Designation: E674 – 11

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

This standard is issued under the fixed designation E674; 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.

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 specification, 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 specification, 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 round 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 0.020 in. (500 µm) 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 Appendix X3.

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

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

E323 Specification for Perforated-Plate Sieves for Testing Purposes

E1638 Terminology Relating to Sieves, Sieving Methods, and Screening Media

2.2 *ISO Standards:*[3]

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

[1] This specification is under the jurisdiction of ASTM Committee E29 on Particle and Spray Characterization and is the direct responsibility of Subcommittee E29.01 on Sieves, Sieving Methods, and Screening Media.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from International Organization for Standardization (ISO), 1, ch. de la Voie-Creuse, Case postale 56, CH-1211, Geneva 20, Switzerland, http://www.iso.ch.

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

2.3 *Other Documents:*

Fed. Std. 123 Marking for Shipments (Civil Agencies)[4]

Mil-Std-129 Marking for Shipment and Storage[4]

3. Terminology

3.1 *Definitions*—For definitions of related terms, refer to Terminology E1638.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *bar*, *n*—metal between perforations measured at the point where perforations are the closest.

3.2.2 *blank*, *n*—unperforated area located other than along the perimeter of a plate.

3.2.3 *break-out*, *n*—term applied to the action that occurs ahead of the punch in its going through the plate.

3.2.3.1 *Discussion*—The fracturing of the material results in a tapered hole with the small dimensions on the punch side.

3.2.4 *centers*, *n*—dimensional sum of one perforation and one bar or the dimensional distance from the center of one perforation to the center of an adjacent perforation.

3.2.5 *die side*, *n*—surface of the plate that was against the die during the punching operation.

3.2.6 *finished end pattern*, *n*—condition that occurs with some specifications of staggered pattern perforations as a result of tool design in which the pattern is completed on both ends of the plate (Fig. 1).

3.2.7 *margin* or *border*, *n*—unperforated area located along the perimeter of a plate.

3.2.8 *perforation*, *n*—aperture or opening produced by punching.

3.2.9 *screen*, *n*—(*1*) surface provided with openings of uniform size; or (*2*) machine provided with one or more screen surfaces.

3.2.10 *screening*, *v*—process of separating a mixture of different sizes by means of one or more screen surfaces.

3.2.11 *smooth side or punch side*, *n*—surface of the plate that was uppermost during the punching operation and through which the punch entered the plate.

3.2.12 *unfinished end pattern*, *n*—condition that occurs with some specifications of staggered pattern perforations as a result of tool design.

3.2.12.1 *Discussion*—On one end of the plate, the pattern will appear to be incomplete as a result of unperforated holes in the even numbered rows, while on the other end of the same plate, the pattern will appear to be incomplete because of unperforated holes in the odd numbered rows (Fig. 2).

4. Standard Specifications

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

4.2 *Openings*—The series of standard openings listed in Table 1 include those of the USA Standard Sieve Series, Specification E323, and those of the ISO apertures for industrial plate screens, ISO 2194-1972 , with the addition of those openings in common usage.

4.3 *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 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.

[4] Available from Standardization Documents, Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098.

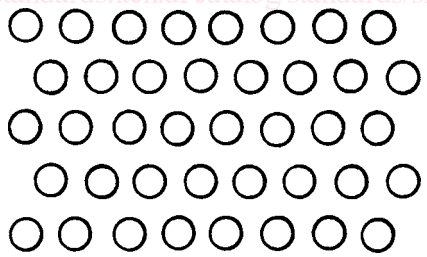

FIG. 1 Finished End Pattern

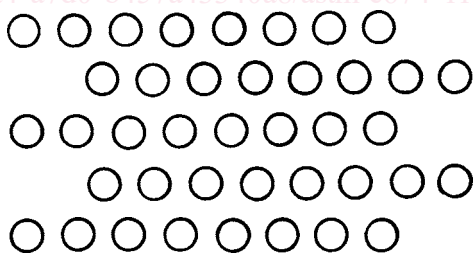

FIG. 2 Unfinished End Pattern

TABLE 1 USA Standard Specifications for Industrial Perforated Plate and Screens (Round 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, %	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %
125	5	5	½	½	74.9	5	⅝	⅝	71.6	5	¾	¾	68.5	5	1	1	62.9
125	5	5	⅝	⅜	71.6	5	¾	½	68.5	5	⅞	⅝	65.6	5	1⅛	⅞	60.4
125	5	5	⅝	½	71.6	5	¾	⅝	68.5	5	⅞	¾	65.6	5	1⅛	1	60.4
...	...	4½	½	½	73.4	4½	⅝	⅝	69.9	4½	¾	¾	66.6	4½	1	1	60.7

