AMERICAN NATIONAL STANDARD

Small Solid Rivets

ANSI B18.1.1 - 1972

7/16 Inch Nominal Diameter and Smaller

(REVISION OF B18.1–1965)

REAFFIRMED 1995

FOR CURRENT COMMITTEE PERSONNEL
PLEASE SEE ASME MANUAL AS-11

Reaffirmed 2001

SECRETARIAT

SOCIETY OF AUTOMOTIVE ENGINEERS
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

PUBLISHED BY

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

United Engineering Center 345 East 47th Street New York, N. Y. 10017

ACCEPTANCE NOTICE

The above Industry Standardization Document was adopted on 20 November 1972 and is approved for use by the DOD. The indicated industry group has furnished the clearances required by existing regulations. Copies of this document are stocked by the DOD Single Stock Point, U.S. Naval Publications and Forms Center, Philadelphia, Pennsylvania 19120, for issue to DOD activities only .

Title of Document: Small Solid Rivets

Document No.: ANSI B18.1.1-1972

Date of Adopted Issue: 1972

Releasing Industry Group: The American Society of Mechanical Engineers

Supersedes: ANSI B18.1-1965

Custodians:
Army – WC
Navy – None
Air Force – 82

Military Coordinating Activity:
Army – WC

Peoject No. 5320-0231

Reviewer Activities:
Army – MU
Navy – None
Air Force – None

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. Subcommittee 1 was subsequently appointed and charged with responsibility for the standardization of rivets.

Initial efforts of the Subcommittee were directed at development of a standard covering solid rivets of less than 1/2 inch nominal diameter which was approved in 1927 and designated B18a–1927.

A proposed standard covering tinners, coopers and belt rivets was granted recognition as a tentative document in May of 1928 and was approved as an American Standard in January 1929 under the designation B18g–1928.

Revisions made to both of these standards relative to physical tests were issued as addendums under the designations B18a1–1942 and B18g1–1942, respectively.

Following reorganization of Sectional Committee B18 in 1947, Subcommittee 1 was requested to review the documents under its jurisdiction to bring them up to date and, as necessary, develop them into complete product standards. Revisions to the documents on small rivets, and tinners, coopers, and belt rivets were considered at length during several meetings of the Subcommittee held over a period from 1947 to 1951. A draft proposal combining the data contained in both prior documents under the common heading "Small Solid Rivets", incorporating dimensional tolerances with no significant change in basic dimensions was agreed upon by the Subcommittee in November 1952. Following approval by letter ballot of the Sectional Committee and sponsor organizations the revision was submitted to the American Standards Association and was designated an American Standard, B18.1–1953, in June of 1953.

Shortly after publication of the 1953 standard, Subcommittee 1 undertook development of a revision to include data for chamfered points and other minor refinements to meet requirements of the user industry. The resulting proposal was approved by letter ballot of the B18 Committee conducted on May 10, 1954. Subsequent to approval by the sponsors, the revision was presented to the American Standards Association for designation as an American Standard. This was granted on October 5, 1955.

From 1960 to 1962, a number of changes to the standard relating to underhead fillets, dimensioning of countersunk head rivets, points, and material specifications were approved by the Subcommittee. A draft proposal incorporating these revisions and numerous editorial corrections was approved by letter ballot of the Sectional Committee on February 11, 1964. Following approval by the sponsor organizations the revision was designated an American Standard on September 20, 1965.

During 1969 and 1970, Subcommittee 1 drafted a revision of the B18.1 Standard incorporating the addition of the 60-degree flat countersunk head (formerly on Standard ASAE S228), changes to nomenclature for countersunk head and truss head rivets, and a complete reworking of the format to conform with related documents. Subsequent to letter ballot approval by American National Standards Committee B18 and the sponsors, the revision was submitted to the American National Standards Institute and was designated an American National Standard, ANSI B18.1.1–1972, on January 12, 1972.

AMERICAN NATIONAL STANDARDS COMMITTEE B18
Standardization of Bolts, Nuts, Rivets, Screws and Similar Fasteners

OFFICERS

R. P. Trowbridge, *Chairman*
F. V. Kupchak, *Vice-Chairman*
R. B. Belford, *Secretary*

COMMITTEE PERSONNEL

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA
J. F. Cramer, The Boeing Company, Seattle, Washington
S. J. Turek, Grumman Aircraft Engineering Corporation, Bethpage, Long Island, New York

AMERICAN INSTITUTE OF INDUSTRIAL ENGINEERS
R. T. Kelly, Hitchcock Publishing Company, Wheaton, Illinois

AMERICAN SOCIETY FOR TESTING AND MATERIALS
J. W. Caum, American Society for Testing and Materials, Philadelphia, Pennsylvania

AMERICAN SOCIETY OF AGRICULTURAL ENGINEERS
F. C. Ewert, Deere & Company, Moline, Illinois
J. H. Zich, Alternate, Ford Motor Company, Birmingham, Michigan

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, THE
A. R. Machell, Jr., Xerox Corporation, Rochester, New York
F. P. Tisch, Voi-Shan Manufacturing Company, Culver City, California

ASSOCIATION OF AMERICAN RAILROADS
J. G. Britton, Association of American Railroads Research Center, Chicago, Illinois
C. C. Herrick, New York Central System, New York, New York

FARM AND INDUSTRIAL EQUIPMENT INSTITUTE
F. C. Ewert, Deere & Company, Moline, Illinois

