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Standard Specification for Industrial Perforated Plate and Screens (Square Opening Series)[1]

This standard is issued under the fixed designation E 454; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

ε[1] NOTE—Keywords were added editorially in March 1996.

INTRODUCTION

Industrial perforated plate can be produced in many thousands of combinations of size and shape of opening, bar size, thickness of material, and type of metal. Such variety is often confusing and, to the vast majority of perforated plate users, unnecessary, since each usually requires only a very few specifications.

The purpose of this specification is to simplify this problem by a condensed table of recommended specifications covering a wide range of openings in which industrial perforated plate is made, with several recommended bar sizes and thicknesses of plate for each opening, for use in various grades of service.

By making selections from this standard, the user will be guided to specifications that are being regularly produced, thus avoiding inadvertent selection of specifications that, because of little or no demand, are unobtainable, except on special order (usually quite expensive unless the quantity ordered is sufficient to justify the cost of special tooling).

If a user has a specific application for industrial perforated plate that can not be solved by a selection from this standard, it is recommended that he consult his perforated plate supplier on the availability of an acceptable alternative specification.

1. Scope

1.1 This specification covers the sizes of square opening perforated plate and screens for general industrial uses, including the separating or grading of materials according to designated nominal particle size, and lists standards for openings from 5 in. (125 mm) to 0.127 (⅛) in. (3.35 mm) punched with bar sizes and thicknesses of plate for various grades of service. Methods of checking industrial perforated plate and screens are included as information in the Appendix.

1.2 This specification does not apply to perforated plate or screens with round, hexagon, slotted, or other shaped openings.

1.3 The values stated in inch-pound units are to be regarded as the standard.

2. Referenced Documents

2.1 *ASTM Standards:*

E 323 Specification for Perforated-Plate Sieves for Testing Purposes[2]

2.2 *Other Documents:*

Fed. Std. No. 123 Marking for Shipment (Civil Agencies)[3]

Mil-Std-129 Marking for Shipment and Storage[3]

3. Standard Specifications

3.1 Standard specifications for industrial perforated plate and screens are listed in Table 1.

3.2 *Openings*—The series of standard openings listed in Table 1 include those of the USA Standard Sieve Series, Specification E 323, and those of the ISO apertures for industrial plate screens,[4] with the addition of those openings in common usage.

3.3 *Relationship of Grades*—The purpose of the several grades is to provide combinations of opening and bar size for various types of service, from medium-light to heavy. Since it

[1] This specification is under the jurisdiction of ASTM Committee E-29 on Particle Size Measurement and is the direct responsibility of Subcommittee E 29.01on Sieves, Sieving Methods, and Screening Media.

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[2] *Annual Book of ASTM Standards*, Vol 14.02.

[3] Available from Standardization Documents, Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.

[4] ISO 2194-1972, Wire Screens and Plate Screens for Industrial Purposes—Nominal Sizes of Apertures.

is possible to vary the bar size independently from the plate thickness, each of the service grades lists up to three combinations of bar and gage for each opening. The entire standard series has been designed for a logical relationship of bar size to opening in each grade and between grades with the capability of also being able to vary the plate thickness.

TABLE 1 USA Standard Specifications for Industrial Perforated Plate and Screens (Square Opening Series)—(U.S. Customary Units)

