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AN AMERICAN NATIONAL STANDARD

Preferred Metric Sizes for Flat Metal Products

ANSI/ASME B32.3M-1984

(REVISION OF ANSI B32.3-1977 AND ANSI B32.3a-1978)

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THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

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FOREWORD

(This Foreword is not part of American National Standard ANSI/ASME B32.3M-1984.)

The U.S. Department of Commerce, in its July 1971 report to Congress titled "A Metric America – A Decision Whose Time Has Come," recommended that the United States should change to the metric system of measurement through a coordinated national program. This action along with subsequent increased metric activity in industry resulted in a number of requests from producers and users that the B32 Committee develop preferred series of metric sizes for the various forms of wrought metal mill products.

On January 17, 1973, Subcommittees 1 and 2 were formed to establish preferred metric sizes of flat and round metal products, respectively. Subsequently, Subcommittee 2 had its scope enlarged to include square and hexagon products. Subcommittee 4 was formed on October 24, 1973, to consider tubular products. These subcommittees are composed of representatives of the major metal trade associations and user groups.

After several meetings unanimous agreement was reached by Subcommittee 1 on the preferred metric thicknesses for flat metal products and on the preferred metric widths for flat rectangular cross section metal products. Three considerations guided the Subcommittee: preferred number sizes included in ISO Recommendation R388, sizes actually used in metric countries, and rounded metric equivalents of high activity inch sizes used in the United States.

The proposal received Standards Committee B32 approval on June 4, 1974. It was subsequently approved by the sponsor and submitted to the American National Standards Institute for designation as an American National Standard. This was granted on July 9, 1974.

The first edition was very favorably received and the dynamic metrication planning activity which it generated prompted the Committee to expand the coverage. Requests were received to extend the range of thicknesses from 160 mm to 300 mm and to establish a series of preferred lengths for products within the limits of Tables 1 and 2 which are supplied in straight lengths. This was done after due deliberation. In addition, a 4.2 mm second preference thickness which was inadvertently omitted in the first edition was restored, and fifteen third preference thicknesses were included. Also, the 250 mm and 300 mm second preference widths were reclassified as preferred widths, and thirteen rounded 10 series widths up to 5000 mm were added as preferred widths.

The second edition proposal received Standards Committee B32 approval on September 7, 1976. It was subsequently approved by the sponsor and submitted to the American National Standards Institute for approval, which was granted on April 19, 1977.

The present edition was approved by the American National Standards Institute on September 24, 1984.

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Standardization of Metal and Metal Alloy Wrought Mill Product Nominal Sizes

(The following is the roster of the Committee at the time of the approval of this Standard.)

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ANSI/ASME B32.3M-1984
AN AMERICAN NATIONAL STANDARD

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PREFERRED METRIC SIZES FOR FLAT METAL PRODUCTS

1 SCOPE

This Standard establishes a preferred series of metric thicknesses, a preferred series of metric widths, and a preferred series of metric lengths for flat metal products of rectangular cross section. The thicknesses and widths shown in this Standard are also applicable to base metals which may be coated in later operations.

2 GENERAL

The sizes in this Standard provide an orderly series of thicknesses for all flat metal products and an orderly series of widths for rectangular cross section metal products. The series were developed to provide a reasonable selection of metal thicknesses from 0.050 mm to 300 mm and of metal widths from 10 mm to 5000 mm. In each case and series provides for some second choice sizes (thicknesses and widths) and some third choice sizes (thickness) to cover instances where selection from the primary preferred sizes may be inadequate. Sufficient coverage in logical steps is presented in the tables to adequately serve most of the general purpose requirements of industry for flat metal products. The Standard also provides an orderly series of lengths for flat metal products other than coil, which does not include any second preference lengths.

It is recognized that for some applications, particularly large volume requirements in some metals for specific end uses, precise engineering requirements dictate a need for sizes other than those presented in this Standard. This Standard is in no way meant to preclude the use of such sizes where they are required. However, for general purpose applications or where requirements permit some latitude in the selection of thickness or thickness/width/length combinations, the simplified preferred sizes given in this Standard should facilitate interchangeability of metals in design, reduce inventories, and increase the availability of warehouse stocks of those sizes commonly used for general purpose applications. In such instances the use of sizes listed in this Standard is to be encouraged.