INDUSTRIAL FASTENERS INSTITUTE
R. H. Akers, The National Screw and Manufacturing Company, Mentor, Ohio
R. B. Belford, Industrial Fasteners Institute, Cleveland, Ohio
A. R. Breed, The Lamson & Sessions Company, Cleveland, Ohio
T. C. Baumgartner, Standard Pressed Steel Company, Jenkintown, Pennsylvania
W. S. Christopher, Illinois Tool Work, Inc., Elgin, Illinois
D. A. Garrison, Russell, Burdsall & Ward Bolt & Nut Company, Chicago, Illinois
N. J. Gruca, Illinois Tool Works, Inc., Elgin, Illinois
R. C. Kozlik, National Lock Fasteners, Rockford, Illinois
R. L. Riley, Bethlehem Steel Company, Lebanon, Pennsylvania
L. E. Saraz, Jr., Republic Steel Corporation, Cleveland, Ohio
L. G. Selden, Armco Steel Corporation, Kansas City, Missouri
R. W. Groover, Alternate, Bethlehem Steel Company, Lebanon, Pennsylvania
F. R. Ling, Alternate, Russell, Burdsall & Ward Bolt & Nut Company, Port Chester, New York
C. B. Waud, Alternate, Illinois Tool Works, Inc., Elgin, Illinois

MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY
J. R. Welshman, Grinnell Corporation, Providence, Rhode Island

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
F. V. Kupchak, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania
J. B. Levy, General Electric Company, Schenectady, New York
W. A. Samsonoff, Alternate, National Electrical Manufacturers Association, New York, New York

NATIONAL ELEVATOR INDUSTRY, INC.
S. Seth Roberts, Otis Elevator Company, New York, New York

NATIONAL MACHINE TOOL BUILDERS' ASSOCIATION
D. R. Stoner, Jr., Landis Machine Company, Waynesboro, Pennsylvania

SERVICE TOOLS INSTITUTE
J. R. Haynes, J. H. Williams Company, Buffalo, New York

SOCIETY OF AUTOMOTIVE ENGINEERS
D. R. Bowen, General Motors Corporation, Warren, Michigan
E. E. Heibeck, Chrysler Corporation, Detroit, Michigan
K. G. Roth, Mack Trucks, Inc., Allentown, Pennsylvania
R. P. Trowbridge, General Motors Technical Center, Warren, Michigan
S. E. Mallen, Ford Motor Company, Dearborn, Michigan

SOCKET SCREW PRODUCTS BUREAU
Ernest Heldmann, Holo-Krome Company, Hartford, Connecticut
Paul Pick, Allen Manufacturing Company, Hartford West, Connecticut

TELEPHONE GROUP, THE
M. C. Berryman, Western Electric Company, Inc., Chicago, Illinois
R. H. Van Horn, Bell Telephone Laboratory, Columbus, Ohio
F. P. Balacek, Alternate, Bell Telephone Laboratory, Columbus, Ohio

TUBULAR & SPLIT RIVET COUNCIL
R. M. Gordon, Milford Rivet & Machine Company, Milford, Connecticut

U. S. DEPARTMENT OF THE AIR FORCE
F. L. Calkins, Aeronautical Systems Div., Wright-Patterson AFB, Ohio

U. S. DEPARTMENT OF THE ARMY
R. C. Engelmann, Army Weapons Command, Rock Island, Illinois
R. F. Scherer, Alternate, Army Weapons Command, Rock Island, Illinois

U. S. DEPARTMENT OF COMMERCE
To be appointed

U. S. DEPARTMENT OF DEFENSE
J. D. Jones, Defense Industrial Supply Center, Philadelphia, Pennsylvania
Martin Betof, Alternate, Defense Industrial Supply Center, Philadelphia, Pennsylvania

U. S. DEPARTMENT OF THE NAVY
C. A. *Fulesdy*, Naval Ship Systems Command, Washington, D.C.

U. S. MACHINE, CAP, WOOD AND TAPPING SCREW BUREAUS
S. C. Adamek, Pheoll Manufacturing Company, Chicago, Illinois
R. M. Byrne, U.S. Screw Service Bureaus, New York, New York
T. J. Ferry, E. W. Ferry Screw Products Company, Inc., Cleveland, Ohio
Wilfred Kay, Parker-Kalon Corporation, Clifton, New Jersey
Herman Muenchinger, Continental Screw Company, New Bedford, Massachusetts
K. G. Ringland, Central Screw Company, Keene, New Hampshire
C. C. Tucker, The Reed & Prince Manufacturing Company, Worcester, Massachusetts
Louis Zanin, Elco Industries, Inc., Rockford, Illinois
Paul Foytho, Alternate, Harvey Hubbel, Inc., Bridgeport, Connecticut
E. F. Tauscher, Alternate, Pheoll Manufacturing Company, Chicago, Illinois

INDIVIDUAL MEMBERS
H. C. Erdman, Shaker Heights, Ohio
F. E. Graves, Fairfield, Connecticut
Louis Oest, Teaneck, New Jersey
C. A. Werme, Midland Screw Corporation, Chicago, Illinois

PERSONNEL OF SUBCOMMITTEE NO. 1

ON SOLID RIVETS

R. W. Groover, Chairman, Bethlehem Steel Corporation, 1 Cumberland St., Lebanon, Pennsylvania 17042
J. W. Axness, Deere & Company, Technical Center, 3300 River Drive, Moline, Illinois 61265
J. A. Diemer, Champion Commercial Industries, Inc., 5137 Indianapolis Blvd., East Chicago, Indiana 46312
D. A. Garrison, Russell, Burdsall & Ward Bolt and Nut Company, Rock Falls, Illinois 61071
T. R. Higgins, American Institute of Steel Construction, Inc., 101 Park Ave., New York, N. Y. 10017
F. Hobbs, Modulus Corporation, P. O. Box 2619, Pittsburgh, Pennsylvania 15230
R. E. McFarland, Townsend Company, Fasteners Div., Box 71, Ellwood City, Pennsylvania 16117
E. J. Ruble, Association of American Railroads, 3140 South Federal St., Chicago, Illinois 60661
L. G. Selden, Armco Steel Corporation, 7000 Roberts, Kansas City, Missouri 64125
S. J. Vollmer, Ford Motor Company, The American Road, Dearborn, Michigan 48121

