INTERNATIONAL STANDARD

ISO 3310-3

First edition
1990-07-15

Test sieves — Technical requirements and testing —

Part 3:
Test sieves of electroformed sheets

Tamis de contrôle — Exigences techniques et vérifications —
Partie 3: Tamis de contrôle en feuilles électroformées

Reference number
ISO 3310-3:1990(E)

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 3310-3 was prepared by Technical Committee ISO/TC 24, *Sieves, sieving and other sizing methods*.

ISO 3310 consists of the following parts, under the general title *Test sieves — Technical requirements and testing* :

— *Part 1: Test sieves of metal wire cloth*

— *Part 2: Test sieves of perforated metal plate*

— *Part 3: Test sieves of electroformed sheets*

Annex A of this part of ISO 3310 is for information only.

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

Printed in Switzerland

Introduction

Since the accuracy of test sieving depends on the dimensional accuracy of the test sieve openings, the consistency of size within very close tolerances that can be achieved for the openings of electroformed sheet makes them attractive for test sieving of very fine particulate material.

Test sieves of electroformed sheet must be handled with particular care as the very fine apertures are invisible to the unaided eye. Notes on cleaning these sieves before and after use are given in annex A.

This page intentionally left blank

Test sieves — Technical requirements and testing —

Part 3:
Test sieves of electroformed sheets

1 Scope

This part of ISO 3310 specifies the technical requirements and corresponding test methods for test sieves in which the sieving medium is a metal sheet with electrochemically formed apertures.

It applies to test sieves having round (circular) or square apertures ranging in size from 500 µm to 5 µm, in accordance with ISO 565.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 3310. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this part of ISO 3310 are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 565:1990, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings.*

3 Designation

Test sieves of electroformed sheet shall be designated by the shape of the apertures (round or square), the nominal size of apertures in micrometres (µm) and the description "electroformed".

4 Electroformed sheet

4.1 General requirements

Electroformed sheet in test sieves shall be free from any irregularities such as production defects, creases, wrinkles or foreign matter in the sheet.

4.2 Arrangement of apertures

Round apertures shall be arranged with their centres at the apices of equilateral triangles (see figure 1); square apertures shall be arranged in line, with their mid-points at the vertices of squares (see figure 2).

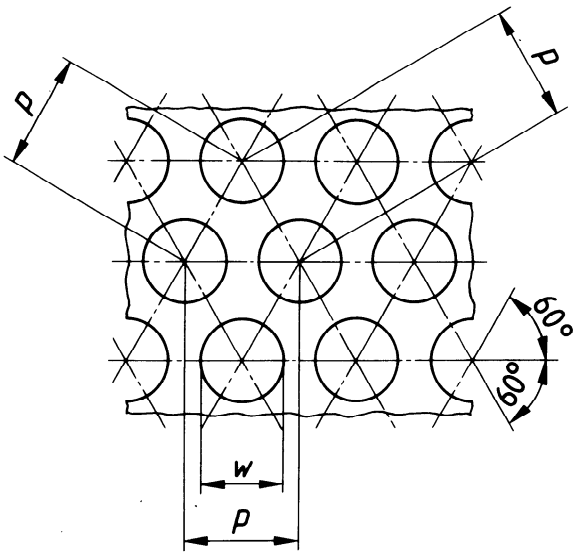

Figure 1 — Arrangement of round apertures

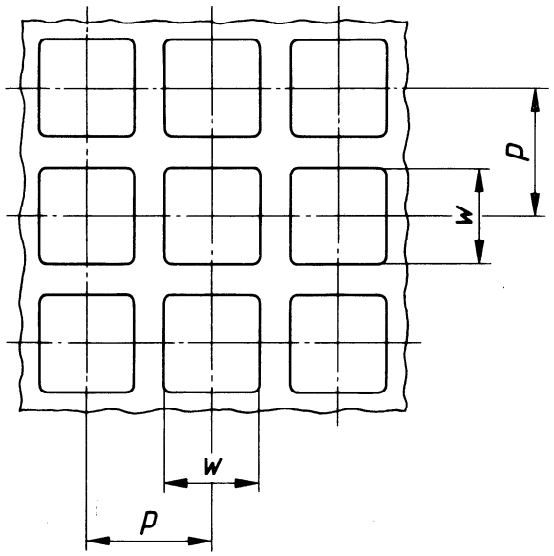

Figure 2 — Arrangement of square apertures

4.3 Dimensions

The nominal aperture sizes, preferred nominal pitches and preferred sheet thicknesses of electroformed sheet shall be as specified in table 1.

4.3.1 Tolerance on aperture size *w*

The average tolerance of all measured aperture sizes shall not exceed ±2 µm. This tolerance applies to the widths of the mid-sections of square apertures and to the diameter of round apertures, measured on the sieving side (i.e. it applies to the smallest aperture dimension; see figure 5).

4.3.2 Pitch *p*

The pitch sizes given in table 1, column 4, apply to either round or square apertures and shall be used by preference. Other pitches used shall be within the limits given in table 1, columns 5 and 6.

4.3.3 Sheet thickness *e*

The preferred sheet thicknesses given in table 1, column 7, apply to electroformed sheet with either round or square apertures, measured without sheet reinforcement, if any.

4.4 Test methods

Test 1 — General examination

View the sieving medium against a uniformly illuminated background. During this procedure turn the sieve slowly around an axis parallel to the aperture rows; this permits detection of unequal apertures.

If irregularities of aperture size are seen, the sieve is unacceptable.

Test 2 — Measurement of aperture size

Sieves which have passed test 1 shall be submitted to an examination of aperture size.

Check the apertures in nine measurement fields as shown in figure 3. In each field measure at least five apertures. Each aperture inspected shall comply with the tolerance stated in 4.3.1.

For the examination of aperture sizes above 32 µm a microscope fitted with a ×20 objective and a filar micrometer eyepiece of 10 to 12,5 power should be used. The apparatus shall be capable of making measurements to an accuracy of ±0,5 µm. The magnification of the apparatus shall be verified against a calibrated stage micrometer certified to ±0,5 µm for the 0,01 µm scale divisions and having not more than ±0,5 µm accumulated error for the complete scale.

For the examination of aperture sizes of 32 µm and below the apparatus described above is not suitable. Measurement methods for this range of aperture sizes are under study.

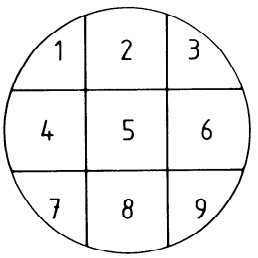

Figure 3 — Measurement fields for testing aperture size