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ASME B18.10-2006

[Revision of ANSI/ASME B18.10-1982 (R2005)]

Track Bolts and Nuts

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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Three Park Avenue • New York, NY 10016

Date of Issuance: August 14, 2006

This Standard will be revised when the Society approves the issuance of a new edition. There will be no addenda issued to this edition.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Interpretations are published on the ASME website under the Committee Pages at http://www.asme.org/codes/ as they are issued.

The American Society of Mechanical Engineers
Three Park Avenue, New York, NY 10016-5990

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FOREWORD

Sectional Committee B18 on Dimensional Standardization of Bolts, Nuts, Rivets, Screws, and Similar Fasteners was organized in March 1922, under the procedure of the American Standards Association with the Society of Automotive Engineers and The American Society of Mechanical Engineers as joint sponsors.

Following the organization of the Sectional Committee, subcommittees were appointed to facilitate development of standards for the several types of bolts and nuts within the scope of its activity. Subcommittee No. 4 on Track Bolts and Nuts was organized in March 1923. With the cooperation of the Rail Committee of the American Railway Engineering Association, Engineering Division of the American Railway Association, a study was made first of the various types of track bolts in use in the United States. In March 1924, two series of proposed standard dimensions for track bolt heads were developed conforming to that practice. This activity finally resulted in the approval and issuance of an American Standard known as B18d in November 1930.

Following its reorganization, the Sectional Committee in February 1947 decided that a further study should be made of the existing standards. Some types and sizes were no longer required nor specified by users. Furthermore, manufacturers presented data on the multiplicity of designs and dimensional features of nuts and bolts which complicated stock sizes, dies, and tools.

Therefore, a new subcommittee was formed in May 1947. It was agreed that a comprehensive series of tests would be beneficial, particularly in determining dimensional features of track nuts as compared to the strength and design of the track bolt. Plans for the tests were developed in detail and conducted at one of the Republic Steel Corporation's plants in Cleveland, Ohio during 1947 and 1948. These tests were mostly of the static tension type and involved hundreds of specimens and literally thousands of measurements.

Analysis of these tests indicated the desirability of making a series of torque tests which would be more in the nature of actual usage of track bolts and nuts in service.

Testing equipment was assembled and the actual work was conducted at the Roanoke, Virginia Shops of the Norfolk & Western Railway during 1949, using special equipment devised for the purpose. The resulting data have served as a guide in arriving at the revised standards presented in the table.

Practical features were also taken into consideration in connection with some of the dimensions, both of track bolts and track bolt nuts, to provide for usage in the field. All of the sizes in use for specific applications have not been included, because it would be impossible to incorporate all special sizes without enlarging the tables to an impractical extent.

The Subcommittee worked closely with committees of the American Railway Engineering Association and the American Iron and Steel Institute having jurisdiction in track bolt and nut standardization. These committees concur in principle with the revision that has been prepared. Their assistance and cooperation in arriving at the revised standards were important and are fully recognized.

The foregoing work resulted in the issuance of a revised standard known as American Standard Track Bolts and Nuts ASA B18.10-1952. All types of track bolts and nuts used by the various railroads and electric railways in the United States and Canada were studied by the committee, and it is their belief that the recommended dimensions are based on sound engineering design to meet existing conditions, present usage, and where possible, simplification of manufacture. Manufacturers of track bolts and nuts furnished data to the committee on sizes and types purchased over an extended period to determine the most generally used design. A program of static and torsion testing was conducted to establish the best engineering design, taking into account present-day joint bar designs, use of power wrenches, and other factors.

At a meeting on May 23, 1958, the Subcommittee proposed that several revisions of the standards be considered to simplify certain features and bring them up to date. These revisions were given further study in collaboration with the AREA Rail Committee. During a meeting on May 12, 1960, the Subcommittee recommended certain revisions in provisions for the wrench turn fit,

correction of errors in the "H" dimensions for the $\frac{5}{8}$ in. and $1\frac{1}{8}$ in. diameter bolts in Table 1, elimination of the dimensions for the $1\frac{1}{4}$ in. diameter track bolt and nut as this size had not been used, and an addition of a drawing to Table 3 to show the 25 deg chamfer track bolt nut in addition to the 60 deg chamfer track bolt nut. Later, the minimum dimensions for thickness *U* of the track bolt nuts in Table 3 were revised to correspond to the ASA B18.2-1960 standard. A revised draft incorporating the recommended changes received letter ballot approval of the Sectional Committee on August 29, 1962, and a receipt of sponsor approval was submitted to the American Standards Association with the recommendation for approval as an American Standard. This approval was granted on May 22, 1963.

