BRITISH STANDARD

BS 6620-1: 1991
ISO 7805-1: 1984

Industrial plate screens —

Part 1: Guide for screens of thickness 3 mm and above

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the General Mechanical Engineering Standards Policy Committee (GME/-) to Technical Committee GME/29, upon which the following bodies were represented:

BCIRA
British Aggregate Construction Materials Industries
British Ceramic Society
British Laboratory Ware Association
Cement and Concrete Association
Cement Makers' Federation
Coated Abrasives Manufacturers' Association
Department of Trade and Industry (Warren Spring Laboratory)
Department of Transport (Highways)
Guild of Metal Perforators
Incorporated National Association of British and Irish Millers
Institution of Chemical Engineers
Institution of Mining and Metallurgy
Mechanical Handling Engineers' Association
Ministry of Defence
National Coal Board
Society of Chemical Industry
Woven Wire Association

The following body was also represented in the drafting of the standard, through subcommittees and panels:

Minerals Engineering Society

This British Standard, having been prepared under the direction of the General Mechanical Engineering Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 31 January 1992

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The following BSI references relate to the work on this standard:
Committee reference GME/29
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Amendments issued since publication

Amd. No.	Date	Comments

Contents

National foreword

This Part of BS 6620 has been prepared under the direction of the General Mechanical Engineering Standards Policy Committee and is identical with ISO 7805-1:1984 "*Industrial plate screens — Part 1: Thickness of 3 mm and above*" published by the International Organization for Standardization (ISO). ISO 7805-1 was prepared by ISO/TC 24 in which the UK took an active part. BS 6620-1:1991 supersedes BS 6620:1985, which is withdrawn. The difference between the two editions is that the standard has been renumbered to align it with BS 6620-2:1991. No other change has been made.

Cross-references

International Standard	Corresponding British Standard
ISO 3:1973	BS 2045:1965 *Preferred numbers* (Technically equivalent)
ISO 7805-2:1987	BS 6620 *Guide for industrial plate screens* Part 2:1991 *Thickness below 3 mm* (Identical)
ISO 7806:1983	BS 6511:1984 *Specification for designation of perforations in industrial plate screens* (Identical)

The Technical Committee has reviewed the provisions of ISO 2194, ISO 2395, ISO 3310-2 and ISO 7805-2, to which reference is made in the text, and has decided that they are suitable for use in conjunction with this standard.

ISO 2194 and ISO 3310-2 are related to BS 410 "*Specification for test sieves*" and ISO 2194 is also related to BS 481 "*Specification for industrial wire mesh*" — Part 2 "*High tensile steel wire mesh with square apertures from 125 mm to 2 mm"*.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 6, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

0 Introduction

The purpose of this International Standard is to provide guidance for the development of national standards for industrial plate screens.

1 Scope and field of application

This part of ISO 7805 describes three patterns using round (circular) and square perforations in low carbon steel plate of 3 mm thickness and above; the sizes of holes ranging from 125 to 3,15 mm inclusive. Five ratios of pitch to hole are prescribed which result in nominal areas ranging from about 64 to 23 %. Tolerances for both hole and pitch are given.

As this part of ISO 7805 provides 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.

Industrial plate screens of thicknesses below 3 mm are dealt with in ISO 7805-2.

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 3310-2, *Test sieves — Technical requirements and testing — Part 2: Metal perforated plate.*

ISO 7805-2, *Industrial plate screens — Part 2: Thickness below 3 mm*[1)].

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

3 Definitions

For the purpose of this International Standard 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 following requirements apply to perforated plates of low-carbon steel. Plates made of other steels and non-ferrous metals may require different specifications apart from sizes of holes.

4.2 Design

4.2.1 *Arrangement of holes*

Three permissible arrangements of holes are illustrated in Figure 1 to Figure 3; Figure 1 for round holes in an equilateral triangle (60° staggered) arrangement; Figure 2 and Figure 3 for square holes in line or at half pitch stagger.

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, the second choice from the R 20 series. If necessary, choice may be made from the R 40 series.

NOTE The R 10 series of sizes is shown, by way of example, in Table 2 and Table 3.