CONTENTS

AMERICAN NATIONAL STANDARD

SMALL SOLID RIVETS

7/16 INCH 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 small solid rivets recognized as "American National Standard". All other types of small solid rivets, within the limits of the diameters contained herein, are to be considered special. Also included is an appendix covering formulas on which dimensional data are based. It should be understood, however, that where questions arise concerning acceptance of 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.

1.2 TYPES OF RIVETS

This standard specifies small solid rivets including flat head, flat countersunk head, button head, pan head, truss head, tinners, cooper, belt; and 60-degree flat countersunk head rivets.

1.3 TABULAR SIZES

The nominal sizes of rivets in fractions of an inch or decimals as given for the respective types in Tables 1 through 5, and the sizes as given for the respective types in Tables 6, 7, 8 and 9, shall be considered "American National Standard". This, however, does not preclude the manufacture or use of rivets having other diameters. Where other sizes of rivets having other size designations, such as Birmingham wire gage numbers, are shown in catalogs interposed with "American National Standard" sizes, it is recommended that the data be presented in such form as to make clear which diameters are and which are not "American National Standard"

1.4 HEAD PROPORTIONS

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, shall preferably be based on the formulations given in Appendix I.

1.5 DIMENSIONS

All dimensions in this standard are given in inches, unless otherwise stated.

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 as listed on the back sheet of this standard.

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., Two Pennsylvania Plaza, New York, New York 10001.

2 GENERAL DATA

2.1 HEADS

The head dimensions tabulated in the respective dimensional tables are applicable to rivets produced by the normal cold heading process. Because the heads of these rivets are not machined or trimmed, the circumference may be somewhat irregular and edges may be rounded or flat.

Tolerances applicable to rivets made by the hot heading or forging process shall be as agreed upon between the manufacturer and purchaser.

2.2 UNDERHEAD FILLETS

Rivets other than countersunk types shall be furnished with a definite fillet under the head; however, the radius of fillet shall not exceed 10 per cent of the maximum shank diameter or 0.03 inch, whichever is the smaller.

2.3 LENGTH

2.3.1 Measurement. The length of rivet shall be measured, parallel to the axis of rivet, from the extreme end to the plane of the bearing surface for rivets having flat bearing surface type heads, and to the top of the head for rivets having countersunk type heads.

2.3.2 Tolerance on Length. Unless otherwise specified in the dimensional tables, the tolerance on length of rivets shall be as tabulated below for the respective rivet types:

Rivet Type	Tolerance on Length	
	Plus	Minus
Flat, Flat Countersunk, Pan, Button, Truss and 60-Degree Flat Countersunk Heads	0.016	0.016
Belt	0.031	0.000

2.4 POINTS

Unless otherwise specified, rivets shall have plain sheared ends. The ends shall be at right angles within two degrees to the axis of the rivet and reasonably flat, sufficient for the purposes of driving that end satisfactorily. Where so specified by user, rivets having standard header points shown in Table 10 shall be furnished.

2.5 MATERIALS

2.5.1 Steel. Suitable material for solid steel rivets is covered by American Society for Testing and Materials, ASTM Standard A31, Grade A; or SAE Recommended Practice, Mechanical and Chemical Requirements for Nonthreaded Fasteners – SAE J430, Grade 0.

2.5.2 Other Materials. Where so specified, rivets may also be made from corrosion resistant steel, brass, aluminum and other materials having properties as agreed upon between the manufacturer and purchaser.

2.5.3 Hardness. Hardness tests, where required, shall be made on the sides of the rivet shank.

2.6 FINISH

Unless otherwise specified, rivets shall be supplied with a natural (as processed) finish, unplated or uncoated.

2.7 QUALITY

The finished rivets shall be free from defects affecting their serviceability.

2.8 DESIGNATION

Where specifying rivets, the following data shall be included in the designation and shall appear in the sequence shown:

Nominal Size (number, fraction, or decimal equivalent)

Length (fraction or decimal equivalent, where it is a variable)

Type of Rivet (including the head style where needed to define the part)

Pointed (where not a standard feature and other than plain point is desired)

Material

Finish (if required)

Examples:

1/4 x 1 1/4 Flat Head Small Solid Rivet; Steel, Zinc Plated

.125 x .500 Button Head Small Solid Rivet; Pointed, Brass

3 lb Tinners Rivet; Steel, Zinc Plated

#10 x .38 Belt Rivet; Steel

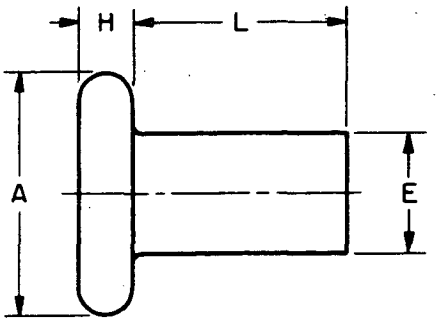

Table 1 Dimensions of Flat Head Rivets

Nominal Size[1] or Basic Shank Diameter		E		A		H	
		Shank Diameter		Head Diameter		Head Height	
		Max	Min	Max	Min	Max	Min
1/16	0.062	0.064	0.059	0.140	0.120	0.027	0.017
3/32	0.094	0.096	0.090	0.200	0.180	0.038	0.026
1/8	0.125	0.127	0.121	0.260	0.240	0.048	0.036
5/32	0.156	0.158	0.152	0.323	0.301	0.059	0.045
3/16	0.188	0.191	0.182	0.387	0.361	0.069	0.055
7/32	0.219	0.222	0.213	0.453	0.427	0.080	0.065
1/4	0.250	0.253	0.244	0.515	0.485	0.091	0.075
9/32	0.281	0.285	0.273	0.579	0.545	0.103	0.085
5/16	0.312	0.316	0.304	0.641	0.607	0.113	0.095
11/32	0.344	0.348	0.336	0.705	0.667	0.124	0.104
3/8	0.375	0.380	0.365	0.769	0.731	0.135	0.115
13/32	0.406	0.411	0.396	0.834	0.790	0.146	0.124
7/16	0.438	0.443	0.428	0.896	0.852	0.157	0.135

[1] Where specifying nominal size in decimals, zeros preceding decimal shall be omitted.

For additional requirements refer to General Data on Page 2.

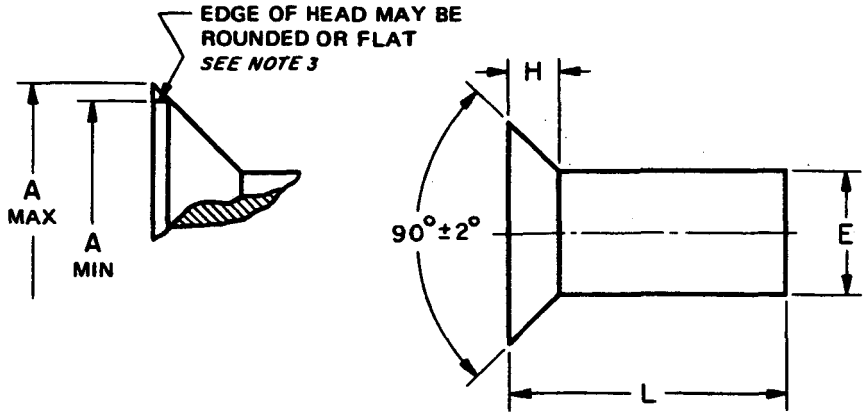

Table 2 Dimensions of Flat Countersunk Head Rivets

Nominal Size[1] or Basic Shank Diameter		E		A		H
		Shank Diameter		Head Diameter		Head Height
		Max	Min	Max[2]	Min[3]	Ref[4]
1/16	0.062	0.064	0.059	0.118	0.110	0.027
3/32	0.094	0.096	0.090	0.176	0.163	0.040
1/8	0.125	0.127	0.121	0.235	0.217	0.053
5/32	0.156	0.158	0.152	0.293	0.272	0.066
3/16	0.188	0.191	0.182	0.351	0.326	0.079
7/32	0.219	0.222	0.213	0.413	0.384	0.094
1/4	0.250	0.253	0.244	0.469	0.437	0.106
9/32	0.281	0.285	0.273	0.528	0.491	0.119
5/16	0.312	0.316	0.304	0.588	0.547	0.133
11/32	0.344	0.348	0.336	0.646	0.602	0.146
3/8	0.375	0.380	0.365	0.704	0.656	0.159
13/32	0.406	0.411	0.396	0.763	0.710	0.172
7/16	0.438	0.443	0.428	0.823	0.765	0.186

[1] Where specifying nominal size in decimals, zeros preceding decimal shall be omitted.

[2] Sharp edged head. Tabulated maximum values calculated on basic diameter of rivet and 92° included angle extended to a sharp edge.

[3] Rounded or flat edged irregular shaped head. See Paragraph 2.1 of General Data.

[4] Head height, H, is given for reference purposes only. Variations in this dimension are controlled by the head and shank diameters and the included angle of the head.

For additional requirements refer to General Data on Page 2.

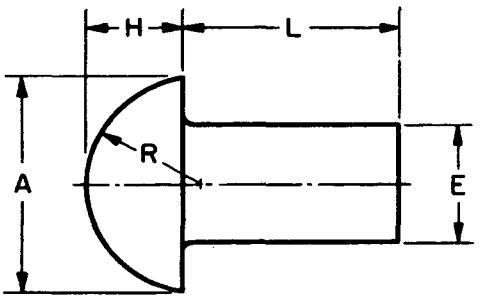

Table 3 Dimensions of Button Head Rivets

Nominal Size[1] or Basic Shank Diameter		E		A		H		R
		Shank Diameter		Head Diameter		Head Height		Head Radius
		Max	Min	Max	Min	Max	Min	Approx
1/16	0.062	0.064	0.059	0.122	0.102	0.052	0.042	0.055
3/32	0.094	0.096	0.090	0.182	0.162	0.077	0.065	0.084
1/8	0.125	0.127	0.121	0.235	0.215	0.100	0.088	0.111
5/32	0.156	0.158	0.152	0.290	0.268	0.124	0.110	0.138
3/16	0.188	0.191	0.182	0.348	0.322	0.147	0.133	0.166
7/32	0.219	0.222	0.213	0.405	0.379	0.172	0.158	0.195
1/4	0.250	0.253	0.244	0.460	0.430	0.196	0.180	0.221
9/32	0.281	0.285	0.273	0.518	0.484	0.220	0.202	0.249
5/16	0.312	0.316	0.304	0.572	0.538	0.243	0.225	0.276
11/32	0.344	0.348	0.336	0.630	0.592	0.267	0.247	0.304
3/8	0.375	0.380	0.365	0.684	0.646	0.291	0.271	0.332
13/32	0.406	0.411	0.396	0.743	0.699	0.316	0.294	0.358
7/16	0.438	0.443	0.428	0.798	0.754	0.339	0.317	0.387

[1] Where specifying nominal size in decimals, zeros preceding decimal shall be omitted.