TABLE 1 *Continued*

Perforated Opening		Medium Light				Medium				Medium Heavy				Heavy			
Standard (metric), mm	USA Industrial Standard, in.	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %
...	...	4½	⅝	⅜	69.9	4½	¾	½	66.6	4½	⅞	⅝	63.5	4½	1⅛	⅞	58
...	...	4½	⅝	½	69.9	4½	¾	⅝	66.6	4½	⅞	¾	63.5	4½	1⅛	1	58
106	4¼	4¼	½	½	72.6	4¼	⅝	⅝	68.9	4¼	¾	¾	65.5	4¼	1	1	59.4
106	4¼	4¼	⅝	⅜	68.9	4¼	¾	½	65.5	4¼	⅞	⅝	62.3	4¼	1⅛	⅞	56.7
106	4¼	4¼	⅝	½	68.9	4¼	¾	⅝	65.5	4¼	⅞	¾	62.3	4¼	1⅛	1	56.7
100	4	4	½	½	71.6	4	⅝	⅝	67.8	4	¾	¾	64.3	4	1	1	58
100	4	4	⅝	⅜	67.8	4	¾	½	64.3	4	⅞	⅝	61	4	1⅛	⅞	55.2
100	4	4	⅝	½	67.8	4	¾	⅝	64.3	4	⅞	¾	61	4	1⅛	1	55.2
...	...	3¾	½	½	70.6	3¾	⅝	⅝	66.6	3¾	¾	¾	62.9	3¾	⅞	⅞	59.6
...	...	3¾	⅝	⅜	66.6	3¾	¾	½	62.9	3¾	⅞	⅝	59.6	3¾	1	¾	48.9
...	...	3¾	⅝	½	66.6	3¾	¾	⅝	62.9	3¾	⅞	¾	59.6	3¾	1	⅞	48.9
90	3½	3½	½	½	69.4	3½	⅝	⅝	65.2	3½	¾	¾	61.5	3½	⅞	⅞	58
90	3½	3½	⅝	⅜	65.2	3½	¾	½	61.5	3½	⅞	⅝	58	3½	1	¾	54.8
90	3½	3½	⅝	½	65.2	3½	¾	⅝	61.5	3½	⅞	¾	58	3½	1	⅞	54.8
...	...	3¼	⅜	⅜	72.8	3¼	½	½	68.1	3¼	⅝	⅝	63.8	3¼	¾	¾	59.8
...	...	3¼	½	5⁄16	68.1	3¼	⅝	⅜	63.7	3¼	¾	½	59.8	3¼	⅞	⅝	56.2
...	...	3¼	½	⅜	68.1	3¼	⅝	½	63.7	3¼	¾	⅝	59.8	3¼	⅞	¾	56.2
75	3	3	⅜	⅜	71.6	3	½	½	66.6	3	⅝	⅝	62.1	3	¾	¾	58
75	3	3	½	5⁄16	66.6	3	⅝	⅜	62.1	3	¾	½	58	3	⅞	⅝	54.3
75	3	3	½	⅜	66.6	3	⅝	½	62.1	3	¾	⅝	58	3	⅞	¾	54.3
...	...	2¾	⅜	⅜	70.2	2¾	½	½	64.9	2¾	⅝	⅝	60.2	2¾	¾	¾	55.9
...	...	2¾	½	5⁄16	64.9	2¾	⅝	⅜	60.2	2¾	¾	½	55.9	2¾	⅞	⅝	52.1
...	...	2¾	½	⅜	64.9	2¾	⅝	½	60.2	2¾	¾	⅝	55.9	2¾	⅞	¾	52.1
63	2½	2½	⅜	⅜	68.5	2½	½	½	62.9	2½	⅝	⅝	58	2½	¾	¾	53.6
