

Sizes of refractory bricks —

Part 3: Specification for bricks for rotary cement kilns

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Committees responsible for this British Standard

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- British Ceramic Research Association
- British Gas Corporation
- British Metallurgical Plant Constructors' Association
- British Steel Industry
- Cement Makers' Federation
- Coke Oven Managers' Association
- Institute of Refractories Engineers
- Refractories Association of Great Britain
- Society of Glass Technology
- Society of Industrial Furnace Engineers

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Foreword

This Part of BS 3056 has been prepared under the direction of the Refractory Products Standards Committee. It supersedes BS 4982-1 and 4982-2, which are withdrawn. BS 3056:1973 has been superseded by BS 3056-1 covering multi-purpose bricks. This Part of BS 3056 is one of a series of new Parts intended to cover bricks for a wide range of specific applications.

This Part is concerned with refractory bricks for rotary cement kilns, which have not been covered by the previous editions.

Appendices to this Part of BS 3056 give guidance on kiln design, formulae for the calculation of the number of tapered bricks required to form circles, and a table showing recommended combinations of sizes to form circles of given diameters.

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.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 12, 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.

1 Scope

This Part of BS 3056 specifies the sizes of refractory bricks used in the construction of rotary cement kiln linings, including closure bricks, and the tolerances to which these bricks are to be supplied.

Special refractory brick shapes used in these kilns, such as those used in conical sections, nose rings, preheaters, etc., are not covered by this standard.

NOTE 1 Guidance on kiln design is given in Appendix A, arch-brick formulae are given in Appendix B and numbers of bricks needed in combining sizes to form circles of selected diameters are given in Appendix C.

NOTE 2 The titles of the publications referred to in this standard are given on the inside back cover.

2 Sizes

2.1 The sizes of refractory bricks for rotary cement kiln linings shall be as given in Table 1 to Table 3. Tolerances on these sizes shall be as given in clause 4.

NOTE 1 The symbols used in Table 1 to Table 3 are shown in the figure accompanying each table. These symbols do not necessarily apply to any other tables or figures in this or any other standard.

NOTE 2 The volume of each brick is given, as supplementary information, in Table 1 to Table 3. Information on the material or qualities in which each of the sizes may be expected to be available is given in the titles of Table 1 to Table 3, and in Table 4. It is emphasized that this information is included only as general guidance for the benefit of a user of this standard, and it is not to be interpreted as meaning that all of these sizes will be available, let alone available from one supplier, or that no other sizes or combinations of sizes will be available. Information of this nature would normally be included in a British Standard as an appendix, but is included here in the tables as a matter of convenience. The following classes of refractory bricks are referred to:

- fireclay refractories (containing less than 45 % (m/m) alumina);
- high alumina refractories (containing 45 % (m/m) or more alumina);
- insulating refractories (containing more than 45 % porosity);
- semi-insulating refractories (containing 25 % to 45 % porosity).

NOTE 3 Table 1 and Table 2 include sizes formerly given in BS 4982-1 and 4982-2. It is recognized that the "11" series and the "25" series are used for export orders, but these are excluded from this standard. Table 3 gives an alternative series of sizes based on constant volume.

2.2 Where closure bricks are required, two bricks of the appropriate size shall be selected from those given in Table 4.

3 Designations and statement of dimensions

3.1 The designations of the sizes shall be as given in Table 1 to Table 3.

NOTE Size designations should not be used for sole reference unless it is known that the recipients of the communication are conversant with them.

It is recommended that, if there is any doubt whether the designation will be understood, the dimensions should be stated, either in conjunction with or instead of the designations.

3.2 The dimensions of a brick, where stated, shall be given in the order given in Table 1 to Table 3.

4 Tolerances

4.1 Bricks shall be supplied within the dimensional tolerances given in the Table 5.

4.2 The dimensions and shape of refractory bricks shall be measured in accordance with BS 1902-3.11.

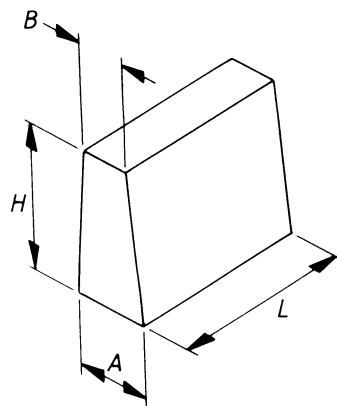
NOTE Attention is particularly drawn to the foreword of this method.

4.3 Evaluation of dimensional tolerances for a consignment of bricks shall be carried out in accordance with BS 6065.

NOTE Guidance on the use of BS 6065 is given in BS 6434.

Table 1 — Dimensions of bricks with constant back face dimension (basic, high alumina, fireclay, insulating and semi-insulating refractory: CB-Y series)

NOTE The symbols designating the dimensions relate only to the diagram in this table.



$H \times L \times A \times B$

Size designation	Dimensions				Volume	Nominal outer diameter ^a
	<i>H</i>	<i>L</i>	<i>A</i>	<i>B</i>		
	mm	mm	mm	mm	L	mm
216Y	160	198	103	86.0	2.99	1 950
316Y	160	198	103	92.0	3.09	3 000
416Y	160	198	103	94.5	3.13	3 900
516Y	160	198	103	96.5	3.16	5 050
716Y	160	198	103	98.3	3.19	7 000
218Y	180	198	103	84.0	3.33	1 950
318Y	180	198	103	90.5	3.45	2 950
418Y	180	198	103	93.5	3.50	3 900
518Y	180	198	103	95.5	3.54	4 950
618Y	180	198	103	97.0	3.56	6 200
718Y	180	198	103	97.7	3.58	7 000
220Y	200	198	103	82.0	3.66	1 950
320Y	200	198	103	89.0	3.80	2 950
420Y	200	198	103	92.5	3.87	3 900
520Y	200	198	103	94.7	3.91	4 950
620Y	200	198	103	96.2	3.94	6 050
720Y	200	198	103	97.0	3.96	6 850
820Y	200	198	103	97.8	3.98	7 900
322Y	220	198	103	88.0	4.16	3 000
422Y	220	198	103	91.5	4.24	3 950
522Y	220	198	103	94.0	4.29	5 050
622Y	220	198	103	95.5	4.32	6 050
722Y	220	198	103	96.5	4.35	6 950
822Y	220	198	103	97.3	4.36	7 950
425Y	250	198	103	90.0	4.78	3 950
525Y	250	198	103	92.7	4.84	5 000
625Y	250	198	103	94.5	4.89	6 050
725Y	250	198	103	95.5	4.91	6 850
825Y	250	198	103	96.5	4.94	7 900

^a The nominal diameter does not take into account any allowances which have to be made for steel plates, expansion materials or mortar joints.