All of the sizes included in this Standard are not necessarily produced in all metals and grades. Producers or distributors must be consulted to determine availability of a particular thickness or thickness/width combination for a given metal product.

3 USE OF TABLES

Wherever possible sizes should be selected from the columns headed "Preferred Thickness" and "Preferred Width." Only if no size in the preferred list is suitable should a selection be made from the columns headed "Second Preference" or "Third Preference." Lengths should be selected from the one preferred list.

4 BASIS OF TABLES

Most of the thickness and width sizes in this Standard are derived from a list of preferred metric numbers in which each number is approximately 25% greater than the number preceding it (ANSI Z17.1 Series 10). Some deviations from this principle occur as the result of rounding and as the result of demonstrated or anticipated need for sizes other than those which follow the above principle.

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TABLE 1 PREFERRED THICKNESSES FOR ALL FLAT METAL PRODUCTS, mm

Preferred Thickness	Second Preference	Third Preference	Preferred Thickness	Second Preference	Third Preference
0.050				3.8	
0.060			4.0		
0.080				4.2	
0.10				4.5	
0.12				4.8	
	0.14		5.0		
0.16				5.5	
	0.18		6.0		
0.20					6.5
	0.22			7.0	
0.25					7.5
	0.28		8.0		
0.30				9.0	
	0.35		10		
0.40				11	
	0.45		12		
0.50				14	
	0.55		16		
0.60				18	
	0.65		20		
	0.70			22	
		0.75	25		
0.80				28	
		0.85	30		
	0.90			32	
		0.95	35		
1.0				38	
		1.05	40		
	1.1			45	
1.2			50		
		1.3		55	
	1.4		60		
		1.5		70	
1.6			80		
		1.7		90	
	1.8		100		
		1.9		110	
2.0			120		
		2.1		130	
	2.2		140		
		2.4		150	
2.5			160		
		2.6	180		
	2.8		200		
3.0			250		
	3.2		300		
		3.4			
3.5					
		3.6			

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TABLE 2 PREFERRED WIDTHS FOR FLAT METAL PRODUCTS, mm

Preferred Width	Second Preference	Preferred Width	Second Preference
10		200	
12			225
16		250	
20			280
25		300	
30		400	
35		500	
40		600	
			700
	45	800	
			900
50		1 000	
	55	1 200	
60		1 500	
	70	2 000	
80		2 500	
	90	3 000	
100		3 500	
	110	4 000	
120		5 000	
	130		
140			
	150		
160			
180			

GENERAL NOTE: These widths are applicable to bar, foil, flat wire, plate, ribbon, sheet, strip, etc., only where the width falls within the 10 to 5000 mm range.

TABLE 3 PREFERRED LENGTHS FOR FLAT METAL PRODUCTS, mm

2 000
2 500
3 000
3 500
4 000
4 500
5 000
6 000
8 000
10 000
12 000
14 000
16 000
18 000

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AMERICAN NATIONAL STANDARDS FOR PRODUCT SIZES

TITLE OF STANDARD	
Preferred Thicknesses for Uncoated Thin Flat Metals (Under 0.250 In.)	B32.1-1952 (R1983)
Preferred Diameters for Round Wire – 0.500 Inches and Under	B32.2-1969 (R1979)
Preferred Metric Sizes for Flat Metal Products	B32.3M-1984
Preferred Metric Sizes for Round, Square, Rectangle and Hexagon Metal Products	B32.4M-1980
Preferred Metric Sizes for Tubular Metal Products Other Than Pipe	B32.5-1977 (R1983)
Preferred Metric Equivalents of Inch Sizes for Tubular Metal Products Other Than Pipe	B32.6-1977
Welded and Seamless Wrought Steel Pipe	B36.10-1979
Stainless Steel Pipe	B36.19-1976

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