



Designation: C861 – 93 (Reapproved 2020)

Standard Practice for Determining Metric Dimensions of Standard Series Refractory Brick and Shapes¹

This standard is issued under the fixed designation C861; 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.

1. Scope

1.1 This practice covers dimensions in millimetres for standard series refractory brick and shapes of all compositions.

1.2 A standard method for converting all other dimensions of shaped refractory articles from inch-pound to SI units is included.

1.3 The values stated in SI units are to be regarded as standard. The values given in parentheses are for information only.

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²
[IEEE/ASTM SI 10 American National Standard for Use of the International System of Units \(SI\): The Modern Metric System](#)

¹ This practice is under the jurisdiction of ASTM Committee C08 on Refractories and is the direct responsibility of Subcommittee C08.92 The Joseph E. Kopanda Subcommittee for Editorial, Terminology and Classification.

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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. Significance and Use

3.1 This practice is provided in the interest of facilitating the transition of dimensional practice for standard refractory brick and shapes from inch-pound units to metric (SI) units.

3.2 The standard dimensions are based on a 38-mm module (taken as the equivalent to 1.5 in.) and are developed with the aim of preserving a modular relationship between the dimensions of the principal rectangular refractory shapes.

4. Standard Dimensions

4.1 **Table 1** lists the standard nominal dimensions in millimetres, with corresponding standard dimensions in inch-pound units shown for reference only. Note that these dimensions are not exact conversions, but in all but two cases are within $\frac{1}{4}$ % of the exact value.

5. Conversion

5.1 For dimensions not listed in **Table 1**, multiply the dimension in inches by the factor 25.4 to obtain the exact conversion in millimetres. For description or specification of refractory shapes, round the dimension to the nearest whole millimetre. For example:
 $1 \text{ in.} \times 25.4 = 25.4 \text{ mm}$, expressed as 25 mm
 $11 \text{ in.} \times 25.4 = 279.4 \text{ mm}$, expressed as 279 mm
 $22\frac{1}{2} \text{ in.} \times 25.4 = 571.5 \text{ mm}$, expressed as 572 mm

6. Standard Equivalent

6.1 For closest approximation to inch-pound units, the metric (SI) standard equivalent is based upon the 228 by 114 by 64-mm straight. One standard equivalent thus contains 1.6635 dm^3 (101.51 in.^3).

NOTE 1—For comparison, the standard equivalent in inch-pound units is based on the 9 by $4\frac{1}{2}$ by $2\frac{1}{2}$ -in. straight and thus contains 101.25 in.^3 , or 1.6592 dm^3 . The difference, 0.0043 dm^3 (0.26 in.^3), amounts to a 0.26 % increase over the older value.