63	2½	2½	½	5⁄16	62.9	2½	⅝	⅜	58	2½	¾	½	53.6	2½	⅞	⅝	49.7
63	2½	2½	½	⅜	62.9	2½	⅝	½	58	2½	¾	⅝	53.6	2½	⅞	¾	49.7
...	...	2¼	⅜	⅜	66.6	2¼	½	½	60.7	2¼	⅝	⅝	55.5	2¼	¾	¾	51
...	...	2¼	½	5⁄16	60.7	2¼	⅝	⅜	55.5	2¼	¾	½	51	2¼	⅞	⅝	47
...	...	2¼	½	⅜	60.7	2¼	⅝	½	55.5	2¼	¾	⅝	51	2¼	⅞	¾	47
53	2⅛	2⅛	5⁄16	5⁄16	68.9	2⅛	⅜	⅜	65.5	2⅛	½	½	59.4	2⅛	⅝	⅝	54.1
53	2⅛	2⅛	⅜	¼	65.5	2⅛	½	5⁄16	59.4	2⅛	⅝	⅜	54.1	2⅛	¾	½	49.5
53	2⅛	2⅛	⅜	5⁄16	65.5	2⅛	½	⅜	59.4	2⅛	⅝	½	54.1	2⅛	¾	⅝	49.5
50	2	2	5⁄16	5⁄16	67.8	2	⅜	⅜	64.3	2	½	½	58	2	⅝	⅝	52.6
50	2	2	⅜	¼	64.3	2	½	5⁄16	58	2	⅝	⅜	52.6	2	¾	½	47.9
50	2	2	⅜	5⁄16	64.3	2	½	⅜	58	2	⅝	½	52.6	2	¾	⅝	47.9
...	...	1⅞	5⁄16	5⁄16	66.6	1⅞	⅜	⅜	62.9	1⅞	½	½	56.5	1⅞	⅝	⅝	51
...	...	1⅞	⅜	¼	62.9	1⅞	½	5⁄16	56.5	1⅞	⅝	⅜	51	1⅞	¾	½	46.2
...	...	1⅞	⅜	5⁄16	62.9	1⅞	½	⅜	56.5	1⅞	⅝	½	51	1⅞	¾	⅝	46.2
45	1¾	1¾	5⁄16	5⁄16	65.2	1¾	⅜	⅜	61.5	1¾	½	½	54.8	1¾	⅝	⅝	49.2
45	1¾	1¾	⅜	¼	61.5	1¾	½	5⁄16	54.8	1¾	⅝	⅜	49.2	1¾	¾	½	44.4
45	1¾	1¾	⅜	5⁄16	61.5	1¾	½	⅜	54.8	1¾	⅝	½	49.2	1¾	¾	⅝	44.4
...	...	1⅝	¼	¼	68.1	1⅝	5⁄16	5⁄16	63.7	1⅝	⅜	⅜	59.8	1⅝	½	½	53
...	...	1⅝	5⁄16	3⁄16	63.7	1⅝	⅜	¼	59.8	1⅝	½	5⁄16	53	1⅝	⅝	⅜	47.3
...	...	1⅝	5⁄16	¼	63.7	1⅝	⅜	5⁄16	59.8	1⅝	½	⅜	53	1⅝	⅝	½	47.3
37.5	1½	1½	¼	¼	66.6	1½	5⁄16	5⁄16	62.1	1½	⅜	⅜	58	1½	½	½	51
37.5	1½	1½	5⁄16	3⁄16	62.1	1½	⅜	¼	58	1½	½	5⁄16	51	1½	⅝	⅜	45.1
37.5	1½	1½	5⁄16	¼	62.1	1½	⅜	5⁄16	58	1½	½	⅜	51	1½	⅝	½	45.1
...	...	1⅜	¼	¼	64.9	1⅜	5⁄16	5⁄16	60.2	1⅜	⅜	⅜	55.9	1⅜	½	½	48.7
...	...	1⅜	5⁄16	3⁄16	60.2	1⅜	⅜	¼	55.9	1⅜	½	5⁄16	48.7	1⅜	⅝	⅜	42.8
...	...	1⅜	5⁄16	¼	60.2	1⅜	⅜	5⁄16	55.9	1⅜	½	⅜	48.7	1⅜	⅝	½	42.8