In October 1981, the Subcommittee was requested to review the current specification dated 1963 and reaffirmed in 1975. This review resulted in a modification of the section on threads/thread-fit to conform with other standards on track bolts and nuts regarding terminology being used for measuring allowable resistance on free and wrench fit nuts. Other changes include cross-references to specific ASTM/AREA standards and appropriate ANSI specifications.

This Standard was approved by a letter ballot of Sectional Committee B18 on May 11, 1982. It was subsequently approved by the Sponsor and submitted to the American National Standards Institute for designation as an American National Standard. This designation was granted on November 2, 1982.

B18 Subcommittee No. 2 notified the American Railway Engineering and Maintenance of Way Association (AREMA) in May of 2001 that this Standard was out of date and needed a revision. It offered to prepare a new draft standard working with AREMA representatives in a joint effort. Several drafts were prepared and discussed and in April of 2005, it was agreed to submit a document with the latest revisions for B18 approval. AREMA was given a copy for further comment prior to the ballot.

This Standard was approved as an American National Standard on June 21, 2006.

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

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.

Interpretations. Upon request, the B18 Standards 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 an 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, which 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, which are open to the public. Persons wishing to attend any meeting should contact the Secretary of the B18 Standards Committee.

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TRACK BOLTS AND NUTS

1 INTRODUCTION

1.1 Scope

This Standard covers the complete general and dimensional data for inch series oval neck and elliptic neck track bolts and square nuts intended for use with these bolts, and recognized as an American National Standard. Sizes in use, but not recommended for new design, are included in the appendices of this Standard.

1.2 Comparison to ISO Standards

There is no ISO standard for these products at this time.

1.3 Dimensions

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

All dimensions in this Standard are in inches, unless otherwise stated, and apply to unplated or uncoated products. When plating or coating is specified, the finished product dimensions shall be as agreed upon between supplier and purchaser.

Definitions of specified geometric characteristics are in accordance with ASME Y14.5M.

1.4 Options

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

1.5 Terminology

All terms used in this Standard are defined in ASME B18.12.

1.6 References

Unless otherwise specified, the referenced standard shall be the most recent issue at the time of order placement.

ASME B1.1, Unified Inch Screw Threads (UN and UNR Thread Form)
ASME B1.3M, Screw Thread Gaging Systems for Dimensional Acceptability—Inch and Metric Screw Threads (UN, UNR, UNJ, M, and MJ)
ASME B18.2.1, Square and Hex Bolts and Screws (Inch Series)
ASME B18.2.2, Square and Hex Nuts (Inch Series)
ASME B18.12, Glossary of Terms for Mechanical Fasteners
ASME B18.18.1M, Inspection and Quality Assurance for General Purpose Fasteners
ASME B18.18.2M, Inspection and Quality Assurance for High-Volume Machine Assembly Fasteners
ASME B18.18.3M, Inspection and Quality Assurance for Special Purpose Fasteners
ASME B18.18.4M, Inspection and Quality Assurance for Fasteners for Highly Specialized Engineered Applications
ASME B18.24, Part Identifying Number (PIN) Code System for B18 Fastener Products
ASME Y14.5M, 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 2300, Fairfield, NJ 07007-2300

ASTM A 183, Specification for Carbon Steel Track Bolts and Nuts
ASTM A 354, Standard Specification for Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners
ASTM A 449, Standard Specification for Quenched and Tempered Steel Bolts and Studs
ASTM A 563, Carbon and Alloy Steel Nuts
ASTM F 788/F 788M, Standard Specification for Surface Discontinuities of Bolts, Screws, and Studs—Inch and Metric Series
ASTM F 812/F 812M, Standard Specification for Surface Discontinuities of Nuts—Inch and Metric Series

Publisher: ASTM International (ASTM), 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959

1.7 Part Identifying Number

A numbering system for the specification of these standard products is found in ASME B18.24.

2 GENERAL DATA

2.1 Heads

The design and dimensions of the heads have been commonly referred to as the mushroom head.