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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Industrial plate screens —

Part 2 : Thickness below 3 mm

Tôles perforées pour tamisage industriel —

Partie 2 : Épaisseur inférieure à 3 mm

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Reference number
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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.

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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 7805-2 was prepared by Technical Committee ISO/TC 24, *Sieves, sieving and other sizing methods*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Industrial plate screens —

Part 2 : Thickness below 3 mm

0 Introduction

The purpose of ISO 7805 is to provide guidance for the development of national standards for industrial plate screens.

As both parts of ISO 7805 provide a diversity of choice, it is unlikely that every one of the many possible combinations of size of hole, pitch and plate thickness will be manufactured. The selection for national standards for industrial plate screens should be made from those combinations which suit the products and screening methods in the country concerned.

1 Scope and field of application

This part of ISO 7805 describes three patterns using round (circular) and square perforations in plate of less than 3 mm thickness; the sizes of holes range down to 2 mm for square holes and to 0,5 mm for round holes. Five ratios of pitch to hole are specified which result in nominal open areas ranging from about 60 % to 23 %. Tolerances for both hole and pitch are given.

NOTE — Industrial plate screens of thicknesses of 3 mm and above are dealt with in ISO 7805-1, *Industrial plate screens — Part 1 : Thickness of 3 mm and above*.

2 References

ISO 3, *Preferred numbers — Series of preferred numbers*.

ISO 2194, *Wire screens and plate screens for industrial purposes — Nominal sizes of apertures*.

ISO 2395, *Test sieves and test sieving — Vocabulary*.

ISO 7806, *Industrial plate screens — Codification for designating perforations*.

3 Definitions

For the purposes of this part of ISO 7805, the definitions given in ISO 2395 and the following definition apply.

open area : Ratio of the total area occupied by the holes to the overall area of the perforated part of the plate.

4 Material and design

4.1 Material

The material of perforated plates less than 3 mm thick shall be agreed by manufacturer and purchaser.

4.2 Design

4.2.1 Arrangement of holes

Three permissible arrangements of holes are illustrated in figures 1 to 3 : figure 1 for round holes in a 60° staggered arrangement (T-arrangement), and figures 2 and 3 for square holes in line (U-arrangement) or at half-pitch stagger (Z-arrangement).

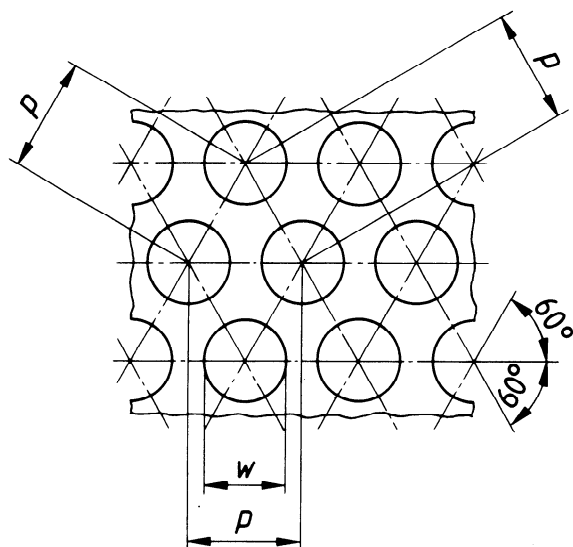


Figure 1 — Round holes : 60° staggered arrangement (T-arrangement) [Open area $\approx 0.9(w/p)^2$]