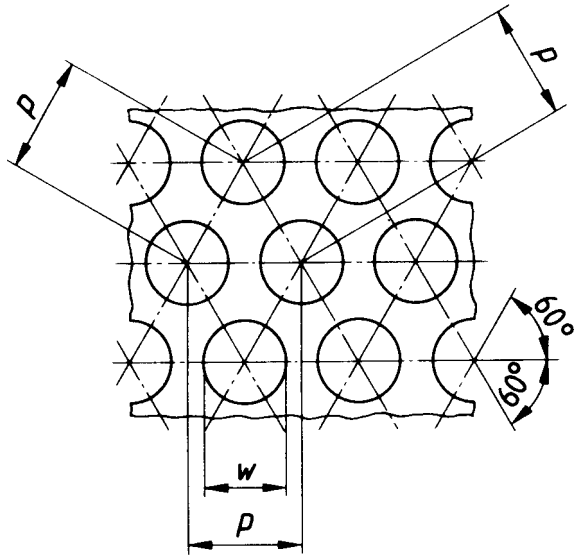

Figure 1 — Round holes: 60° staggered arrangement (i.e. at the apices of equilateral triangles) [**Open area ≈ 0,9** $(w/p)^2$]

[1)] At present at the stage of draft.

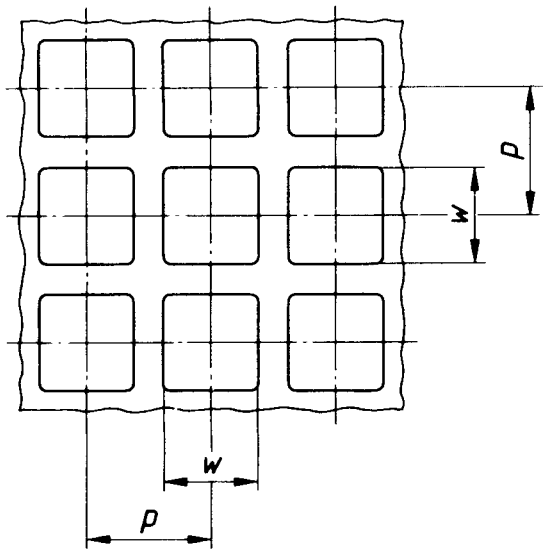

Figure 2 — Square holes: in-line arrangement [Open area = $(w/p)^2$]

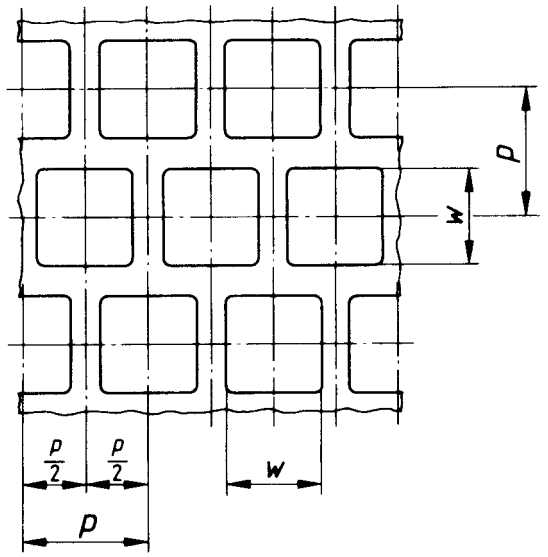

Figure 3 — Square holes: half-pitch staggered arrangement [Open area = $(w/p)^2$]

4.2.3 *Pitch* p

Values for pitch shall be calculated from the five options of pitch/hole ratio given in Table 1 which tabulates the approximate open area in percent for round and square hole perforations based on these ratios.

The calculated values shall be rounded to the nearest R 40 number according to ISO 3.

Table 1 — Pitch/hole ratios and related open areas

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

NOTE Examples in Table 2 and Table 3 include pitch selections.

4.2.4 *Plate thickness*

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

5 Tolerances

Formulae for tolerances are given in **5.1** to **5.3**; they 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 value by more than the value given by the formula

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

where Δw and w are given in millimetres.