TABLE 1 *Continued*

Perforated Opening		Medium Light				Medium				Medium Heavy				Heavy			
Standard (metric), mm	USA Industrial Standard, in.	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %
31.5	1¼	1¼	¼	¼	62.9	1¼	5⁄16	5⁄16	58	1¼	3⁄8	3⁄8	53.6	1¼	½	½	46.2
31.5	1¼	1¼	5⁄16	3⁄16	58	1¼	3⁄8	¼	53.6	1¼	½	5⁄16	46.2	1¼	5⁄8	3⁄8	40.3
31.5	1¼	1¼	5⁄16	¼	58	1¼	3⁄8	5⁄16	53.6	1¼	½	3⁄8	46.2	1¼	5⁄8	½	40.3
...	...	1 3⁄16	3⁄16	3⁄16	67.6	1 3⁄16	¼	¼	61.8	1 3⁄16	5⁄16	5⁄16	56.8	1 3⁄16	3⁄8	3⁄8	52.3
...	...	1 3⁄16	¼	8	61.8	1 3⁄16	5⁄16	3⁄16	56.8	1 3⁄16	3⁄8	¼	52.3	1 3⁄16	½	5⁄16	44.9
...	...	1 3⁄16	¼	3⁄16	61.8	1 3⁄16	5⁄16	¼	56.8	1 3⁄16	3⁄8	5⁄16	52.3	1 3⁄16	½	3⁄8	44.9
...	...	1⅛	3⁄16	3⁄16	66.6	1⅛	¼	¼	60.7	1⅛	5⁄16	5⁄16	55.5	1⅛	3⁄8	3⁄8	51
...	...	1⅛	¼	8	60.7	1⅛	5⁄16	3⁄16	55.5	1⅛	3⁄8	¼	51	1⅛	½	5⁄16	43.4
...	...	1⅛	¼	3⁄16	60.7	1⅛	5⁄16	¼	55.5	1⅛	3⁄8	5⁄16	51	1⅛	½	3⁄8	43.4
26.5	1 1⁄16	1 1⁄16	3⁄16	3⁄16	65.5	1 1⁄16	¼	¼	59.4	1 1⁄16	5⁄16	5⁄16	54.1	1 1⁄16	3⁄8	3⁄8	49.5
26.5	1 1⁄16	1 1⁄16	¼	8	59.4	1 1⁄16	5⁄16	3⁄16	54.1	1 1⁄16	3⁄8	¼	49.5	1 1⁄16	½	5⁄16	41.9
26.5	1 1⁄16	1 1⁄16	¼	3⁄16	59.4	1 1⁄16	5⁄16	¼	54.1	1 1⁄16	3⁄8	5⁄16	49.5	1 1⁄16	½	3⁄8	41.9
25	1	1	3⁄16	3⁄16	64.3	1	¼	¼	58	1	5⁄16	5⁄16	52.6	1	3⁄8	3⁄8	47.9
25	1	1	¼	8	58	1	5⁄16	3⁄16	52.6	1	3⁄8	¼	47.9	1	½	5⁄16	40.3
25	1	1	¼	3⁄16	58	1	5⁄16	¼	52.6	1	3⁄8	5⁄16	47.9	1	½	3⁄8	40.3
...	...	15⁄16	3⁄16	3⁄16	62.9	15⁄16	¼	¼	56.4	15⁄16	5⁄16	5⁄16	51	15⁄16	3⁄8	3⁄8	46.2
...	...	15⁄16	¼	8	56.4	15⁄16	5⁄16	3⁄16	51	15⁄16	3⁄8	¼	46.2	15⁄16	½	5⁄16	38.5
...	...	15⁄16	¼	3⁄16	56.4	15⁄16	5⁄16	¼	51	15⁄16	3⁄8	5⁄16	46.2	15⁄16	½	3⁄8	38.5
22.4	⅞	⅞	3⁄16	3⁄16	61.5	⅞	¼	¼	54.8	⅞	5⁄16	5⁄16	49.2	⅞	3⁄8	3⁄8	44.4
22.4	⅞	⅞	¼	8	54.8	⅞	5⁄16	3⁄16	49.2	⅞	3⁄8	¼	44.4	⅞	½	5⁄16	36.7
22.4	⅞	⅞	¼	3⁄16	54.8	⅞	5⁄16	¼	49.2	⅞	3⁄8	5⁄16	44.4	⅞	½	3⁄8	36.7
...	...	13⁄16	3⁄16	3⁄16	59.8	1 3⁄16	¼	¼	53	1 3⁄16	5⁄16	5⁄16	47.2	1 3⁄16	3⁄8	3⁄8	42.4
...	...	13⁄16	¼	8	53	1 3⁄16	5⁄16	3⁄16	47.2	1 3⁄16	3⁄8	¼	42.4	1 3⁄16	½	5⁄16	34.7
...	...	13⁄16	¼	3⁄16	53	1 3⁄16	5⁄16	¼	47.2	1 3⁄16	3⁄8	5⁄16	42.4	1 3⁄16	½	3⁄8	34.7
