
International Standard



5223

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Test sieves for cereals

Tamis de contrôle pour céréales

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Descriptors : agricultural products, grains (food), sieve analysis.

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (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 authorized 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 5223 was developed by Technical Committee ISO/TC 34, *Agricultural food products*.

This second edition was submitted directly to the ISO Council, in accordance with clause 6.11.2 of part 1 of the Directives for the technical work of ISO. It cancels and replaces the first edition (i.e. ISO 5223-1981), which had been approved by the member bodies of the following countries :

Austria	Hungary	Romania
Brazil	India	South Africa, Rep. of
Bulgaria	Israel	Spain
Canada	Kenya	Thailand
Cyprus	Korea, Rep. of	Turkey
Czechoslovakia	Netherlands	United Kingdom
Egypt, Arab Rep. of	New Zealand	USSR
Ethiopia	Peru	Yugoslavia
France	Poland	

The member body of the following country had expressed disapproval of the document on technical grounds :

Australia

Test sieves for cereals

0 Introduction

The commercial value of a lot of cereals is affected by the presence of undesirable substances. The amount of these substances in a sample is measured by carrying out various separating processes, of which the principal one is test sieving.

The test sieving procedure is carried out in conditions determined by commercial practice, contracts or official regulations, with little accuracy. Consequently, more often than not, the only dimensions given for test sieves are the diameter or the width of the apertures in the perforated plate. The other features of test sieves are not normally specified, despite their effect on the results.

Therefore, this International Standard describes those test sieves most frequently used in commerce, that is :

- a) test sieves with long rounded apertures of widths 1,00 and 3,55 mm, used for separating substances whose smallest dimensions differ greatly from those of the cereal under consideration;
- b) test sieves with long rounded apertures of widths 1,70 – 1,80 – 1,90 – 2,00 and 2,24 mm, used in particular for separating "shrivelled" kernels from rye, durum wheat, common wheat and barley;
- c) test sieves with round apertures of diameter 4,50 mm, used for separating broken grains from maize.

1 Scope and field of application

This International Standard specifies requirements for test sieves to be used for the laboratory determination of undesirable substances present in a sample of cereals and which pass through test sieves of the following nominal aperture sizes :

a) test sieves with long rounded apertures :

- 1,00 mm × 20,0 mm,
- 1,70 mm × 20,0 mm,
- 1,80 mm × 20,0 mm,
- 1,90 mm × 20,0 mm,
- 2,00 mm × 20,0 mm,
- 2,24 mm × 20,0 mm,
- 3,55 mm × 20,0 mm;

b) test sieves with round apertures :

diameter 4,50 mm.

This International Standard does not apply to test sieves used for testing grain for insect infestation.

2 References

- ISO 683/13, *Heat-treated steels, alloy steels and free-cutting steels — Part 13 : Wrought stainless steels.*
- ISO 2395, *Test sieves and test sieving — Vocabulary.*
- ISO 2591, *Test sieving.*
- ISO 3310/2, *Test sieves — Technical requirements and testing — Part 2 : Test sieves of metal perforated plate.*

3 Definitions

For the purpose of this International Standard, the definitions given in ISO 2395, and in particular the following, apply.

3.1 sieve : An apparatus for the purpose of sieving, consisting of a sieving medium mounted in a frame.

3.2 test sieve : A sieve, intended for the particle size analysis of the material to be sieved, which conforms to a test sieve standard specification.

4 Apparatus¹⁾

A cover and a receiver shall be used.

In the case of test sieves with long rounded apertures, test sieving is carried out using one or more test sieves. In the latter case, the test sieves shall have different nominal aperture sizes and shall constitute a regular or irregular set of test sieves.

All parts shall be made of metal.

4.1 Sieving medium

The sieving medium shall consist of a perforated plate of stainless steel, for example austenitic steel grade No. 12 (see ISO 683/13), made integral with the frame by welding or by other methods such that it cannot become detached from the frame.

Holes in perforated plates shall be cleanly formed. The plates shall be mounted punch side uppermost.

4.1.1 Test sieves with long rounded apertures

The characteristics of seven test sieves are given in the table.