For additional requirements refer to General Data on Page 2.

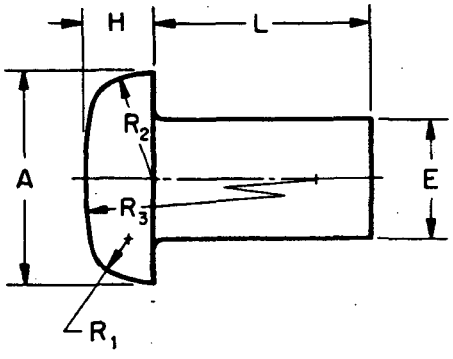

Table 4 Dimensions of Pan Head Rivets

Nominal Size[1] or Basic Shank Diameter		E		A		H		R_1	R_2	R_3
		Shank Diameter		Head Diameter		Head Height		Head Corner Radius	Head Side Radius	Head Crown Radius
		Max	Min	Max	Min	Max	Min	Approx	Approx	Approx
1/16	0.062	0.064	0.059	0.118	0.098	0.040	0.030	0.019	0.052	0.217
3/32	0.094	0.096	0.090	0.173	0.153	0.060	0.048	0.030	0.080	0.326
1/8	0.125	0.127	0.121	0.225	0.205	0.078	0.066	0.039	0.106	0.429
5/32	0.156	0.158	0.152	0.279	0.257	0.096	0.082	0.049	0.133	0.535
3/16	0.188	0.191	0.182	0.334	0.308	0.114	0.100	0.059	0.159	0.641
7/32	0.219	0.222	0.213	0.391	0.365	0.133	0.119	0.069	0.186	0.754
1/4	0.250	0.253	0.244	0.444	0.414	0.151	0.135	0.079	0.213	0.858
9/32	0.281	0.285	0.273	0.499	0.465	0.170	0.152	0.088	0.239	0.963
5/16	0.312	0.316	0.304	0.552	0.518	0.187	0.169	0.098	0.266	1.070
11/32	0.344	0.348	0.336	0.608	0.570	0.206	0.186	0.108	0.292	1.176
3/8	0.375	0.380	0.365	0.663	0.625	0.225	0.205	0.118	0.319	1.286
13/32	0.406	0.411	0.396	0.719	0.675	0.243	0.221	0.127	0.345	1.392
7/16	0.438	0.443	0.428	0.772	0.728	0.261	0.239	0.137	0.372	1.500

[1] Where specifying nominal size in decimals, zeros preceding decimal shall be omitted.

For additional requirements refer to General Data on Page 2.

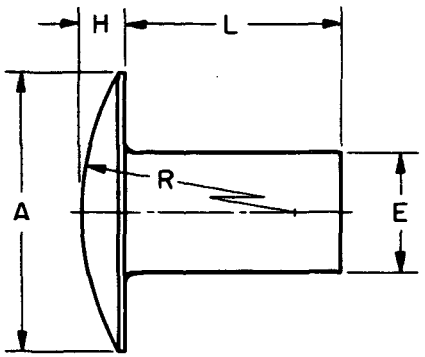

Table 5 Dimensions of Truss Head Rivets[2]

Nominal Size[1] or Basic Shank Diameter		E		A		H		R
		Shank Diameter		Head Diameter		Head Height		Head Radius
		Max	Min	Max	Min	Max	Min	Approx
3/32	0.094	0.096	0.090	0.226	0.206	0.038	0.026	0.239
1/8	0.125	0.127	0.121	0.297	0.277	0.048	0.036	0.314
5/32	0.156	0.158	0.152	0.368	0.348	0.059	0.045	0.392
3/16	0.188	0.191	0.182	0.442	0.422	0.069	0.055	0.470
7/32	0.219	0.222	0.213	0.515	0.495	0.080	0.066	0.555
1/4	0.250	0.253	0.244	0.590	0.560	0.091	0.075	0.628
9/32	0.281	0.285	0.273	0.661	0.631	0.103	0.085	0.706
5/16	0.312	0.316	0.304	0.732	0.702	0.113	0.095	0.784
11/32	0.344	0.348	0.336	0.806	0.776	0.124	0.104	0.862
3/8	0.375	0.380	0.365	0.878	0.848	0.135	0.115	0.942
13/32	0.406	0.411	0.396	0.949	0.919	0.145	0.123	1.028
7/16	0.438	0.443	0.428	1.020	0.990	0.157	0.135	1.098

1 Where specifying nominal size in decimals, zeros preceding decimal shall be omitted.

2 This rivet was previously designated as a wagon box rivet in addition to the present truss head designation.

For additional requirements refer to General Data on Page 2.