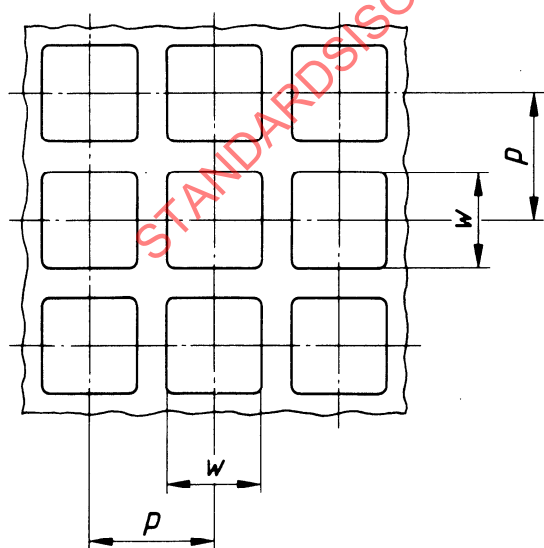


Figure 2 — Square holes : in-line arrangement (U-arrangement) [Open area $= (w/p)^2$]

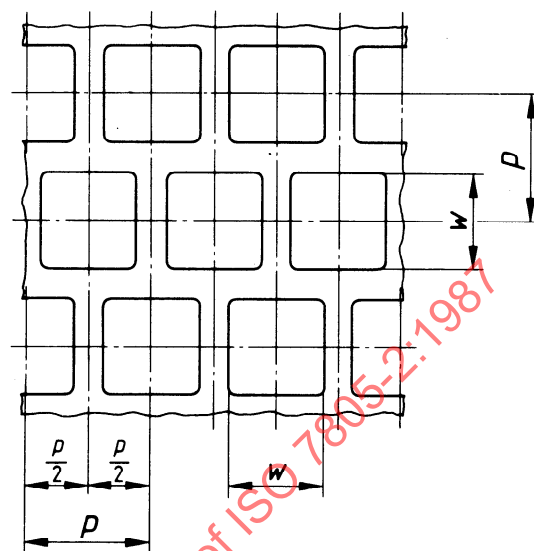


Figure 3 — Square holes : half-pitch staggered arrangement (Z-arrangement) [Open area $= (w/p)^2$]

4.2.2 Size of holes, w

The nominal sizes of round or square holes in industrial plate screens are tabulated in ISO 2194.

First choice shall be made from the R 10 series of preferred numbers (see ISO 3) and the second choice from the R 20 series; if necessary, sizes may be chosen from the R 40 series.

NOTE — The R 10 series of sizes is shown, by way of example, in tables 2 and 3 in the annex.

4.2.3 Pitch, p

Values for pitch shall be calculated from the five options of pitch/hole ratio given in table 1 in which the approximate open area is also given, as a percentage, for round and square hole perforations based on these ratios.

The calculated values shall be rounded to the nearest R 40 number in accordance with ISO 3.

Table 1 — Pitch/hole ratios and related open areas

Pitch/hole ratio p/w	Approximate open area	
	Round holes %	Square holes %
1,25	58	64
1,4	46	51
1,6	35	39
1,8	28	31
2	23	25

NOTE — Examples in tables 2 and 3 in the annex include pitch selections.

4.2.4 Plate thickness

Plate thickness before perforation shall be agreed by purchaser and supplier. A chosen thickness shall be less than the size of holes and also less than the bridge width (bar).

5 Tolerances

The tolerances given in 5.1 to 5.3 apply to unused plate screens.

5.1 Tolerance on average size of hole, Δw

The average measured size of hole shall not deviate from the nominal size, w , by more than the value Δw given by equation (1) or (2), where w and Δw are given in millimetres :

- a) For sizes of holes above 6,3 mm :

$$\Delta w = \pm \frac{w(4,5 - \lg w)}{100} \quad \dots (1)$$

- b) For sizes of holes of 6,3 mm and below :

$$\Delta w = \pm \frac{w(14 - 12,5 \lg w)}{100} \quad \dots (2)$$

with a minimum value of 0,1 mm.

NOTE — Examples of Δw rounded to the nearest 0,05 mm are shown in tables 2 and 3 in the annex.

5.2 Tolerance on individual size of hole

The measured value of any individual size of hole shall not deviate from the nominal size, w , by more than $2\Delta w$.

