AMERICAN NATIONAL STANDARD

Metric Slotted Hex Nuts

ANSI B18.2.4.3M - 1979

Government Key Words:
Nut, Slotted, Hex — Metric

REAFFIRMED 1995

FOR CURRENT COMMITTEE PERSONNEL
PLEASE SEE ASME MANUAL AS-11

REAFFIRMED 2017

SECRETARIAT

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ERRATA

to

ANSI B18.2.4.3M-1979
METRIC SLOTTED HEX NUTS

Page 4, *in the standard shall be replaced with the second page of this Errata*

Page 7, *for* MATERIAL AND FINISH CODE A *and* B, *change* 0.005 mm *to read* 5.1 μm

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
345 East 47 Street, New York, N.Y. 10017

M0119E

May 1981

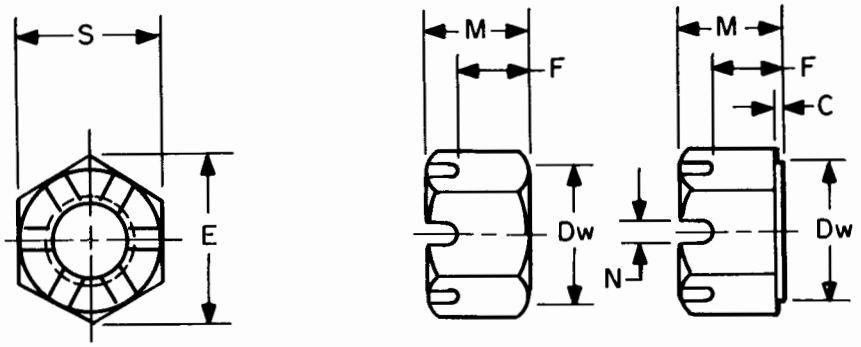

Table 1 Dimensions of Slotted Hex Nuts

Nominal Nut Dia and Thread Pitch	S		E		M		Dw	F		N		C		Total Runout of Bearing Surface FIM
	Width Across Flats		Width Across Corners		Thickness		Bearing Face Dia	Unslotted Thickness		Width of Slot		Washer Face Thickness		
	Max	Min	Max	Min	Max	Min	Min	Max	Min	Max	Min	Max	Min	Max
M5 x 0.8	8.00	7.78	9.24	8.79	5.10	4.80	6.9	3.2	2.9	2.0	1.4	–	–	0.30
M6 x 1	10.00	9.78	11.55	11.05	5.70	5.40	8.9	3.5	3.2	2.4	1.8	–	–	0.33
M8 x 1.25	13.00	12.73	15.01	14.38	7.50	7.14	11.6	4.4	4.1	2.9	2.3	–	–	0.36
M10 x 1.5	16.00	15.73	18.48	17.77	9.30	8.94	14.6	5.2	4.9	3.4	2.8	–	–	0.39
M12 x 1.75	18.00	17.73	20.78	20.03	12.00	11.57	16.6	7.3	6.9	4.0	3.2	–	–	0.42
M14 x 2	21.00	20.67	24.25	23.35	14.10	13.40	19.6	8.6	8.0	4.3	3.5	–	–	0.45
M16 x 2	24.00	23.67	27.71	26.75	16.40	15.70	22.5	9.9	9.3	5.3	4.5	–	–	0.48
M20 x 2.5	30.00	29.16	34.64	32.95	20.30	19.00	27.7	13.3	12.2	5.7	4.5	0.8	0.4	0.56
M24 x 3	36.00	35.00	41.57	39.55	23.90	22.60	33.2	15.4	14.3	6.7	5.5	0.8	0.4	0.64
M30 x 3.5	46.00	45.00	53.12	50.85	28.60	27.30	42.7	18.1	16.8	8.5	7.0	0.8	0.4	0.76
M36 x 4	55.00	53.80	63.51	60.79	34.70	33.10	51.1	23.7	22.4	8.5	7.0	0.8	0.4	0.89
Refer to Para.	4		7		5		6	10		10		6		6
*M10 x 1.5	15.00	14.73	17.32	16.64	10.0	9.6	13.6	5.7	5.4	3.4	2.8	0.6	0.3	0.39

*See Para. 2.2 in General Data.