Perforated Opening		Medium Light				Medium				Medium Heavy				Heavy			
Standard (metric), mm	USA Industrial Standard, in.	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, percent	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, percent	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, percent	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, percent
125	5	5	½	½	82.6	5	⅝	⅝	79.0	5	¾	¾	75.6	5	1	1	69.4
125	5	5	⅝	⅝	79.0	5	¾	½	75.6	5	⅞	⅝	72.4	5	1⅛	⅞	66.6
125	5	5	⅝	½	79.0	5	¾	⅝	75.6	5	⅞	¾	72.4	5	1⅛	1	66.6
...	...	4½	½	½	81.0	4½	⅝	⅝	77.1	4½	¾	¾	73.4	4½	1	1	66.9
...	...	4½	⅝	⅜	77.1	4½	¾	½	73.4	4½	⅞	⅝	70.1	4½	1⅛	⅞	64.0
...	...	4½	⅝	½	77.1	4½	¾	⅝	73.4	4½	⅞	¾	70.1	4½	1⅛	1	64.0
106	4¼	4¼	½	½	80.1	4¼	⅝	⅝	76.0	4¼	¾	¾	72.3	4¼	1	1	65.5
106	4¼	4¼	⅝	⅜	76.0	4¼	¾	½	72.3	4¼	⅞	⅝	68.8	4¼	1⅛	⅞	62.5
106	4¼	4¼	⅝	½	76.0	4¼	¾	⅝	72.3	4¼	⅞	¾	68.8	4¼	1⅛	1	62.5
100	4	4	½	½	79.0	4	⅝	⅝	74.8	4	¾	¾	70.9	4	1	1	64.0
100	4	4	⅝	⅜	74.8	4	¾	½	70.9	4	⅞	⅝	67.3	4	1⅛	⅞	60.9
100	4	4	⅝	½	74.8	4	¾	⅝	70.9	4	⅞	¾	67.3	4	1⅛	1	60.9
...	...	3¾	½	½	77.9	3¾	⅝	⅝	73.5	3¾	¾	¾	69.4	3¾	⅞	⅞	65.7
...	...	3¾	⅝	⅜	73.5	3¾	¾	½	69.4	3¾	⅞	⅝	65.7	3¾	1	¾	62.3
...	...	3¾	⅝	½	73.5	3¾	¾	⅝	69.4	3¾	⅞	¾	65.7	3¾	1	⅞	62.3
90	3½	3½	½	½	76.6	3½	⅝	⅝	72.0	3½	¾	¾	67.8	3½	⅞	⅞	64.0
90	3½	3½	⅝	⅜	72.0	3½	¾	½	67.8	3½	⅞	⅝	64.0	3½	1	¾	60.5
90	3½	3½	⅝	½	72.0	3½	¾	⅝	67.8	3½	⅞	¾	64.0	3½	1	⅞	60.5
...	...	3¼	⅜	⅜	80.4	3¼	½	½	75.1	3¼	⅝	⅝	70.3	3¼	¾	¾	66.0
...	...	3¼	½	5⁄16	75.1	3¼	⅝	⅜	70.3	3¼	¾	½	66.0	3¼	⅞	⅝	62.1
...	...	3¼	½	⅜	75.1	3¼	⅝	½	70.3	3¼	¾	⅝	66.0	3¼	⅞	¾	62.1
75	3	3	⅜	⅜	79.0	3	½	½	73.5	3	⅝	⅝	68.5	3	¾	¾	64.0
75	3	3	½	5⁄16	73.5	3	⅝	⅜	68.5	3	¾	½	64.0	3	⅞	⅝	59.9
75	3	3	½	⅜	73.5	3	⅝	½	68.5	3	¾	⅝	64.0	3	⅞	¾	59.9
...	...	2¾	⅜	⅜	77.4	2¾	½	½	71.6	2¾	⅝	⅝	66.4	2¾	¾	¾	61.7
...	...	2¾	½	5⁄16	71.6	2¾	⅝	⅜	66.4	2¾	¾	½	61.7	2¾	⅞	⅝	57.6
...	...	2¾	½	⅜	71.6	2¾	⅝	½	66.4	2¾	¾	⅝	61.7	2¾	⅞	¾	57.6
63	2½	2½	⅜	⅜	75.6	2½	½	½	69.4	2½	⅝	⅝	64.0	2½	¾	¾	59.2
63	2½	2½	½	5⁄16	69.4	2½	⅝	⅜	64.0	2½	¾	½	59.2	2½	⅞	⅝	54.9
63	2½	2½	½	⅜	69.4	2½	⅝	½	64.0	2½	¾	⅝	59.2	2½	⅞	¾	54.9
...	...	2¼	⅜	⅜	73.5	2¼	½	½	66.9	2¼	⅝	⅝	61.2	2¼	¾	¾	56.3
...	...	2¼	½	5⁄16	66.9	2¼	⅝	⅜	61.2	2¼	¾	½	56.3	2¼	⅞	⅝	51.8
...	...	2¼	½	⅜	66.9	2¼	⅝	½	61.2	2¼	¾	⅝	56.3	2¼	⅞	¾	51.8
53	2⅛	2⅛	5⁄16	5⁄16	76.0	2⅛	⅜	⅜	72.3	2⅛	½	½	65.5	2⅛	⅝	⅝	59.7
53	2⅛	2⅛	⅜	¼	72.3	2⅛	½	5⁄16	59.7	2⅛	⅝	⅜	59.7	2⅛	¾	½	54.6
53	2⅛	2⅛	⅜	5⁄16	72.3	2⅛	½	⅜	59.7	2⅛	⅝	½	59.7	2⅛	¾	⅝	54.6
50	2	2	5⁄16	5⁄16	74.8	2	⅜	⅜	70.9	2	½	½	64.0	2	⅝	⅝	58.0
50	2	2	⅜	¼	70.9	2	½	5⁄16	64.0	2	⅝	⅜	58.0	2	¾	½	52.9
50	2	2	⅜	5⁄16	70.9	2	½	⅜	64.0	2	⅝	½	58.0	2	¾	⅝	52.9
...	...	1⅞	5⁄16	5⁄16	73.5	1⅞	⅜	⅜	69.4	1⅞	½	½	62.3	1⅞	⅝	⅝	56.3
...	...	1⅞	⅜	¼	69.4	1⅞	½	5⁄16	62.3	1⅞	⅝	⅜	56.3	1⅞	¾	½	51.0
...	...	1⅞	⅜	5⁄16	69.4	1⅞	½	⅜	62.3	1⅞	⅝	½	56.3	1⅞	¾	⅝	51.0
45	1¾	1¾	5⁄16	5⁄16	72.0	1¾	⅜	⅜	67.8	1¾	½	½	60.5	1¾	⅝	⅝	54.3
45	1¾	1¾	⅜	¼	67.8	1¾	½	5⁄16	60.5	1¾	⅝	⅜	49.0	1¾	¾	½	49.0
45	1¾	1¾	⅜	5⁄16	67.8	1¾	½	⅜	60.5	1¾	⅝	½	49.0	1¾	¾	⅝	49.0
...	...	1⅝	¼	¼	75.1	1⅝	5⁄16	5⁄16	70.3	1⅝	⅜	⅜	66.0	1⅝	½	½	58.5
...	...	1⅝	5⁄16	3⁄16	70.3	1⅝	⅜	¼	66.0	1⅝	½	5⁄16	58.5	1⅝	⅝	⅜	52.1
...	...	1⅝	5⁄16	¼	70.3	1⅝	⅜	5⁄16	66.0	1⅝	½	⅜	58.5	1⅝	⅝	½	52.1