19	¾	¾	3⁄16	3⁄16	58	¾	¼	¼	51	¾	5⁄16	5⁄16	45.1	¾	3⁄8	3⁄8	40.3
19	¾	¾	¼	8	51	¾	5⁄16	3⁄16	45.1	¾	3⁄8	¼	40.3	¾	½	5⁄16	32.6
19	¾	¾	¼	3⁄16	51	¾	5⁄16	¼	45.1	¾	3⁄8	5⁄16	40.3	¾	½	3⁄8	32.6
...	...	11⁄16	3⁄16	3⁄16	55.9	11⁄16	¼	¼	48.7	11⁄16	5⁄16	5⁄16	42.8	11⁄16	3⁄8	3⁄8	37.9
...	...	11⁄16	¼	8	48.7	11⁄16	5⁄16	3⁄16	42.8	11⁄16	3⁄8	¼	37.9	11⁄16	½	5⁄16	30.3
...	...	11⁄16	¼	3⁄16	48.7	11⁄16	5⁄16	¼	42.8	11⁄16	3⁄8	5⁄16	37.9	11⁄16	½	3⁄8	30.3
16	5⁄8	5⁄8	5⁄32	8	58	5⁄8	3⁄16	3⁄16	53.6	5⁄8	¼	¼	46.2	5⁄8	5⁄16	5⁄16	40.3
16	5⁄8	5⁄8	3⁄16	10	53.6	5⁄8	¼	8	46.2	5⁄8	5⁄16	3⁄16	40.3	5⁄8	3⁄8	¼	35.4
16	5⁄8	5⁄8	3⁄16	8	53.6	5⁄8	¼	3⁄16	46.2	5⁄8	5⁄16	¼	40.3	5⁄8	3⁄8	5⁄16	35.4
...	...	9⁄16	5⁄32	8	55.5	9⁄16	3⁄16	3⁄16	51	9⁄16	¼	¼	43.4	9⁄16	5⁄16	5⁄16	37.4
...	...	9⁄16	3⁄16	10	51	9⁄16	¼	8	43.4	9⁄16	5⁄16	3⁄16	37.4	9⁄16	3⁄8	¼	32.6
...	...	9⁄16	3⁄16	8	51	9⁄16	¼	3⁄16	43.4	9⁄16	5⁄16	¼	37.4	9⁄16	3⁄8	5⁄16	32.6
13.2	17⁄32	...	...	...	...	...	...	...	...	17⁄32	5⁄32	3⁄16	54.1	17⁄32	7⁄32	¼	45.4
13.2	17⁄32	...	...	...	...	17⁄32	5⁄32	10	54.1	17⁄32	7⁄32	8	45,4	17⁄32	11⁄32	3⁄16	33.4
13.2	17⁄32	...	...	...	...	17⁄32	5⁄32	8	54.1	17⁄32	7⁄32	3⁄16	45.4	17⁄32	11⁄32	¼	33.4
12.5	½	...	...	...	...	...	...	...	...	½	3⁄16	3⁄16	47.9	½	¼	¼	40.3
12.5	½	...	...	...	...	½	3⁄16	10	47.9	½	¼	8	40.3	½	5⁄16	3⁄16	34.3
12.5	½	...	...	...	...	½	3⁄16	8	47.9	½	¼	3⁄16	40.3	½	5⁄16	¼	34.3
...	...	...	...	...	...	15⁄32	⅛	8	56.5	15⁄32	5⁄32	3⁄16	50.9	15⁄32	7⁄32	¼	42.1
...	...	15⁄32	⅛	11	56.5	15⁄32	5⁄32	10	50.9	15⁄32	7⁄32	8	42.1	15⁄32	9⁄32	3⁄16	35.4
...	...	15⁄32	⅛	10	56.5	15⁄32	5⁄32	8	50.9	15⁄32	7⁄32	3⁄16	42.1	15⁄32	9⁄32	¼	35.4
11.2	7⁄16	7⁄16	5⁄32	10	49.2	7⁄16	3⁄16	8	44.4	7⁄16	¼	3⁄16	36.7	7⁄16	5⁄16	¼	30.8
11.2	7⁄16	7⁄16	3⁄16	11	44.4	7⁄16	¼	10	36.7	7⁄16	5⁄16	8	30.8	7⁄16	7⁄16	3⁄16	22.6
11.2	7⁄16	7⁄16	3⁄16	10	44.4	7⁄16	¼	8	36.7	7⁄16	5⁄16	3⁄16	30.8	7⁄16	7⁄16	¼	22.6
9.5	3⁄8	3⁄8	⅛	11	51	3⁄8	3⁄16	10	40.3	3⁄8	7⁄32	8	36.1	3⁄8	¼	3⁄16	32.6
9.5	3⁄8	3⁄8	3⁄16	12	40.3	3⁄8	7⁄32	11	36.1	3⁄8	¼	10	32.6	3⁄8	3⁄8	8	22.6
9.5	3⁄8	3⁄8	3⁄16	11	40.3	3⁄8	7⁄32	10	36.1	3⁄8	¼	8	32.6	3⁄8	3⁄8	3⁄16	22.6