5.3 Tolerance on average pitch, Δp

The average measured pitch shall not deviate from the nominal pitch, p , by more than the value Δp given by equation (3) or (4), where p and Δp are given in millimetres :

- a) For pitches of 6,3 mm and above :

$$\Delta p = \pm \frac{p(4 - \lg p)}{100} \quad \dots (3)$$

- b) For pitches below 6,3 mm :

$$\Delta p = \pm \frac{5p}{100} \quad \dots (4)$$

NOTE — Examples of tolerance on average pitch are shown in table 4 in the annex.

5.4 Tolerance on individual pitch

The measured width of any bridge (bar) shall be not less than 0,5 times the nominal size of hole.

6 Testing

6.1 General

A survey of the screen to be tested shall be made to note positions, if any, where there appear to be variations in hole size and/or bridge widths. At the same time, irregular holes, broken bars and deformed plate can be detected.

The measurements described in 6.2 and 6.3 shall be made on the punch side of the plate at positions noted in the general survey. Additional sample measurements shall be made.

6.2 Size of holes

The size of holes shall be tested with a limit plain plug gauge. The average size should be determined by measuring consecutive holes, preferably 20, if available.

6.3 Pitch

The average pitch shall be measured, preferably over at least 20 pitches, e.g. by using a transparent rule marked with 20 consecutive nominal pitches. Individual pitch shall be measured at positions described in 6.1.

7 Designation and ordering

Industrial plate screens shall be designated by

- shape of holes;
- size of holes;
- arrangement and orientation of holes;
- pitch of holes.

The above items of designation shall be described by use of the code specified in ISO 7806.

In addition to the designation, the purchaser's choice of plate thickness, shape and size of plate, and the required material shall be clearly stated when an industrial plate screen is ordered.

Annex

Examples

(This annex forms an integral part of the standard.)

Examples which list sizes of holes in the R 10 series and include hole/pitch combinations which have been manufactured or suggested are given in tables 2 and 3. The criteria for selection made for national standards is described in clause 0.

Table 2 — Examples of round hole perforations

Dimensions in millimetres

Nominal size w	Hole Tolerance on average size Δw	Nominal pitch, p , for an approximate open area of				
		58 %	46 %	35 %	28 %	23 %
10	$\pm 0,35$	12,5	14	16	18	—
8	$\pm 0,3$	10	11,2	12,5	14	16
6,3	$\pm 0,25$	8	9	10	11,2	12,5
5	$\pm 0,25$	6,3	7,1	8	9	10
4	$\pm 0,25$	5	5,6	6,3	7,1	8
3,15	$\pm 0,25$	4	4,5	5	5,6	6,3
2,5	$\pm 0,25$	—	3,55	4	4,5	5
2	$\pm 0,2$	—	—	3,15	3,55	4
1,6	$\pm 0,2$	—	—	2,5	2,8	3,15
1,25	$\pm 0,15$	—	—	2	2,24	2,5
1	$\pm 0,15$	—	—	1,6	1,8	2
0,8	$\pm 0,1$	—	—	1,25	1,4	1,6
0,63	$\pm 0,1$	—	—	—	—	1,25
0,5	$\pm 0,1$	—	—	—	—	1

NOTE — The tolerances Δw are rounded to the nearest 0,05 mm.

Table 3 — Examples of square hole perforations

Dimensions in millimetres

Nominal size w	Hole Tolerance on average size Δw	Nominal pitch, p , for an approximate open area of				
		64 %	51 %	39 %	31 %	25 %
10	$\pm 0,35$	12,5	14	16	18	—
8	$\pm 0,3$	10	11,2	12,5	14	—
6,3	$\pm 0,25$	8	9	10	11,2	12,5
5	$\pm 0,25$	—	7,1	8	9	10
4	$\pm 0,25$	—	—	6,3	7,1	8
3,15	$\pm 0,25$	—	—	5	—	6,3
2,5	$\pm 0,25$	—	—	4	—	5
2	$\pm 0,2$	—	—	—	—	4

NOTE — The tolerances Δw are rounded to the nearest 0,05 mm.