FOREWORD

American National Standards Committee B18 for the standardization of bolts, screws, nuts, rivets and similar fasteners was organized in March 1922, as Sectional Committee B18 under the aegis of the American Engineering Standards Committee (later the American Standards Association, then the United States of America Standards Institute and, as of October 6, 1969, the American National Standards Institute, Inc.), with the Society of Automotive Engineers and the American Society of Mechanical Engineers as joint sponsors. Subcommitee 2 was subsequently established and charged with the responsibility for technical content of standards covering wrench head bolts and nuts.

At its meeting on December 4, 1974, Committee B18 authorized preparation of a series of standards for metric fasteners. Subcommittee 2 was assigned responsibility for developing standards for metric hex bolts, screws and nuts.

At a meeting on September 22, 1976, Subcommittee 2 organized the contents of a standard covering six different styles of hex nuts. Actual drafting was postponed until ISO/TC2 could reach final decisions relating to basic dimensions and characteristics of hex bolts, screws and nuts. At ISO/TC2 meetings held in April 1977, final actions were taken, Committee B18 affirmed the TC2 decisions at a meeting on June 29, 1977, and drafting of this standard was started.

In February 1978, Committee B18 established a cooperative program with the Department of Defense to draft American National Standards for metric fasteners in such a way that they could be used directly by the Government for procurement purposes. The Department of Defense requested that each of the six nut products be covered in separate standards, and Subcommittee 2 accepted this approach at its meeting on June 27, 1978.

This standard was approved by letter ballot of Committee B18 on July 2, 1979, and was subsequently approved by the secretariats and submitted to the American National Standards Institute for designation as an American National Standard. This was granted on December 6, 1979.

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CONTENTS

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AMERICAN NATIONAL STANDARD

METRIC SLOTTED HEX NUTS

GENERAL DATA

1. Scope

1.1 This standard covers the complete general and dimensional data for metric slotted hex nuts recognized as American National Standard.

1.2 The inclusion of dimensional data in this standard is not intended to imply that all of the nut sizes in conjunction with the various options described herein are stock items. Purchasers are requested to consult with manufacturers concerning lists of stock production slotted hex nuts.

1.3 Slotted hex nuts purchased for Government use shall conform to this standard, and additionally to the requirements of Appendix II.

2. Comparison with ISO standards

2.1 Slotted hex nuts as covered in this standard have been coordinated to the extent possible with draft ISO standards. The dimensional differences between this ANSI standard and the ISO draft standards are very few and relatively minor. None affect the functional interchangeability of nuts manufactured to the requirements of either.

2.2 At its meetings in Varna, May 1977, ISO/TC2 studied several technical reports analyzing design considerations influencing determination of the best series of width across flats for hex bolts, screws and nuts. A primary technical objective was to achieve a logical ratio between under head (nut) bearing surface area (which determines the magnitude of the compressive stress on the bolted members) and the tensile stress area of the screw thread (which governs the clamping force that can be developed by tightening the fastener). Table 1 lists the sizes selected by ISO/TC2 to be ISO standard.

M10 nuts with 15 mm width across flats are currently being produced and used in U.S.A. and many other countries of the world. This size, however, is not an ISO standard. Unless M10 nuts with 15 mm width across flats are specifically ordered, M10 nuts with 16 mm width across flats shall be furnished.

2.3 Letter symbols designating dimensional characteristics are in accord with those used in ISO standards, except capitals have been used for data processing convenience instead of lower case letters used in ISO standards.

3. Dimensions. All dimensions in this standard are in millimeters, unless otherwise stated.

4. Width Across Flats

4.1 The width across flats shall be the distance, measured perpendicular to the axis of the nut, between two opposite wrenching flats.

4.2 Regardless of nut material or manufacturing process, no transverse section through the nut between 25 and 75 percent of the actual nut thickness as measured from the bearing surface shall be less than the minimum width across flats specified in Table 1.

4.3 Maximum width across flats shall not be exceeded, except that for milled-from-bar nuts made of non-ferrous materials the specified maximum width across flats may be exceeded to conform with the commercial tolerances of cold finished bar stock material.

4.4 For milled-from-bar nuts, the nominal bar size used shall be the closest commercially available size to, but not greater than, the specified maximum width across flats of the nut.