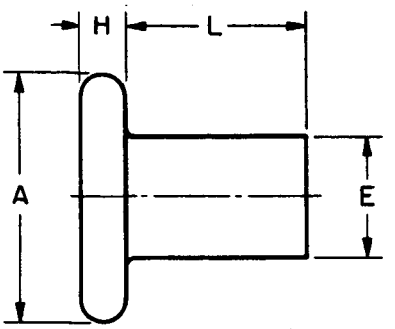

Table 6 Dimensions of Tinners Rivets

Rivet Size Number[1]	E		A		H		L	
	Shank Diameter		Head Diameter		Head Height		Rivet Length	
	Max	Min	Max	Min	Max	Min	Max	Min
6 oz	0.081	0.075	0.213	0.193	0.028	0.016	0.135	0.115
8 oz	0.091	0.085	0.225	0.205	0.036	0.024	0.166	0.146
10 oz	0.097	0.091	0.250	0.230	0.037	0.025	0.182	0.162
12 oz	0.107	0.101	0.265	0.245	0.037	0.025	0.198	0.178
14 oz	0.111	0.105	0.275	0.255	0.038	0.026	0.198	0.178
1 lb	0.113	0.107	0.285	0.265	0.040	0.028	0.213	0.193
1 1/4 lb	0.122	0.116	0.295	0.275	0.045	0.033	0.229	0.209
1 1/2 lb	0.132	0.126	0.316	0.294	0.046	0.034	0.244	0.224
1 3/4 lb	0.136	0.130	0.331	0.309	0.049	0.035	0.260	0.240
2 lb	0.146	0.140	0.341	0.319	0.050	0.036	0.276	0.256
2 1/2 lb	0.150	0.144	0.311	0.289	0.069	0.055	0.291	0.271
3 lb	0.163	0.154	0.329	0.303	0.073	0.059	0.323	0.303
3 1/2 lb	0.168	0.159	0.348	0.322	0.074	0.060	0.338	0.318
4 lb	0.179	0.170	0.368	0.342	0.076	0.062	0.354	0.334
5 lb	0.190	0.181	0.388	0.362	0.084	0.070	0.385	0.365
6 lb	0.206	0.197	0.419	0.393	0.090	0.076	0.401	0.381
7 lb	0.223	0.214	0.431	0.405	0.094	0.080	0.416	0.396
8 lb	0.227	0.218	0.475	0.445	0.101	0.085	0.448	0.428
9 lb	0.241	0.232	0.490	0.460	0.103	0.087	0.463	0.443
10 lb	0.241	0.232	0.505	0.475	0.104	0.088	0.479	0.459
12 lb	0.263	0.251	0.532	0.498	0.108	0.090	0.510	0.490
14 lb	0.288	0.276	0.577	0.543	0.113	0.095	0.525	0.505
16 lb	0.304	0.292	0.597	0.563	0.128	0.110	0.541	0.521
18 lb	0.347	0.335	0.706	0.668	0.156	0.136	0.603	0.583

[1] Size numbers in ounces and pounds refer to the approximate weight of 1000 rivets.

Additional requirements refer to General Data on Page 2.

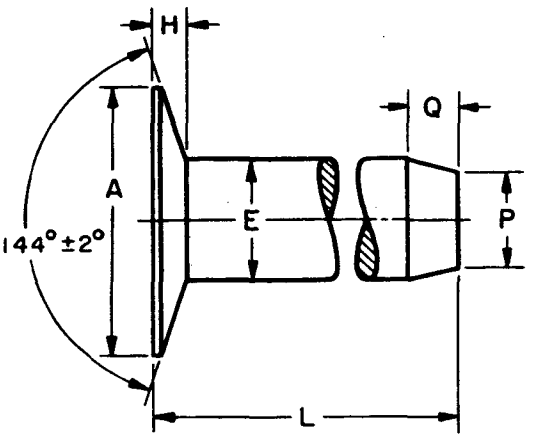

Table 7 Dimensions of Coopers Rivets

Rivet Size Number[1]	E		A		H		P	Q	L	
	Shank Diameter		Head Diameter		Head Height		Point		Rivet Length	
							Diameter	Length		
	Max	Min	Max	Min	Max	Min	Nom	Nom	Max	Min
1 lb	0.111	0.105	0.291	0.271	0.045	0.031	Not Pointed		0.249	0.219
1 1/4 lb	0.122	0.116	0.324	0.302	0.050	0.036	Not Pointed		0.285	0.255
1 1/2 lb	0.132	0.126	0.324	0.302	0.050	0.036	Not Pointed		0.285	0.255
1 3/4 lb	0.136	0.130	0.324	0.302	0.052	0.034	Not Pointed		0.318	0.284
2 lb	0.142	0.136	0.355	0.333	0.056	0.038	Not Pointed		0.322	0.288
3 lb	0.158	0.152	0.386	0.364	0.058	0.040	0.123	0.062	0.387	0.353
4 lb	0.168	0.159	0.388	0.362	0.058	0.040	0.130	0.062	0.418	0.388
5 lb	0.183	0.174	0.419	0.393	0.063	0.045	0.144	0.062	0.454	0.420
6 lb	0.206	0.197	0.482	0.456	0.073	0.051	0.160	0.094	0.498	0.457
7 lb	0.223	0.214	0.513	0.487	0.076	0.054	0.175	0.094	0.561	0.523
8 lb	0.241	0.232	0.546	0.516	0.081	0.059	0.182	0.094	0.597	0.559
9 lb	0.248	0.239	0.578	0.548	0.085	0.063	0.197	0.094	0.601	0.563
10 lb	0.253	0.244	0.578	0.548	0.085	0.063	0.197	0.094	0.632	0.594
12 lb	0.263	0.251	0.580	0.546	0.086	0.060	0.214	0.094	0.633	0.575
14 lb	0.275	0.263	0.611	0.577	0.091	0.065	0.223	0.094	0.670	0.612
16 lb	0.285	0.273	0.611	0.577	0.089	0.063	0.223	0.094	0.699	0.641
18 lb	0.285	0.273	0.642	0.608	0.108	0.082	0.230	0.125	0.749	0.691
20 lb	0.316	0.304	0.705	0.671	0.128	0.102	0.250	0.125	0.769	0.711
3/8 in.	0.380	0.365	0.800	0.762	0.136	0.106	0.312	0.125	0.840	0.778

[1]Size numbers in pounds refer to the approximate weight of 1000 rivets.

