International Standard 5019/4

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Refractory bricks — Dimensions — Part 4 : Dome bricks for electric arc furnace roofs

Briques réfractaires — Dimensions — Partie 4 : Briques de voûte pour fours électriques

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

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Refractory bricks — Dimensions — Part 4: Dome bricks for electric arc furnace roofs

1 Scope and field of application

This part of ISO 5019 specifies the dimensions of refractory bricks for use in the domes of electric arc furnace roofs.

2 Dimensions

The dimensions of refractory bricks for use in the domes of electric arc furnace roofs shall be as shown in the table. The letter references used in the table are illustrated in figure 1.

NOTE — A commentary on the brick sizes specified is included in the annex.

3 Brick designations

The bricks of the different dimensions shall be designated by the reference numbers shown in the table.

In these reference numbers:

a) the first letter (*H*, *J* or *K*) indicates the brick length (roof thickness) (230 mm; 250 mm or 300 mm);

b) the second letter (*W*, *X*, *Y* or *Z*) indicates the spherical radius (2,7 m; 4,5 m; 6,3 m or 8,1 m);

c) the digit in the third place (1, 2, 3 or 4) indicates the side arch taper (2 mm; 3 mm; 6 mm or 13 mm).

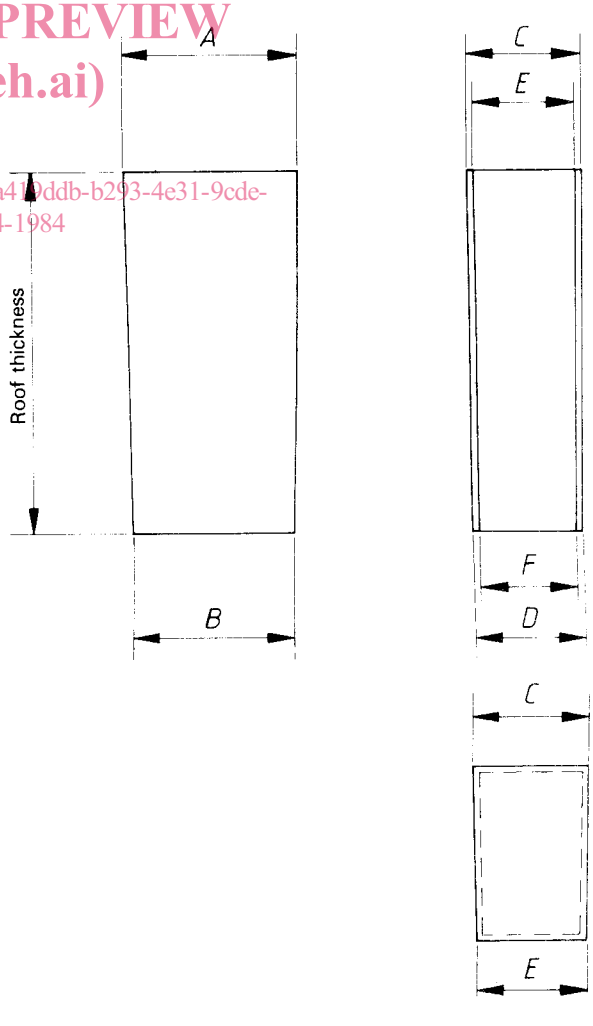

Figure 1 — Designation of brick dimensions in the table

Table — Dimensions of bricks for electric arc furnace roofs

Roof thickness mm	Nominal spherical radius m	Brick dimensions mm						Reference No.
		A	*B*	*C*	*D*	*E*	*F*	
230	4,5	114	108,5	76	72,5	73	69,5	HX2
		114	108,5	76	72,5	70	67	HX3
		114	108,5	76	72,5	63	60	HX4
	2,7	114	105	76	70	73	67	HW2
		114	105	76	70	70	64,5	HW3
		114	105	76	70	63	58	HW4
250	8,1	114	110,5	76	73,5	74	71,5	JZ1
		114	110,5	76	73,5	73	70,5	JZ2
		114	110,5	76	73,5	70	67,5	JZ3
		114	110,5	76	73,5	63	61	JZ4
	6,3	114	109,5	76	73	74	71	JY1
		114	109,5	76	73	73	70	JY2
		114	109,5	76	73	70	67	JY3
		114	109,5	76	73	63	60,5	JY4
300	8,1	114	110	76	73,5	74	71,5	KZ1
		114	110	76	73,5	73	70,5	KZ2
		114	110	76	73,5	70	67,5	KZ3
		114	110	76	73,5	63	61	KZ4
	6,3	114	109	76	72,5	74	70,5	KY1
		114	109	76	72,5	73	69,5	KY2
		114	109	76	72,5	70	67	KY3
		114	109	76	72,5	63	60	KY4

Annex

Commentary on the bricks selected for roof construction

A.1 Ring construction is recommended, using bricks derived from a 114 mm × 76 mm cross-section, to be laid in the roof with each 114 mm dimension set radially, i.e. in a plane passing through the vertical axis of the dome.