Perforated Opening		Medium Light				Medium				Medium Heavy				Heavy			
Standard (metric), mm	USA Industrial Standard, in.	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, percent	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, percent	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, percent	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, percent
37.5	1½	1½	¼	¼	73.5	1½	5/16	5/16	68.5	1½	3/8	3/8	64.0	1½	½	½	56.3
37.5	1½	1½	5/16	3/16	68.5	1½	3/8	¼	64.0	1½	½	5/16	56.3	1½	5/8	3/8	49.8
37.5	1½	1½	5/16	¼	68.5	1½	3/8	5/16	64.0	1½	½	3/8	56.3	1½	5/8	½	49.8
...	...	1⅜	¼	¼	71.6	1⅜	5/16	5/16	66.4	1⅜	3/8	3/8	61.7	1⅜	½	½	53.8
...	...	1⅜	5/16	3/16	66.4	1⅜	3/8	¼	61.7	1⅜	½	5/16	53.8	1⅜	5/8	3/8	47.3
...	...	1⅜	5/16	¼	66.4	1⅜	3/8	5/16	61.7	1⅜	½	3/8	53.8	1⅜	5/8	½	47.3
31.5	1¼	1¼	¼	¼	69.4	1¼	5/16	5/16	64.0	1¼	3/8	3/8	59.2	1¼	½	½	51.0
31.5	1¼	1¼	5/16	3/16	64.0	1¼	3/8	¼	59.2	1¼	½	5/16	51.0	1¼	5/8	3/8	44.4
31.5	1¼	1¼	5/16	¼	64.0	1¼	3/8	5/16	59.2	1¼	½	3/8	51.0	1¼	5/8	½	44.4
...	...	1 3/16	3/16	3/16	74.6	1 3/16	¼	¼	68.2	1 3/16	5/16	5/16	62.7	1 3/16	3/8	3/8	57.8
...	...	1 3/16	¼	8	68.2	1 3/16	5/16	3/16	62.7	1 3/16	3/8	¼	57.8	1 3/16	½	5/16	49.5
...	...	1 3/16	¼	3/16	68.2	1 3/16	5/16	¼	62.7	1 3/16	3/8	5/16	57.8	1 3/16	½	3/8	49.5
...	...	1⅛	3/16	3/16	73.5	1⅛	¼	¼	66.9	1⅛	5/16	5/16	61.2	1⅛	3/8	3/8	56.3
...	...	1⅛	¼	8	66.9	1⅛	5/16	3/16	61.2	1⅛	3/8	¼	56.3	1⅛	½	5/16	47.9
...	...	1⅛	¼	3/16	66.9	1⅛	5/16	¼	61.2	1⅛	3/8	5/16	56.3	1⅛	½	3/8	47.9
26.5	1 1/16	1 1/16	3/16	3/16	72.2	1 1/16	¼	¼	65.5	1 1/16	5/16	5/16	59.7	1 1/16	3/8	3/8	54.6
26.5	1 1/16	1 1/16	¼	8	65.5	1 1/16	5/16	3/16	59.7	1 1/16	3/8	¼	54.6	1 1/16	½	5/16	46.2
26.5	1 1/16	1 1/16	¼	3/16	65.5	1 1/16	5/16	¼	59.7	1 1/16	3/8	5/16	54.6	1 1/16	½	3/8	46.2
25	1	1	3/16	3/16	70.9	1	¼	¼	64.0	1	5/16	5/16	58.0	1	3/8	3/8	52.9
25	1	1	¼	8	64.0	1	5/16	3/16	58.0	1	3/8	¼	52.9	1	½	5/16	44.4
25	1	1	¼	3/16	64.0	1	5/16	¼	58.0	1	3/8	5/16	52.9	1	½	3/8	44.4
...	...	15/16	3/16	3/16	69.4	15/16	¼	¼	62.3	15/16	5/16	5/16	56.2	15/16	3/8	3/8	51.0
...	...	15/16	¼	8	62.3	15/16	5/16	3/16	56.2	15/16	3/8	¼	51.0	15/16	½	3/16	42.5
...	...	15/16	¼	3/16	62.3	15/16	5/16	¼	56.2	15/16	3/8	5/16	51.0	15/16	½	3/8	42.5
22.4	7/8	7/8	3/16	3/16	67.8	7/8	¼	¼	60.5	7/8	5/16	5/16	54.3	7/8	3/8	3/8	49.0