For additional requirements refer to General Data on Page 2.

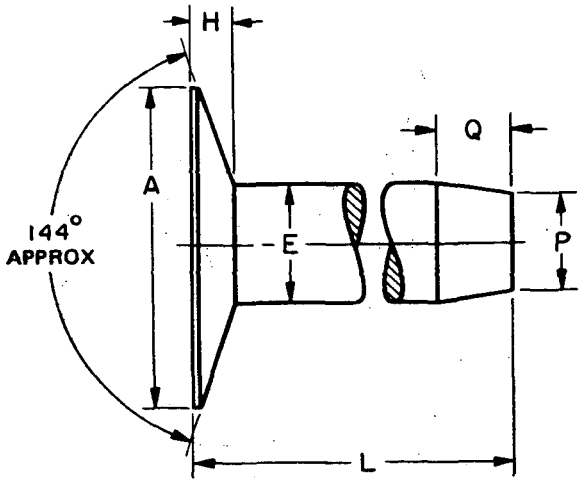

Table 8 Dimensions of Belt Rivets

Rivet Size Number[1]	E		A		H		P	Q
	Shank Diameter		Head Diameter		Head Height		Point	
							Diameter	Length
	Max	Min	Max	Min	Max	Min	Nom	Nom
14	0.085	0.079	0.260	0.240	0.042	0.030	0.065	0.078
13	0.097	0.091	0.322	0.302	0.051	0.039	0.073	0.078
12	0.111	0.105	0.353	0.333	0.054	0.040	0.083	0.078
11	0.122	0.116	0.383	0.363	0.059	0.045	0.097	0.078
10	0.136	0.130	0.417	0.395	0.065	0.047	0.109	0.094
9	0.150	0.144	0.448	0.426	0.069	0.051	0.122	0.094
8	0.167	0.161	0.481	0.455	0.072	0.054	0.135	0.094
7	0.183	0.174	0.513	0.487	0.075	0.056	0.151	0.125
6	0.206	0.197	0.606	0.580	0.090	0.068	0.165	0.125
5	0.223	0.214	0.700	0.674	0.105	0.083	0.185	0.125
4	0.241	0.232	0.921	0.893	0.138	0.116	0.204	0.141

[1]Size number refers to the Stubs iron wire gage number of the stock used in the shank of the rivet.

For additional requirements refer to General Data on Page 2.

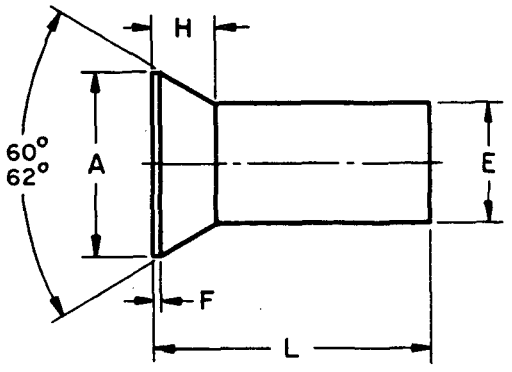

Table 9 Dimensions of 60-Degree Flat Countersunk Head Rivets[1]

Rivet Size Number	E		A		H		F
	Shank Diameter		Head Diameter		Head Height		Feed Thickness
	Max	Min	Max	Min	Max	Min	Max
6	0.204	0.197	0.306	0.286	0.099	0.084	0.008
5½	0.212	0.205	0.306	0.286	0.091	0.076	0.008

[1] This standard is intended to provide one standard head diameter for the two sizes of rivets commonly used to assemble ledger plates and guards for mower cutter bars. The above dimensions together with a standard countersunk hole of 60° included angle and 0.310 to 0.330 in. diameter will insure that the protrusion of finished rivet heads will not exceed 0.005 in.

For additional requirements refer to General Data on Page 2.

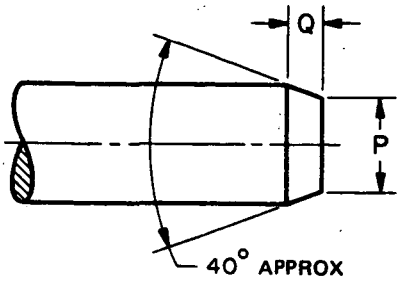

Table 10 Dimensions of Standard Header Points for Small Solid Rivets[3]
(Applicable only when pointed rivets are specified)

Nominal Size[1] or Basic Shank Diameter		P	Q	Nominal Shank Length
		Point Diameter	Point Length	
		Approx[2]	Approx[2]	Max[3]
3/32	0.094	0.077	0.023	3/4
1/8	0.125	0.102	0.031	3/4
5/32	0.156	0.127	0.039	1
3/16	0.188	0.154	0.047	1
7/32	0.219	0.179	0.055	1 3/8
1/4	0.250	0.204	0.062	1 3/8
9/32	0.281	0.230	0.070	1 1/2
5/16	0.312	0.255	0.078	1 1/2
11/32	0.344	0.281	0.086	1 5/8
3/8	0.375	0.307	0.094	1 5/8
7/16	0.438	0.358	0.110	3

1 Where specifying nominal size in decimals, zeros preceding decimal shall be omitted. Standard header points on intermediate shank diameters shall be to the proportions given in Appendix I.

2 No standard tolerances for point dimensions are contemplated.

3 Header points normally apply to these nominal shank lengths or shorter. The pointing of longer shank lengths may require machining to the dimensions specified.

For additional requirements refer to General Data on Page 2.