TABLE 1 *Continued*

Perforated Opening		Medium Light				Medium				Medium Heavy				Heavy			
Standard (metric), mm	USA Industrial Standard, in.	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %
8	5/16	5/16	3/32	11	53.6	5/16	1/8	10	46.2	5/16	5/32	8	40.3	5/16	3/16	3/16	35.4
8	5/16	5/16	1/8	12	46.2	5/16	5/32	11	40.3	5/16	3/16	10	35.4	5/16	1/4	8	27.9
8	5/16	5/16	1/8	11	46.2	5/16	5/32	10	40.3	5/16	3/16	8	35.4	5/16	1/4	3/16	27.9
6.7	17/64	...	...	...	...	17/64	7/64	11	45.4	17/64	1/8	10	41.9	17/64	9/64	8	38.7
6.7	17/64	17/64	7/64	14	45.4	17/64	1/8	12	41.9	17/64	9/64	11	38.7	17/64	11/64	10	33.4
6.7	17/64	17/64	7/64	12	45.4	17/64	1/8	11	41.9	17/64	9/64	10	38.7	17/64	11/64	8	33.4
6.3	1/4	1/4	1/16	16	58	1/4	1/8	11	40.3	1/4	5/32	10	34.3	1/4	3/16	8	29.6
6.3	1/4	1/4	1/8	14	40.3	1/4	5/32	12	34.3	1/4	3/16	11	29.6	1/4	1/4	10	22.6
6.3	1/4	1/4	1/8	12	40.3	1/4	5/32	11	34.3	1/4	3/16	10	29.6	1/4	1/4	8	22.6
5.6	7/32	7/32	3/32	14	44.4	7/32	1/8	12	36.7	7/32	5/32	11	30.8	7/32	3/16	10	26.2
5.6	7/32	7/32	1/8	16	36.7	7/32	5/32	14	30.8	7/32	3/16	12	26.2	7/32	7/32	11	22.6
5.6	7/32	7/32	1/8	14	36.7	7/32	5/32	12	30.8	7/32	3/16	11	26.2	7/32	7/32	10	22.6
4.75	3/16	3/16	1/16	14	51	3/16	3/32	12	40.3	3/16	7/64	11	36.1	3/16	1/8	10	32.6
4.75	3/16	3/16	3/32	16	40.3	3/16	7/64	14	36.1	3/16	1/8	12	32.6	3/16	3/16	11	22.6
4.75	3/16	3/16	3/32	14	40.3	3/16	7/64	12	36.1	3/16	1/8	11	32.6	3/16	3/16	10	22.6
4	5/32	...	...	...	...	5/32	1/16	14	46.2	5/32	3/32	12	35.4	5/32	1/8	11	27.9
4	5/32	5/32	1/16	18	46.2	5/32	3/32	16	35.4	5/32	1/8	14	27.9	5/32	5/32	12	22.6
4	5/32	5/32	1/16	16	46.2	5/32	3/32	14	35.4	5/32	1/8	12	27.9	5/32	5/32	11	22.6
3.35	1/8	...	...	...	...	1/8	3/64	14	47.9	1/8	1/16	12	40.3	1/8	3/32	11	29.6
3.35	1/8	1/8	3/64	18	47.9	1/8	1/16	16	40.3	1/8	3/32	14	29.6	1/8	1/8	12	22.6
3.35	1/8	1/8	3/64	16	47.9	1/8	1/16	14	40.3	1/8	3/32	12	29.6	1/8	1/8	11	22.6
2.80	7/64	...	...	...	...	7/64	1/16	16	36.4	7/64	3/32	14	26.1	7/64	9/64	12	17.2
2.80	7/64	7/64	1/16	20	36.4	7/64	3/32	18	26.1	7/64	9/64	16	17.2	7/64	5/32	14	15.2
2.80	7/64	7/64	1/16	18	36.4	7/64	3/32	16	26.1	7/64	9/64	14	17.2	7/64	5/32	12	15.2