22.4	7/8	7/8	¼	8	60.5	7/8	5/16	3/16	54.3	7/8	3/8	¼	49.0	7/8	½	5/16	40.5
22.4	7/8	7/8	¼	3/16	60.5	7/8	5/16	¼	54.3	7/8	3/8	5/16	49.0	7/8	½	3/8	40.5
...	...	13/16	3/16	3/16	66.0	13/16	¼	¼	58.5	13/16	5/16	5/16	52.2	13/16	3/8	3/8	46.8
...	...	13/16	¼	8	58.5	13/16	5/16	3/16	52.2	13/16	3/8	¼	46.8	13/16	½	5/16	38.3
...	...	13/16	¼	3/16	58.5	13/16	5/16	¼	52.2	13/16	3/8	5/16	46.8	13/16	½	3/8	38.3
19	¾	¾	3/16	3/16	64.0	¾	¼	¼	56.3	¾	5/16	5/16	49.8	¾	3/8	3/8	44.4
19	¾	¾	¼	8	56.3	¾	5/16	3/16	49.8	¾	3/8	¼	44.4	¾	½	5/16	36.0
19	¾	¾	¼	3/16	56.3	¾	5/16	¼	49.8	¾	3/8	5/16	44.4	¾	½	3/8	36.0
...	...	11/16	3/16	3/16	61.7	11/16	¼	¼	53.8	11/16	5/16	5/16	47.2	11/16	3/8	3/8	41.9
...	...	11/16	¼	8	53.8	11/16	5/16	3/16	47.2	11/16	3/8	¼	41.9	11/16	½	5/16	33.5
...	...	11/16	¼	3/16	53.8	11/16	5/16	¼	47.2	11/16	3/8	5/16	41.9	11/16	½	3/8	33.5
16	5/8	5/8	5/32	8	64.0	5/8	3/16	3/16	59.2	5/8	¼	¼	51.0	5/8	5/16	5/16	44.4
16	5/8	5/8	3/16	10	59.2	5/8	¼	8	51.0	5/8	5/16	3/16	44.4	5/8	3/8	¼	39.1
16	5/8	5/8	3/16	8	59.2	5/8	¼	3/16	51.0	5/8	5/16	¼	44.4	5/8	3/8	5/16	39.1
...	...	9/16	5/32	8	61.2	9/16	3/16	3/16	56.2	9/16	¼	¼	47.9	9/16	5/16	5/16	41.3
...	...	9/16	3/16	10	56.2	9/16	¼	8	47.9	9/16	5/16	3/16	41.3	9/16	3/8	¼	36.0
...	...	9/16	3/16	8	56.2	9/16	¼	3/16	47.9	9/16	5/16	¼	41.3	9/16	3/8	5/16	36.0
13.2	17/32	17/32	⅛	10	65.5	17/32	5/32	8	59.7	17/32	3/16	3/16	54.6	17/32	¼	¼	46.2
13.2	17/32	17/32	5/32	11	59.7	17/32	3/16	10	54.6	17/32	¼	8	46.2	17/32	5/16	3/16	39.6
13.2	17/32	17/32	5/32	10	59.7	17/32	3/16	8	54.6	17/32	¼	3/16	46.2	17/32	5/16	¼	39.6
12.5	½	½	⅛	10	64.0	½	5/32	8	58.0	½	3/16	3/16	52.9	½	¼	¼	44.4
12.5	½	½	5/32	11	58.0	½	3/16	10	52.9	½	¼	8	44.4	½	5/16	3/16	37.9
12.5	½	½	5/32	10	58.0	½	3/16	8	52.9	½	¼	3/16	44.4	½	5/16	¼	37.9
...	...	15/32	⅛	10	62.3	15/32	5/32	8	56.2	15/32	3/16	3/16	51.0	15/32	¼	¼	42.5
...	...	15/32	5/32	11	56.2	15/32	3/16	10	51.0	15/32	¼	8	42.5	15/32	5/16	3/16	36.0
...	...	15/32	5/32	10	56.2	15/32	3/16	8	51.0	15/32	¼	3/16	42.5	15/32	5/16	¼	36.0
11.2	7/16	7/16	⅛	10	60.5	7/16	5/32	8	54.3	7/16	3/16	3/16	49.0	7/16	¼	¼	40.5
11.2	7/16	7/16	5/32	11	54.3	7/16	3/16	10	49.0	7/16	¼	8	40.5	7/16	5/16	3/16	34.0
11.2	7/16	7/16	5/32	10	54.3	7/16	3/16	8	49.0	7/16	¼	3/16	40.5	7/16	5/16	¼	34.0

