

AN AMERICAN NATIONAL STANDARD

# Metric Small Solid Rivets

---

ANSI/ASME B18.1.3M - 1983

12 mm Nominal Diameter and Smaller

**REAFFIRMED 1995**

FOR CURRENT COMMITTEE PERSONNEL  
PLEASE SEE ASME MANUAL AS-11

**Government Key Words:**  
**Rivet, Solid, Small — Metric**

*SPONSORED AND PUBLISHED BY*

**THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS**

**United Engineering Center**

**345 East 47th Street**

**New York, N.Y. 10017**

Date of Issuance: March 31, 1984

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

This code or standard was developed under procedures accredited as meeting the criteria for American National Standards. The Consensus Committee that approved the code or standard was balanced to assure that individuals from competent and concerned interests have had an opportunity to participate. The proposed code or standard was made available for public review and comment which provides an opportunity for additional public input from industry, academia, regulatory agencies, and the public-at-large.

ASME does not "approve," "rate," or "endorse" any item, construction, proprietary device, or activity.

ASME does not take any position with respect to the validity of any patent rights asserted in connection with any items mentioned in this document, and does not undertake to insure anyone utilizing a standard against liability for infringement of any applicable Letters Patent, nor assume any such liability. Users of a code or standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

Participation by federal agency representative(s) or person(s) affiliated with industry is not to be interpreted as government or industry endorsement of this code or standard.

ASME does not accept any responsibility for interpretations of this document made by individual volunteers.

No part of this document may be reproduced in any form,  
in an electronic retrieval system or otherwise  
without the prior written permission of the publisher.

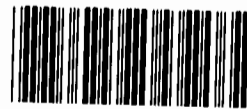
Copyright © 1984 by  
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS  
All Rights Reserved  
Printed in U.S.A.

**ERRATA**  
**to**  
**ANSI/ASME B18.1.3M-1983**  
**METRIC SMALL SOLID RIVETS**

Page 4, Table 3 – *Under Main dimension 12.0 for Ds Min, correct 12.80 to read 11.80*

Page 5, Table 4 –

- (1) *Under Main dimension 12.0 for Ds Min, correct 12.80 to read 11.80*
- (2) *Under Main dimension 4.0 for Head (DK) Basic (K) Min, correct 2.35 to read 2.25*



**M0131E**

Intentionally left blank

## FOREWORD

(This Foreword is not a part of ANSI/ASME B18.1.3M-1983, Metric Small Solid Rivets.)

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. Subcommittee I was subsequently established and charged with the responsibility for technical content of standards covering solid rivets.

At its meeting on December 4, 1974, Committee B18 authorized preparation of a series of standards for metric fasteners. Subcommittee I was assigned responsibility for developing standards for metric solid rivets.

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 product be covered in separate standards, and Subcommittee I accepted this approach.

This Standard was approved by letter ballot of Committee B18 on February 4, 1983, and 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 September 8, 1983.

Intentionally left blank

**ASME STANDARDS COMMITTEE B18**  
**Standardization of Bolts, Nuts, Rivets, Screws, Washers, and Similar Fasteners**

**OFFICERS**

**J. B. Levy, Chairman**  
**H. W. Ellison, Vice-Chairman**      **E. Schwartz, Vice-Chairman**  
**R. McGinnis, Secretary**