A.2 Three roof thicknesses are recommended (i.e. 230 mm, 250 mm, and 300 mm).

A.3 Bricks of four nominal spherical radii have been chosen (i.e. 2,7 m, 4,5 m, 6,3 m and 8,1 m) to cover roof diameters from 1,5 to 8 m and roof rise ratios of from 1:15 to 1:8 as shown in figure 2. There is no necessity to offer all four spherical radii for each roof thickness and six combinations of roof thickness and spherical radius have been selected, as shown in the table. These combinations accommodate the higher roof rises now being used on most larger furnaces. Brick dimensions have been rounded off to ± 0,5 mm and hence, for the various roof thicknesses, actual spherical radii may vary slightly from the nominal values quoted.

A.4 For each of the six combinations, the table includes the side arch tapers which are required in order to construct the individual brick rings in the roof. Clearly, rings could be constructed from two selected tapers but four are included to give increased flexibility of selection and greater stability in the construction of large diameter roofs.

A.5 An additional series of dimensions is being considered for adoption.

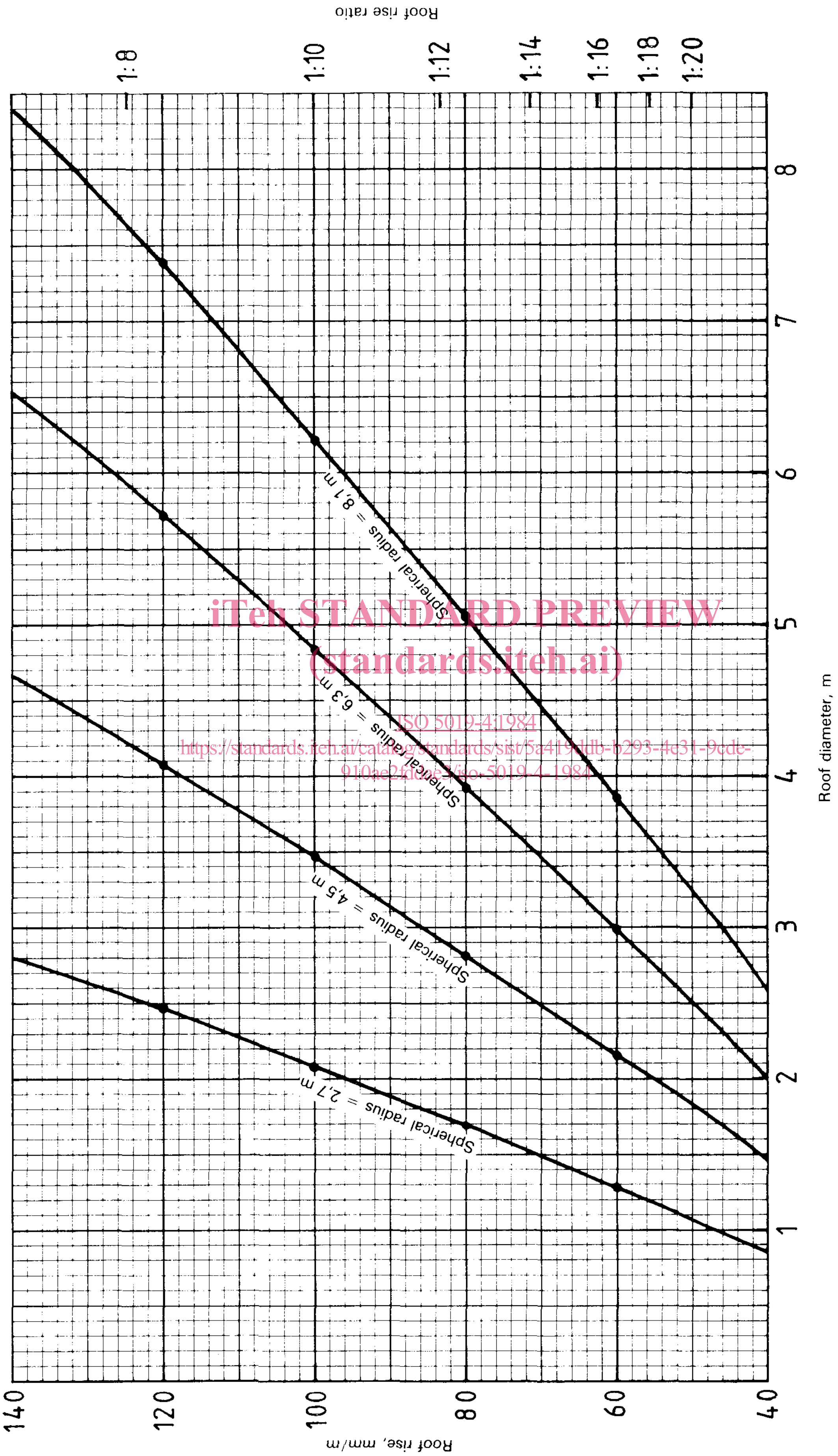

Figure 2 — Relationship between roof diameter, roof rise and spherical radius