Perforated Opening			Medium Light				Medium				Medium Heavy				Heavy			
Standard (metric), mm	USA Industrial Standard, in.	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, percent	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, percent	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, percent	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, percent
9.5	3/8	3/8	3/32	11	64.0	3/8	1/8	10	56.3	3/8	5/32	8	49.8	3/8	3/16	3/16	44.4
9.5	3/8	3/8	1/8	12	56.3	3/8	5/32	11	49.8	3/8	3/16	10	44.4	3/8	1/4	8	36.0
9.5	3/8	3/8	1/8	11	56.3	3/8	5/32	10	49.8	3/8	3/16	8	44.4	3/8	1/4	3/16	36.0
8	5/16	5/16	3/32	11	59.2	5/16	1/8	10	51.0	5/16	5/32	7	44.4	5/16	3/16	3/16	39.0
8	5/16	5/16	1/8	12	51.0	5/16	5/32	11	44.4	5/16	3/16	10	39.0	5/16	1/4	8	30.9
8	5/16	5/16	1/8	11	51.0	5/16	5/32	10	44.4	5/16	3/16	8	39.0	5/16	1/4	3/16	30.9
6.7	17/64	...	...	...	...	17/64	3/32	11	54.6	17/64	1/8	10	46.2	17/64	5/32	8	39.6
6.7	17/64	17/64	3/32	14	54.6	17/64	1/8	12	46.2	17/64	5/32	11	39.6	17/64	3/16	10	34.4
6.7	16/64	17/64	3/32	12	54.6	17/64	1/8	11	46.2	17/64	5/32	11	39.6	17/64	3/16	8	34.4
6.3	1/4	...	...	...	...	1/4	3/32	11	52.9	1/4	1/8	10	44.4	1/4	5/32	8	37.9
6.3	1/4	1/4	3/32	14	52.9	1/4	1/8	12	44.4	1/4	5/32	11	37.9	1/4	3/16	10	32.7
6.3	1/4	1/4	3/32	12	52.9	1/4	1/8	11	44.4	1/4	5/32	10	37.9	1/4	3/16	8	32.7
5.6	7/32	...	...	...	...	...	...	...	...	7/32	3/32	11	49.0	7/32	1/8	10	40.5
5.6	7/32	...	...	...	...	7/32	3/32	14	4.0	7/32	1/8	12	40.5	7/32	5/32	11	34.0
5.6	7/32	...	...	...	...	7/32	3/32	12	49.0	7/32	1/8	11	40.5	7/32	5/32	10	34.0
4.75	3/16	...	...	...	...	...	...	...	...	3/16	3/32	11	44.4	3/16	1/8	10	36.0
4.75	3/16	...	...	...	...	3/16	3/32	14	44.4	3/16	1/4	12	36.0	3/16	5/32	11	29.8
4.75	3/16	...	...	...	...	3/16	3/32	12	44.4	3/16	1/8	11	36.0	3/16	5/32	10	29.8
4	5/32	...	...	...	...	...	...	...	...	...	...	...	...	5/32	3/32	11	39.1
4	5/32	...	...	...	...	...	...	...	...	5/32	3/32	14	39.1	5/32	1/8	12	30.9
4	5/32	...	...	...	...	...	...	...	...	5/32	3/32	12	39.1	5/32	1/8	11	30.9
3.35	1/8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3.35	1/8	...	...	...	...	...	...	...	...	...	...	...	...	...	1/8	3/32	14	32.7
3.25	1/8	...	...	...	...	...	...	...	...	...	...	...	...	...	1/8	3/32	12	32.7

