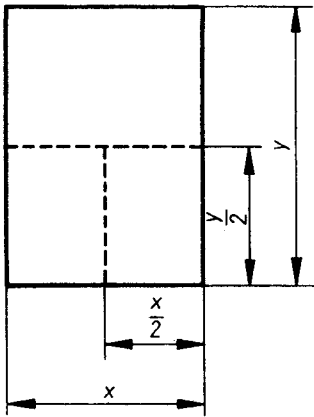


FIG. 1

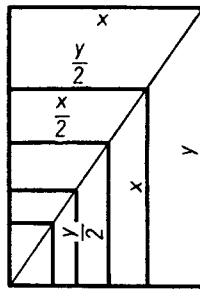


FIG. 2

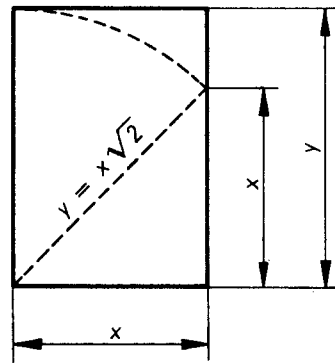


FIG. 3

2.2 System of measurement

These sizes are based on the metric system of measurement.

2.3 Main series (ISO-A Series)

The basic size of the A Series (A0) has an area of 1 m², the following equation therefore applies:

$$(2) \quad x \times y = 1 \text{ m}^2$$

The equations (1) and (2) give the following lengths of the sides for the basic size of the A Series:

$$\begin{aligned} x &= 0.841 \text{ m} \\ y &= 1.189 \text{ m} \end{aligned}$$

The main series of sizes is arrived at by taking the basic size described above and applying the principles explained in clause 2.1. This series is designated: ISO-A Series.

2.4 Subsidiary series (ISO-B Series)

A subsidiary series of sizes is obtained by placing the geometrical mean between adjacent sizes of the A Series in sequence; this series is designated: ISO-B Series.

2.5 Long sizes (specially derived)

Long sizes are obtained by dividing any appropriate regularly derived sizes from the two series previously mentioned into 3, 4 or 8 equal parts, parallel with the shorter side, in such a manner that the ratio between the longer and the shorter side is greater than $\sqrt{2}$.

3. DESIGNATION OF TRIMMED SIZES

3.1 Each trimmed size in the main and the subsidiary series is designated by a letter followed by a number.

The letter (A or B) indicates the series of sizes, and the number indicates the number of divisions that have been made (according to the rules of clause 2.1) starting from the basic size, which has been given the number 0.

For example, size A4 corresponds to size A0 divided four times.

3.2 Trimmed long sizes are designated by the original size preceded by the fraction into which this has been divided.

For example, $\frac{1}{4}$ A4 corresponds to the size A4 (210 mm \times 297 mm), divided into four equal parts, parallel to the 210 mm side.

4. TRIMMED SIZES

4.1 Main series of trimmed sizes (ISO-A Series)

The trimmed sizes of the A Series are intended for all kinds of stationery and printed matter as specified in clause 1. These sizes are as follows: *

Designation	millimetres	inches	Designation	millimetres	inches
A0	841 \times 1 189	33.11 \times 46.81	A5	148 \times 210	5.83 \times 8.27
A1	594 \times 841	23.39 \times 33.11	A6	105 \times 148	4.13 \times 5.83
A2	420 \times 594	16.54 \times 23.39	A7	74 \times 105	2.91 \times 4.13
A3	297 \times 420	11.69 \times 16.54	A8	52 \times 74	2.05 \times 2.91
A4	210 \times 297	8.27 \times 11.69	A9	37 \times 52	1.46 \times 2.05
			A10	26 \times 37	1.02 \times 1.46

* The rarely used sizes which follow also belong to the series:

4A0: 1 682 mm \times 2 378 mm 66.22 in \times 93.62 in
 2A0: 1 189 mm \times 1 682 mm 46.81 in \times 66.22 in

4.2 Subsidiary series of trimmed sizes (ISO-B Series)

The trimmed sizes of the B Series are intended for use only in exceptional circumstances, when sizes are needed intermediate between any two adjacent sizes of the A Series.

These sizes are as follows:

Designation	millimetres	inches	Designation	millimetres	inches
B0	1 000 \times 1 414	39.37 \times 55.57	B5	176 \times 250	6.93 \times 9.84
B1	707 \times 1 000	27.83 \times 39.37	B6	125 \times 176	4.92 \times 6.93
B2	500 \times 707	19.69 \times 27.83	B7	88 \times 125	3.46 \times 4.92
B3	353 \times 500	13.90 \times 19.69	B8	62 \times 88	2.44 \times 3.46
B4	250 \times 353	9.84 \times 13.90	B9	44 \times 62	1.73 \times 2.44
			B10	31 \times 44	1.22 \times 1.73

4.3 ISO trimmed long sizes

So far as possible, trimmed long sizes should be produced from the regularly derived sizes of the A Series (see Fig. 4 and table below).

They are used for labels, tickets and certain other purposes.

Examples:

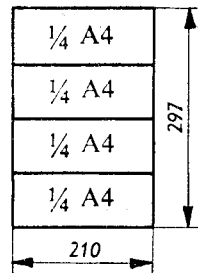


FIG. 4

Designation	millimetres	inches
$\frac{1}{3}$ A4	99 × 210	3.70 × 8.27
$\frac{1}{4}$ A4	74 × 210	2.91 × 8.27
$\frac{1}{8}$ A7	13 × 74	0.51 × 2.91

5. TOLERANCES

5.1 Unless closer tolerances are specified at the time of ordering, the permissible tolerances on the above dimensions should be as follows:

(a) for dimensions up to and including 150 mm:

upper deviation +1.5 mm
lower deviation -1.5 mm

(b) for dimensions greater than 150 mm and up to and including 600 mm:

upper deviation +2 mm
lower deviation -2 mm

(c) for dimensions greater than 600 mm:

upper deviation +3 mm
lower deviation -3 mm

5.2 The dimensions should be measured under standard testing conditions, as specified in ISO Recommendation R 187, *Method for the Conditioning of Paper and Board Test Samples*.