**COMMITTEE PERSONNEL**

**AMERICAN SOCIETY OF AGRICULTURAL ENGINEERS**

**E. R. Friesth**, Coal Valley, Illinois

**AMERICAN SOCIETY OF MECHANICAL ENGINEERS, THE**

**K. E. McCullough**, SPS Technologies, Jenkintown, Pennsylvania

**A. R. Machell, Jr.**, Webster, New York

**C. R. Adams, Alternate**, Newport News Shipbuilding & Dry Dock Company, Newport News, Virginia

**ENGINE MANUFACTURERS ASSOCIATION**

**G. A. Russ**, Cummins Engine Company, Columbus, Indiana

**FARM & INDUSTRIAL EQUIPMENT INSTITUTE**

**D. A. Clever**, Deere & Company, Moline, Illinois

**HAND TOOLS INSTITUTE**

**R. B. Wright**, Wright Tool Company, Barberton, Ohio

**INDUSTRIAL FASTENERS INSTITUTE**

**R. B. Belford**, Industrial Fasteners Institute, Cleveland, Ohio

**D. J. Broomfield**, Illinois Tool Work, Shakeproof Division, Elgin, Illinois

**D. A. Garrison**, Russell, Burdsall & Ward Corp., Rock Falls, Illinois

**R. M. Harris**, Bethlehem Steel Corp., Lebanon, Pennsylvania

**D. C. Littell**, R. M. Formed Product Company, Modulus Division, Mt. Pleasant, Pennsylvania

**J. S. Orlando**, Bethlehem Steel Corp., Lebanon, Pennsylvania

**E. H. Sterling**, Parker Kalon Fastener Division, Campbellsville, Kentucky

**J. A. Trilling**, Holo-Krome Company, West Hartford, Connecticut

**S. W. Vass**, Lake Erie Screw Corp., Lakewood, Ohio

**D. D. Wheeler**, Armco Steel Corp., Kansas City, Missouri

**J. C. McMurray, Alternate**, Russell, Burdsall & Ward Corp., Cleveland, Ohio

**E. D. Spengler, Alternate**, Bethlehem Steel Corp., Lebanon, Pennsylvania

**METAL CUTTING TOOL INSTITUTE**

**D. J. Emanuelli**, Greenfield Tap & Die, Greenfield, Massachusetts

**NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION**

**J. B. Levy**, General Electric Company, Schenectady, New York

**F. F. Weingruber**, Westinghouse Electric Corp., Pittsburgh, Pennsylvania

**W. R. Williford, Alternate**, National Electrical Manufacturers Association, Washington, D.C.

**SOCIETY OF AUTOMOTIVE ENGINEERS**

**H. W. Ellison**, General Motors Corp., Warren, Michigan

**R. S. Piotrowski**, Mack Trucks, Inc., Allentown, Pennsylvania

**C. F. Schaening**, General Motors Engineering Standards Section, Warren, Michigan  
**D. W. Vial**, Chrysler Corp., Detroit, Michigan

TELEPHONE GROUP

**T. A. Preston**, Western Electric Company, Chicago, Illinois

TUBULAR RIVET & MACHINE INSTITUTE

**R. M. Byrne**, Tubular Rivet Machine Institute, Tarrytown, New York  
**J. G. Zeratsky**, National Rivet & Manufacturing Company, Waupun, Wisconsin

U.S. DEPARTMENT OF THE ARMY

**M. E. Taylor**, U.S. Army Armament R & D Command, Dover, New Jersey  
**A. Herskovitz**, *Alternate*, U.S. Army Armament R & D Command, Dover, New Jersey

U.S. DEPARTMENT OF DEFENSE

**E. Schwartz**, Defense Industrial Supply Center, Philadelphia, Pennsylvania  
**L. Pieninck**, *Alternate*, Defense Industrial Supply Center, Philadelphia, Pennsylvania

U.S. DEPARTMENT OF THE NAVY

**J. Hass**, Department of the Navy, Washington, D.C.  
**M. S. Orysh**, *Alternate*, Department of the Navy, Philadelphia, Pennsylvania

INDIVIDUAL MEMBERS

**A. R. Breed**, Lakewood, Ohio  
**D. B. Carroll**, Ford Motor Company, Dearborn, Michigan  
**J. E. Eaton, Jr.**, IBM Corp., Boulder, Colorado  
**F. E. Graves**, Fairfield, Connecticut  
**H. G. Muenchinger**, Westerly, Rhode Island  
**J. J. Naesset**, Clark Equipment Company, Battle Creek, Michigan

**PERSONNEL OF SUBCOMMITTEE 1 ON SOLID RIVETS**

**D. A. Garrison**, *Chairman*, Russell, Burdsall & Ward, Corp., Rock Falls, Illinois  
**R. B. Belford**, Industrial Fasteners Institute, Cleveland, Ohio  
**D. A. Clever**, Deere & Company, Moline, Illinois  
**E. R. Cossairt**, Russell, Burdsall & Ward, Corp., Rock Falls, Illinois  
**G. W. Crawford**, Stelco-Brantford Works, Brantford, Ontario, Canada  
**J. A. Diemer**, Champion Commercial Industries, Inc., East Chicago, Indiana  
**E. S. Eckles**, Brainard Rivet Company, Girard, Ohio  
**R. M. Harris**, Bethlehem Steel Corp., Lebanon, Pennsylvania  
**A. R. Machell, Jr.**, Webster, New York  
**W. E. Plankey**, General Electric Company, Burlington, Vermont  
**C. F. Schaening**, General Motors Corp., Warren, Michigan  
**C. J. Schim**, Ford Motor Company, Dearborn, Michigan  
**A. Slowik**, Defense Industrial Supply Center, Philadelphia, Pennsylvania  
**F. F. Weingruber**, Westinghouse Electric Corp., Pittsburgh, Pennsylvania  
**J. G. Zeratsky**, National Rivet & Manufacturing Company, Waupun, Wisconsin