3.4 *Bar*—A choice of six bars is shown for each standard opening from 5-in. (125-mm) to 0.312-in. (8-mm) opening, inclusive. For practical reasons, the number of bars or grades available for openings finer than 0.312 in. is progressively reduced.

3.5 *Gage*—A choice of six gages is shown for each standard opening for 5 in. (125 mm) to 0.312 in. (8 mm). For practical reasons, the number of gages or grades available for openings finer than 0.312 in. is progressively reduced.

NOTE 1—The gages shown in Table 1 are practical for a low-carbon steel plate. For other materials, consult your perforated plate supplier.

3.6 *Equivalent Metric Specification*—Table A1.1, in the Appendix, shows the equivalent metric specifications to the USA Standard, punched in standard ISO recommended thickness of plate.[5]

4. Types of Perforated Pattern

4.1 This specification covers square openings arranged in a staggered pattern with their midpoints nominally at the vertices of isosceles triangles whose bases shall equal their heights, and also covers square openings arranged in line with their midpoints nominally at the vertices of squares (see Fig. 1).

NOTE 2—The percentage of open area for square apertures is identical for both staggered and straight-line patterns (see Fig. 2).

[5] ISO Recommendation R388-1964, Metric Series for Basic Thicknesses of Sheet and Diameters of Wire.

5. Metal Composition of Plate

5.1 Perforated plate can be punched from a great variety of metals and alloys, but the following are most commonly used:

Steel, low-carbon
Steel, high-carbon
Steel, heat-treated
Steel, galvanized
Stainless steel, Type 304
Stainless steel, Type 316
Stainless steel, Type 410
Brass (Cu 80, Zn 20)
Manganese bronze (Cu 61, Zn 37)
Monel (high nickel-copper alloy)
Aluminum (all grades)

6. Tolerances

6.1 *Openings*—Tolerances on openings in USA Standard Specifications for Industrial Perforated Plate and Screens (Table 1 and Table A1.1) shall be in accordance with those listed in Table 2.