5.2 Tolerance on average pitch Δp

The average measured pitch shall not deviate from the nominal value by more than the value given by the formula

$$\Delta p = \pm \frac{p\,(4 - \lg p)}{100}, \qquad \ldots (2)$$

where Δp and p are given in millimetres.

5.3 Tolerance on individual pitch

The measured value of any individual pitch shall not deviate from the nominal value by more than 2 Δp.

NOTE Examples are listed in Table 2 and Table 3 for tolerances on average size of hole and in Table 4 for tolerances on average pitch.

6 Testing

Measurements of size of holes and pitch in perforated plate shall be made at the punch side of the plate as described in tests 2 and 3 of ISO 3310-2.

7 Designation

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 can be described by use of the code specified in ISO 7806.

NOTE The customer's choice of plate thickness, shape and size of plate, and the required material should be clearly stated when ordering an industrial plate screen.

Annex Examples

(This annex forms part of the Standard.)

Table 2 and Table 3 are examples which list sizes of holes in the R 10 series and include hole/pitch combinations which have been manufactured or suggested. The criteria for selection made for national standards is described in clause **1**.

Table 2 — Examples of round hole perforations at 60° stagger in industrial plate screens

Values in millimetres

Hole		**Nominal pitch**[a] *p* **for an approximate open area of**				
nominal size	**tolerance on average size**					
w	Δ *w*	58 %	46 %	35 %	28 %	23 %
125	± 3	160	—	—	—	—
100	± 2,5	125	—	—	—	—
80	± 2,1	100	—	—	—	—
63	± 1,7	80	90	100	—	—
50	± 1,4	63	71	80	—	—
40	± 1,2	50	56	63	—	—
31,5	± 1	40	45	50	—	—
25	± 0,8	31,5	35,5	40	—	—
20	± 0,6	25	28	31,5	—	—
16	± 0,5	20	22,4	25	—	—
12,5	± 0,4	16	18	20	22,4	—
10	± 0,35	—	14	16	18	—
8	± 0,3	—	11,2	12,5	14	16
6,3	± 0,25	—	—	10	11,2	12,5
5	± 0,2	—	—	8	9	10
4	± 0,15	—	—	—	7,1	8
3,15	± 0,15	—	—	—	—	6,3

[a] For tolerances on pitch see Table 4.

Table 3 — Examples of square hole perforations in industrial plate screens

Values in millimetres

Hole		Nominal pitch[a] p for an approximate open area of				
nominal size	tolerance on average size					
w	Δw	64 %	51 %	39 %	31 %	25 %
125	± 3	160	—	—	—	—
100	± 2,5	125	—	—	—	—
80	± 2,1	100	—	—	—	—
63	± 1,7	80	90	100	—	—
50	± 1,4	63	71	80	—	—
40	± 1,2	50	56	63	—	—
31,5	± 1	40	45	50	—	—
25	± 0,8	31,5	35,5	40	—	—
20	± 0,6	25	28	31,5	—	—
16	± 0,5	20	22,4	25	—	—
12,5	± 0,4	16	18	20	—	—
10	± 0,35	—	14	16	18	—
8	± 0,3	—	11,2	12,5	14	—
6,3	± 0,25	—	—	10	11,2	—
5	± 0,2	—	—	—	9	10
4	± 0,15	—	—	—	7,1	8
3,15	± 0,15	—	—	—	—	6,3

[a] For tolerances on pitch see Table 4.

Table 4 — Examples of tolerances on pitch

Values in millimetres

Nominal pitch p	Tolerance on average pitch Δp	Nominal pitch p	Tolerance on average pitch Δp
160	± 2,9	28	± 0,7
125	± 2,4	25	± 0,7
100	± 2	22,4	± 0,6
90	± 1,8	20	± 0,5
80	± 1,7	18	± 0,5
71	± 1,5	16	± 0,45
63	± 1,4	14	± 0,4
56	± 1,3	12,5	± 0,35
50	± 1,2	11,2	± 0,35
45	± 1,1	10	± 0,3
40	± 1	9	± 0,25
35,5	± 0,8	8	± 0,25
31,5	± 0,8	7,1	± 0,2
		6,3	± 0,2

NOTE The tolerance on any individual pitch is twice that stated for average pitch.

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Publication(s) referred to

See national foreword.

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W4 4AL