APPENDIX I

FORMULAS FOR RIVET DIMENSIONS

Where: D = Basic diameter of rivet shank.

Shank Diameter

Nominal Rivet Size	Shank Diameter		
	Basic	Tolerance	
		Plus	Minus
1/16	0.062	0.002	0.003
3/32	0.094	0.002	0.004
1/8	0.125	0.002	0.004
5/32	0.156	0.002	0.004
3/16	0.188	0.003	0.006
7/32	0.219	0.003	0.006
1/4	0.250	0.003	0.006
9/32	0.281	0.004	0.008
5/16	0.312	0.004	0.008
11/32	0.344	0.004	0.008
3/8	0.375	0.005	0.010
13/32	0.406	0.005	0.010
7/16	0.438	0.005	0.010

Above tolerances applicable only to Tables 1 through 5 and Table 10.

Flat Head

Nominal Rivet Size	Head Diameter			Head Height		
	Basic	Tolerance		Basic	Tolerance	
		Plus	Minus		Plus	Minus
1/16	A = 2.000D	0.016	0.004	H = 0.330D	0.007	0.003
3/32		0.012	0.008		0.007	0.005
1/8		0.010	0.010		0.007	0.005
5/32		0.011	0.011		0.008	0.006
3/16		0.011	0.015		0.007	0.007
7/32		0.015	0.011		0.008	0.007
1/4		0.015	0.015		0.009	0.007
9/32		0.017	0.017		0.010	0.008
5/16		0.017	0.017		0.010	0.008
11/32		0.017	0.021		0.010	0.010
3/8		0.019	0.019		0.011	0.009
13/32		0.022	0.022		0.012	0.010
7/16		0.020	0.024		0.013	0.009

FORMULAS FOR RIVET DIMENSIONS (CONTINUED)

Where: D = Basic diameter of rivet shank.

Flat Countersunk Head

Nominal Rivet Size	Head Diameter			Head Height
	Basic	Tolerance		Basic (Ref)
		Plus	Minus	
1/16	A = 1.850D	0.003	0.005	H = 0.425D
3/32		0.002	0.011	
1/8		0.004	0.014	
5/32		0.004	0.017	
3/16		0.003	0.022	
7/32		0.008	0.021	
1/4		0.007	0.025	
9/32		0.008	0.029	
5/16		0.011	0.030	
11/32		0.010	0.034	
3/8		0.010	0.038	
13/32		0.012	0.041	
7/16		0.013	0.045	

Button Head

Nominal Rivet Size	Head Diameter			Head Height			Head Radius
	Basic	Tolerance		Basic	Tolerance		Basic (Approx)
		Plus	Minus		Plus	Minus	
1/16	A = 1.750D	0.014	0.006	H = 0.750D	0.006	0.004	R = 0.885D
3/32		0.018	0.002		0.007	0.005	
1/8		0.016	0.004		0.006	0.006	
5/32		0.017	0.005		0.007	0.007	
3/16		0.019	0.007		0.006	0.008	
7/32		0.022	0.004		0.008	0.006	
1/4		0.022	0.008		0.008	0.008	
9/32		0.026	0.008		0.009	0.009	
5/16		0.026	0.008		0.009	0.009	
11/32		0.028	0.010		0.009	0.011	
3/8		0.028	0.010		0.010	0.010	
13/32		0.033	0.011		0.012	0.010	
7/16		0.032	0.012		0.011	0.011	

FORMULAS FOR RIVET DIMENSIONS (CONTINUED)

Where: D = Basic diameter of rivet shank.

Pan Head

Nominal Rivet Size	Head Diameter			Head Height			Corner Radius	Side Radius	Crown Radius
	Basic	Tolerance		Basic	Tolerance		Basic (Approx)	Basic (Approx)	Basic (Approx)
		Plus	Minus		Plus	Minus			
1/16		0.011	0.009		0.005	0.005			
3/32		0.011	0.009		0.006	0.006			
1/8		0.010	0.010		0.007	0.005			
5/32		0.011	0.011		0.007	0.007			
3/16		0.011	0.015		0.007	0.007			
7/32		0.014	0.012		0.008	0.006			
1/4	A = 1.720D	0.014	0.016	H = 0.570D	0.009	0.007	R_1 = 0.314D	R_2 = 0.850D	R_3 = 3.430D
9/32		0.016	0.018		0.010	0.008			
5/16		0.015	0.019		0.009	0.009			
11/32		0.016	0.022		0.010	0.010			
3/8		0.018	0.020		0.011	0.009			
13/32		0.021	0.023		0.012	0.010			
7/16		0.019	0.025		0.011	0.011			

Truss Head

Nominal Rivet Size	Head Diameter			Head Height			Head Radius
	Basic	Tolerance		Basic	Tolerance		Basic (Approx)
		Plus	Minus		Plus	Minus	
3/32		0.010	0.010		0.007	0.005	
1/8		0.009	0.011		0.007	0.005	
5/32		0.009	0.011		0.008	0.006	
3/16		0.010	0.010		0.007	0.007	
7/32		0.011	0.009		0.008	0.006	
1/4	A = 2.300D	0.015	0.015	H = 0.330D	0.009	0.007	R = 2.512D
9/32		0.015	0.015		0.010	0.008	
5/16		0.014	0.016		0.010	0.008	
11/32		0.015	0.015		0.010	0.010	
3/8		0.016	0.014		0.011	0.009	
13/32		0.015	0.015		0.011	0.011	
7/16		0.013	0.017		0.013	0.009	

Standard Header Points

Nominal Rivet Size	Point Diameter	Point Length
	Basic (Approx)	Basic (Approx)
All Sizes	P = 0.818D	Q = 0.250D