6.2 *Bars*—Tolerances on bars used in USA Standard Specification for Industrial Perforated Plate and Screens (Table 1 and Table A1.1) shall be in accordance with those listed in Table 3.

6.3 *Gages*—Tolerances on gages used in USA Standard Specifications for Industrial Perforated Plate and Screens (Table 1 and Table A1.1) shall be in accordance with those listed in Table 4.

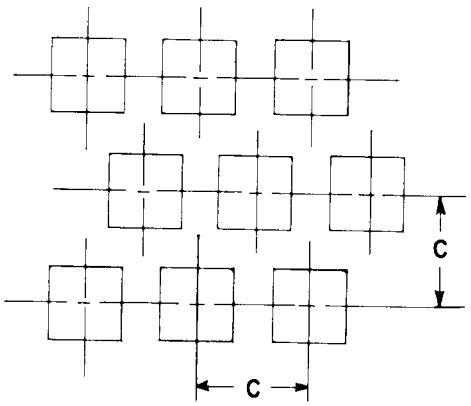

FIG. 1 Staggered Pattern

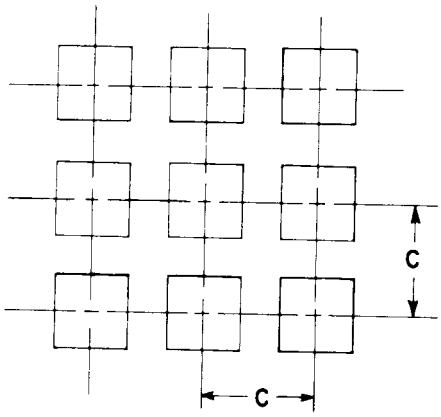

FIG. 2 Straight-Line Pattern

Types of Perforated Pattern

TABLE 2 Tolerances on Openings of USA Standard Specifications for Industrial Perforated Plate and Screens

Perforated Opening			Tolerance on Openings	
Standard (metric), mm	USA Industrial Standard, in.	Additional Sizes, in.	Standard (metric), mm	USA Industrial Standard, in.
125.0	5	...	±2.5	±0.100
...	...	4½	...	±0.090
106.0	4¼	...	±2.1	±0.085
100.0	4	...	±2.0	±0.080
...	...	3¾	...	±0.075
90.0	3½	...	±1.8	±0.070
...	...	3¼	...	±0.065
75.0	3	...	±1.5	±0.060
...	...	2¾	...	±0.055
63.0	2½	...	±1.3	±0.050
...	...	2¼	...	±0.045
53.0	2⅛	...	±1.1	±0.043
50.0	2	...	±1.0	±0.040
...	...	1⅞	...	±0.038
45.0	1¾	...	±0.9	±0.035
...	...	1⅝	...	±0.033
37.5	1½	...	±0.8	±0.030
...	...	1⅜	...	±0.028
31.5	1¼	...	±0.6	±0.025
...	...	1 3/16	...	±0.024
...	...	1⅛	...	±0.023
26.5	1 1/16	...	±0.5	±0.021
25.0	1	...	±0.5	±0.020
...	...	15/16	...	±0.019
22.4	⅞	...	±0.46	±0.018
...	...	13/16	...	±0.016
19.0	¾	...	±0.38	±0.015
...	...	11/16	...	±0.014
16.0	⅝	...	±0.32	±0.013
...	...	9/16	...	±0.012
13.2	17/32	...	±0.30	±0.012
12.5	½	...	±0.28	±0.011
...	...	15/32	...	±0.011
11.2	7/16	...	±0.28	±0.011
9.5	⅜	...	±0.28	±0.010
8.0	5/16	...	±0.26	±0.010
6.7	17/64	...	±0.25	±0.009
6.3	¼	...	±0.25	±0.009
5.6	7/32	...	±0.24	±0.009
4.75	3/16	...	±0.21	±0.008
4.00	5/32	...	±0.19	±0.007
3.35	0.127 (⅛)	...	±0.17	±0.006

TABLE 3 Tolerances on Bars of USA Standard Specifications for Industrial Perforated Plate and Screens