2.36	3/32	...	...	...	...	3/32	1/16	18	33.0	3/32	3/32	16	22.4	3/32	1/8	14	16.7
2.36	3/32	3/32	1/16	22	33.0	3/32	3/32	20	22.4	3/32	1/8	18	16.7	3/32	5/32	16	12.8
2.36	3/32	3/32	1/16	20	33.0	3/32	3/32	18	22.4	3/32	1/8	16	16.7	3/32	5/32	14	12.8
2.00	0.078	...	...	...	...	0.078	0.030	18	47.3	0.078	0.047	16	35.3	0.078	0.078	14	22.4
2.00	0.078	0.078	0.030	22	47.3	0.078	0.047	20	35.3	0.078	0.078	18	22.4	0.078	0.109	16	15.8
2.00	0.078	0.078	0.030	20	47.3	0.078	0.047	18	35.3	0.078	0.078	16	22.4	0.078	0.109	14	15.8
1.70	0.066	...	...	...	...	...	...	...	...	0.066	0.043	18	33.2	0.066	0.059	16	25.3
1.70	0.066	...	...	...	...	0.066	0.043	22	33.2	0.066	0.059	20	25.3	0.066	0.090	18	16.2
1.70	0.066	...	...	...	...	0.066	0.043	20	33.2	0.066	0.059	18	25.3	0.066	0.090	16	16.2
1.40	0.055	...	...	...	...	...	...	...	...	0.055	0.040	20	30.4	0.055	0.055	18	22.6
1.40	0.055	...	...	...	...	0.055	0.040	24	30.4	0.055	0.055	22	22.6	0.055	0.070	20	17.5
1.40	0.055	...	...	...	...	0.055	0.040	22	30.4	0.055	0.055	20	22.6	0.055	0.070	18	17.5
1.18	0.045	...	...	...	...	...	...	...	...	0.045	0.021	22	42.1	0.045	0.033	20	30.2
1.18	0.045	...	...	...	...	0.045	0.021	26	42.1	0.045	0.033	24	30.2	0.045	0.045	22	22.4
1.18	0.045	...	...	...	...	0.045	0.021	24	42.1	0.045	0.033	22	30.2	0.045	0.045	20	22.4
1.00	0.039	...	...	...	...	...	...	...	...	...	...	...	...	0.039	0.027	22	31.6
1.00	0.039	...	...	...	...	...	...	...	...	0.039	0.027	26	31.6	0.039	0.039	24	22.4
1.00	0.039	...	...	...	...	...	...	...	...	0.039	0.027	24	31.6	0.039	0.039	22	22.4
830	0.032	...	...	...	...	...	...	...	...	...	...	...	...	0.032	0.032	24	22.4
830	0.032	...	...	...	...	...	...	...	...	0.032	0.032	28	22.4	0.032	0.040	26	17.9
830	0.032	...	...	...	...	...	...	...	...	0.032	0.032	26	22.4	0.032	0.040	24	17.9
710	0.027	...	...	...	...	...	...	...	...	...	...	...	...	0.027	0.030	26	20.3
710	0.027	...	...	...	...	...	...	...	...	0.027	0.030	30	20.3	0.027	0.039	28	15.2
710	0.027	...	...	...	...	...	...	...	...	0.027	0.030	28	20.3	0.027	0.039	26	15.2
600	0.023	...	...	...	...	...	...	...	...	...	...	...	...	0.023	...	...	...
600	0.023	...	...	...	...	...	...	...	...	...	...	...	...	0.023	0.032	30	15.8

