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## FOREWORD

In the spring of 2010, the B18 Committee decided that a metric version of ASME B18.2.6, Fasteners for Use in Structural Applications, should be created for fastener guidance on metric structural fasteners used in North America. This Standard, ASME B18.2.6M, is the result of that effort. It was decided that since there were not yet any ASTM material and testing standards for twist-off bolts, their dimensions should not be included in this initial edition of this Standard. This Standard does include the dimensions for metric structural bolts, metric heavy hex nuts, metric structural washers, and metric compressible-washer-type direct tension indicators.

Suggestions for improvement of this Standard are welcome. They should be addressed to the Secretary, ASME B18 Standards Committee, Three Park Avenue, New York, NY 10016-5959.

This Standard was approved as an American National Standard on February 9, 2012.



# ASME B18 COMMITTEE

## Standardization of Bolts, Nuts, Rivets, Screws, Washers, and Similar Fasteners

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

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## CORRESPONDENCE WITH THE B18 COMMITTEE

**General.** ASME Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard may interact with the Committee by requesting interpretations, proposing revisions, and attending Committee meetings. Correspondence should be addressed to:

Secretary, B18 Standards Committee  
The American Society of Mechanical Engineers  
Three Park Avenue  
New York, NY 10016-5990  
<http://go.asme.org/Inquiry>

**Proposing Revisions.** Revisions are made periodically to the Standard to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Standard. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Standard. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

**Proposing a Case.** Cases may be issued for the purpose of providing alternative rules when justified, to permit early implementation of an approved revision when the need is urgent, or to provide rules not covered by existing provisions. Cases are effective immediately upon ASME approval and shall be posted on the ASME Committee Web page.

Requests for Cases shall provide a Statement of Need and Background Information. The request should identify the Standard, the paragraph, figure or table number(s), and be written as a Question and Reply in the same format as existing Cases. Requests for Cases should also indicate the applicable edition(s) of the Standard to which the proposed Case applies.

**Interpretations.** Upon request, the B18 Committee will render an interpretation of any requirement of the Standard. Interpretations can only be rendered in response to a written request sent to the Secretary of the B18 Standards Committee.

The request for interpretation should be clear and unambiguous. It is further recommended that the inquirer submit his/her request in the following format:

Subject: Cite the applicable paragraph number(s) and the topic of the inquiry.  
Edition: Cite the applicable edition of the Standard for which the interpretation is being requested.  
Question: Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. The inquirer may also include any plans or drawings that are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in this format may be rewritten in the appropriate format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

**Attending Committee Meetings.** The B18 Standards Committee regularly holds meetings that are open to the public. Persons wishing to attend any meeting should contact the Secretary of the B18 Standards Committee.



# METRIC FASTENERS FOR USE IN STRUCTURAL APPLICATIONS

## 1 INTRODUCTION

### 1.1 Scope

**1.1.1** This Standard covers the complete general and dimensional data for products in the metric series recognized as American National Standard for sizes M12 through M36. These four metric structural products include

- (a) metric heavy hex structural bolts: ASTM A325M and ASTM A490M
- (b) metric heavy hex nuts: ASTM A563M
- (c) metric hardened steel washers; circular, circular clipped, and beveled: ASTM F436M
- (d) metric compressible washer-type direct tension indicators: ASTM F959M

**1.1.2** The inclusion of dimensional data in this Standard is not intended to imply that all products described herein are stock production sizes. Consumers should consult with suppliers concerning lists of available stock production sizes.

### 1.2 Dimensions

All dimensions in this Standard are in millimeters, unless stated otherwise, and apply to unplated or uncoated product. When plating or coating is specified, the finished product dimensions shall be as agreed upon between supplier and purchaser. Symbols specifying geometric characteristics are in accordance with ASME Y14.5.

### 1.3 Options

Options, where specified, shall be at the discretion of the supplier, unless otherwise agreed upon by the purchaser and supplier.

### 1.4 Terminology

For definitions of terms relating to fastener dimensional or component features used in this Standard, refer to ASME B18.12.

### 1.5 Comparison to ISO and CEN Standards

ISO 4775 is similar to the nut in this Standard.  
ISO 7415 is similar to the structural washer in this Standard.

There are no comparable ISO standards for compressible indicating washers.

CEN 14399 is a similar standard for structural fasteners including hex bolts, heavy hex nuts, structural washers, and compressible indicating washers.

### 1.6 Referenced Standards

Unless otherwise specified, the referenced standard shall be the most recent issue.

ASME B1.3, Screw Thread Gaging Systems for Acceptability — Inch and Metric Screw Threads (UN, UNR, UNJ, M, and MJ)

ASME B1.13M, Metric Screw Threads — M Profile

ASME B1.16M, Gages and Gaging for Metric M Screw Threads

ASME B18.2.4.6M, Metric Heavy Hex Nuts

ASME B18.2.5, Straightness Gage and Gaging for Bolts and Screws

ASME B18.2.6, Glossary of Terms for Mechanical Fasteners

ASME B18.18, Quality Assurance for Fasteners

ASME B18.24, Part Identifying Number (PIN) Code System for B18 Fastener Products

ASME Y14.5-2009, Dimensioning and Tolerancing

Publisher: The American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016-5990; Order Department: 22 Law Drive, P.O. Box 2900, Fairfield, NJ 07007-2900 ([www.asme.org](http://www.asme.org))

ASTM A325M, Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength (Metric)

ASTM A490M, High Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Joints (Metric)

ASTM A563M, Carbons and Alloy Steel Nuts (Metric)

ASTM B695, Coatings of Zinc Mechanically Deposited on Iron and Steel

ASTM F436M, Hardened Steel Washers (Metric)

ASTM F788/F788M, Surface Discontinuities of Bolts, Screws, and Studs, Inch and Metric Series

ASTM F812/F812M, Surface Discontinuities of Nuts, Inch and Metric Series

ASTM F959M, Compressible Washer Type Direct Tension Indicators for Use With Structural Fasteners (Metric)

ASTM F2674, Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners (Metric)

Publisher: American Society for Testing and Materials (ASTM International), 100 Barr Harbor Drive, P.O. Box