Perforated Opening			Tolerance on Average Bar	
Standard (metric), mm	USA Industrial Standard, in.	Additional Sizes, in.	Standard (metric), mm	USA Industrial Standard, in.
125.0	5	...	±3.2	±0.125
...	...	4½	...	±0.122
106.0	4¼	...	±2.9	±0.113
100.0	4	...	±2.7	±0.107
...	...	3¾	...	±0.102
90.0	3½	...	±2.5	±0.097
...	...	3¼	...	±0.089
75.0	3	...	±2.1	±0.081
...	...	2¾	...	±0.076
63.0	2½	...	±1.8	±0.069
...	...	2¼	...	±0.063
53.0	2⅛	...	±1.5	±0.059
50.0	2	...	±1.4	±0.056
...	...	1⅞	...	±0.054
45.0	1¾	...	±1.3	±0.051
...	...	1⅝	...	±0.047
37.5	1½	...	±1.1	±0.043
...	...	1⅜	...	±0.040
31.5	1¼	...	±0.9	±0.037
...	...	1 3/16	...	±0.035
...	...	1⅛	...	±0.034
26.5	1 1/16	...	±0.8	±0.032
25.0	1	...	±0.8	±0.030
...	...	15/16	...	±0.029
22.4	⅞	...	±0.7	±0.028
...	...	13/16	...	±0.026
19.0	¾	...	±0.6	±0.024
...	...	11/16	...	±0.022
16.0	⅝	...	±0.5	±0.021
...	...	9/16	...	±0.019
13.2	17/32	...	±0.46	±0.018
12.5	½	...	±0.44	±0.017
...	...	15/32	...	±0.017
11.2	7/16	...	±0.41	±0.016
9.5	⅜	...	±0.36	±0.014
8.0	5/16	...	±0.32	±0.013
6.7	17/64	...	±0.29	±0.011
6.3	¼	...	±0.28	±0.011
5.6	7/32	...	±0.27	±0.011
4.75	3/16	...	±0.23	±0.009
4.00	5/32	...	±0.22	±0.009
3.5	0.127 (⅛)	...	±0.20	±0.008

NOTE 3—The tolerances expressed in inch-pound units are taken from the current AISI values.

TABLE 4 Tolerance on Thickness of USA Standard Specifications for Industrial Perforated Plate and Screens

Gage			Tolerance on Gage	
Standard (metric), mm	USA Industrial Standard, in.	USA Industrial Decimal Equivalent, in.	Standard (metric), mm	USA Industrial Standard, in.
25.4	1		+1.00	+0.040
			−0.25	−0.010
22.4	⅞		+0.89	+0.035
			−0.25	−0.010
19.0	¾		+0.84	+0.033
			−0.25	−0.010
16.0	⅝		+0.79	+0.031
			−0.25	−0.010
12.5	½		+0.76	+0.030
			−0.25	−0.010
9.50	⅜		+0.66	+0.026
			−0.25	−0.010
8.00	5/16		+0.64	+0.025
			−0.25	−0.010
6.30	¼		+0.53	+0.021
			−0.25	−0.010
4.75	3/16		+0.51	+0.020
			−0.25	−0.010
4.25	No. 8 USS gage	0.1644	±0.25	±0.010
3.35	10	0.1345	±0.25	±0.010
3.00	11	0.1196	±0.25	±0.010
2.65	12	0.1046	±0.25	±0.010
1.90	14	0.0747	±0.18	±0.007

7. Keywords

7.1 industrial perforated plate; industrial screens; openings; particle size; perforated openings; perforated plate; screens

SUPPLEMENTARY REQUIREMENTS

The following sections shall be applicable when U.S. government contractual matters are involved.

S1. Responsibility for Inspection

S1.1 Unless otherwise specified in the contract or purchase order, the producer is responsible for the performance of all inspection and test requirements specified herein. Except as otherwise specified in the contract or order, the producer may use his own or any other suitable facilities for the performance of the inspection and test requirements specified herein, unless disapproved by the purchaser. The purchaser shall have the right to perform any of the inspections and tests set forth in this specification where such inspections are deemed necessary to ensure that material conforms to prescribed requirements.

S2. Government Procurement

S2.1 Unless otherwise specified in the contract, the material shall be packaged in accordance with the suppliers' standard practice which will be acceptable to the carrier at lowest rates. Containers and packing shall comply with the Uniform Freight Classification rules or National Motor Freight Classification rules. Marking for shipment of such material shall be in accordance with Fed. Std. No. 123 for civil agencies, and MIL STD 129 for military agencies.