TABLE 1 *Continued*

Perforated Opening		Medium Light				Medium				Medium Heavy				Heavy			
Standard (metric), mm	USA Industrial Standard, in.	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %	Opening, in.	Bar, in.	Gage-Steel, in.	Open Area, %
600	0.023	...	...	...	...	...	...	...	...	...	...	...	...	0.023	0.032	28	15.8
500	0.020	...	...	...	...	...	...	...	...	...	...	...	...	0.020	...	...	...
500	0.020	...	...	...	...	...	...	...	...	...	...	...	...	0.020	0.025	30	17.9
500	0.020	...	...	...	...	...	...	...	...	...	...	...	...	0.020	0.025	28	17.9

4.4 *Bar*—A choice of several bars is shown for each standard opening from 5-in. (125-mm) to 0.078-in. (2-mm) opening, inclusive. For practical reasons, the number of bars or grades available for openings finer than 0.078 in. is progressively reduced.

4.5 *Gage*—A choice of several gages is shown for each standard opening for 5 in. (125 mm) to 0.078 in. (2 mm). For practical reasons, the number of gages or grades available for openings finer than 0.078 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.

4.6 *Equivalent Metric Specification*—Table X1, in the Appendix, shows the equivalent metric specifications to the USA Standard, punched in standard ISO Recommendation R388-1964 thickness of plate.

5. Types of Perforated Pattern

5.1 This specification covers round openings arranged in a staggered 60° pattern with their centers nominally at the vertices of equilateral triangles (See Fig. 3).

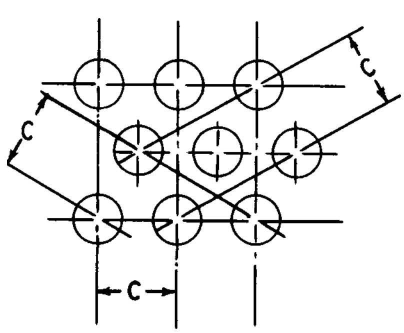

FIG. 3 Arrangement of Round Apertures

6. Metal Composition of Plate

6.1 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)

7. Tolerances

7.1 *Openings*—Tolerances on openings in USA Standard Specifications for Industrial Perforated Plate and Screens (Table 1 and Table X1.1) shall be in accordance with those listed in Table 2.

7.2 *Bars*—Tolerances on bars used in USA Standard Specification for Industrial Perforated Plate and Screens (Table 1 and Table X1.1) shall be in accordance with those listed in Table 3.

7.3 *Gages*—Tolerances on gages used in USA Standard Specifications for Industrial Perforated Plate and Screens (Table 1 and Table X1.1) shall be in accordance with those listed in Table 4.

NOTE 2—The tolerances expressed in inch-pound units are taken from the current AISI[5] values.

8. Keywords

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

[5] Available from American Iron and Steel Institute (AISI), 1140 Connecticut Ave., NW, Suite 705, Washington, DC 20036, http://www.steel.org.