The apertures shall be arranged in lines as shown in figure 1.

4.1.2 Test sieves with round apertures

Unless otherwise specified in this International Standard, test sieves with round apertures shall comply with the requirements of ISO 3310/2 and, in particular, shall have the following characteristics :

- nominal diameter of apertures (w) : 4,50 mm;
- aperture tolerance : 0,14 mm;
- pitch (centres) (a) : 6,3 mm nominal, 6,6 mm maximum, 5,9 mm minimum.

The apertures shall be arranged in staggered rows as shown in figure 2.

4.2 Frame

4.2.1 Shape and size

The test sieves shall be round.

Test sieves with long rounded apertures shall have an internal diameter of $200 \pm 0,5$ mm.

Test sieves with round apertures shall have an internal diameter of $300 \pm 0,5$ mm.

The depth of the frame, i.e. the distance between two successive sieving media or between the sieving medium and the lid or the base of the receiver, shall be between 40 and 55 mm.

4.2.2 Construction of the test sieve frame, lid and receiver

The frame of each test sieve shall permit a smooth connection with other frames, the lid and receiver of the same type, without being too loose and without requiring force. The surface shall be smooth.

A flange positioned directly above the sieving medium shall prevent grains or impurities being deposited between the sieving medium and the frame itself.

4.2.3 Marking of the frame

An identification label attached to the sieve shall give the following details :

- a) the nominal aperture size;
- b) the reference of this International Standard;
- c) the name of the firm (manufacturer or supplier) responsible for the sieve.

If the sieve has been tested by an official testing body, a mark (label or stamp), which shall give at least the name or initials of the testing body, shall be placed on the frame.

1) This clause corresponds essentially to sub-clause 3.1 of ISO 2591. It differs from the latter, for practical reasons, in the specification for the depth of the frame (4.2.1).

Table – Characteristics of seven test sieves with long rounded apertures and linear perforations

Dimensions in millimetres

Dimensions of apertures				Bridge width ¹⁾				Plate thickness
Width	Width tolerance, ±	Length	Length tolerance, ±	<i>b</i>	Tolerance, ±	<i>B</i>	Tolerance, ±	
1,00	0,03	20,0	0,2	2,0	0,10	5,0	0,8	0,8
1,70	0,04	20,0	0,2	2,3	0,12	5,0	0,8	0,8
1,80	0,04	20,0	0,2	2,4	0,12	5,0	0,8	0,8
1,90	0,04	20,0	0,2	2,4	0,12	5,0	0,8	0,8
2,00	0,04	20,0	0,2	2,5	0,13	5,0	0,8	0,8
2,24	0,05	20,0	0,2	2,6	0,13	5,0	0,8	0,8
3,55	0,06	20,0	0,2	3,3	0,17	5,0	0,8	0,8

1) See figure 1.



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Figure 1 – Apertures of test sieves with long rounded apertures – Linear arrangement

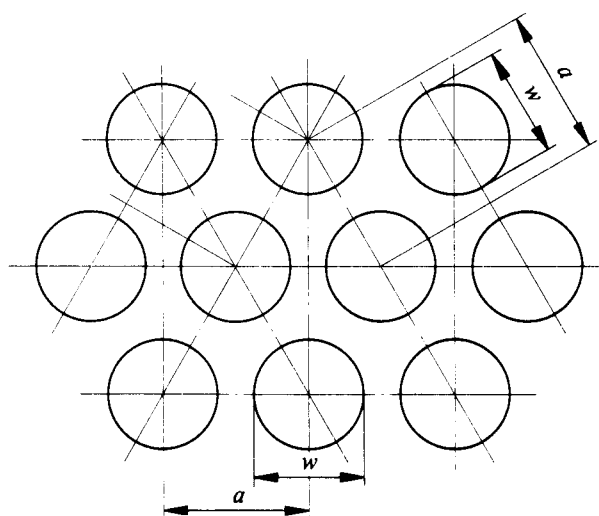


Figure 2 – Apertures of test sieves with round apertures – Staggered arrangement
(the centres of the apertures are arranged at the apices of equilateral triangles)

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