## CONTENTS

Foreword .....	iii
Standards Committee Roster .....	v
<b>1 Introductory Notes .....</b>	<b>1</b>
1.1 Scope .....	1
1.2 Comparison with ISO Standards .....	1
1.3 Rivet Diameters .....	1
1.4 Rivet Head Styles .....	1
1.5 Dimensions .....	1
1.6 Terminology .....	1
1.7 Related Standards .....	1
1.8 Referenced Standards .....	1
1.9 Designation .....	2
1.10 Part Numbering System .....	2
<b>2 General Data .....</b>	<b>2</b>
2.1 Head Information .....	2
2.2 Underhead Fillets .....	2
2.3 Length .....	2
2.4 Straightness .....	3
2.5 Points .....	3
2.6 Materials and Mechanical Properties .....	3
2.7 Finish .....	3
2.8 Workmanship .....	3
2.9 Marking Practice .....	3
2.10 Hole Sizes .....	3
<b>Tables</b>	
1 Rivet Diameters .....	2
2 Tolerance on Length .....	3
3 Dimensions of Flat Head Rivets .....	4
4 Dimensions of Round Head Rivets .....	5
5 Dimensions of Flat Countersunk Head Rivets .....	6
6 Dimensions of Standard Header Points for Metric Small Solid Rivets .....	7
7 Recommended Rivet Lengths .....	8
<b>Appendices</b>	
I Tables and Formulas for Rivet Dimensions .....	9
II Government Standard Items and Part Numbering System .....	12

Intentionally left blank

AN AMERICAN NATIONAL STANDARD

**METRIC SMALL SOLID RIVETS**  
**12 mm Nominal Diameter and Smaller****1 INTRODUCTORY NOTES****1.1 Scope**

**1.1.1** This Standard covers complete general and dimensional data for those types of metric small solid rivets recognized as American National Standard. Included is an appendix covering formulas on which dimensional data are based. It should be understood, however, that where questions arise concerning acceptance of a product, the dimensions in the tables shall govern over recalculation by formula.

**1.1.2** The inclusion of dimensional data in this Standard is not intended to imply that all of the products described are stock production sizes. Consumers should consult with manufacturers concerning the availability of products. For recommended diameter-length combinations, refer to Table 7.

**1.1.3** Metric small solid rivets purchased for Government use shall conform to this Standard and additionally to the requirements of Appendix II.

**1.2 Comparison With ISO Standards**

Except for the inclusion of the 9 mm and 11 mm diameters as nonpreferred sizes and the relegating of the 1 mm and 1.2 mm to the secondary series, the basic rivet diameters shown in this Standard are in conformance with the ISO Recommendation, Rivet Shank Diameters, ISO R1051-1969E for sizes up to and including 12 mm. At present, there are no ISO Standards for commercial small solid rivets nor are any contemplated at this time.

**1.3 Rivet Diameters**

The nominal sizes of metric small rivets from 1 mm through 12 mm are given in Table 1 and shall be considered American National Standard. This, however, does not preclude the manufacture or use of rivets having other diameters which shall be considered special.

**1.4 Rivet Head Styles**

This Standard covers specifications for flat head rivets as given in Table 3, round head rivets as given in Table 4, and flat 90° countersunk head rivets as shown in Table 5.

The proportions for heads of rivets indicated in the respective tables shall be standard; other proportions shall be considered special. Where nonstandard diameter rivets are required for special applications, the proportions of heads and points, if pointed, should preferably be based on the formulations given in Appendix I.

**1.5 Dimensions**

All dimensions in this Standard are given in millimeters (mm) unless otherwise stated. Symbols specifying geometric characteristics are in accordance with American National Standard, Dimensioning and Tolerancing, ANSI Y14.5.

**1.6 Terminology**

For definitions of terms relating to fasteners or component features thereof used in this Standard, refer to American National Standard, Glossary of Terms for Mechanical Fasteners, ANSI B18.12.

**1.7 Related Standards**

It should be noted that Standards for large rivets, tubular and split rivets, and other related fasteners are published under separate cover.

**1.8 Referenced Standards**

Copies of referenced ASTM Standards may be obtained from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

Copies of referenced SAE Standards may be obtained from the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, Pennsylvania 15096.