SAE International

SURFACE VEHICLE RECOMMENDED PRACTICE

SAE J483 APR2013

Issued 1933-01
Reaffirmed 2013-04

Superseding J483 MAR2006

High and Low Crown (Blind, Acorn) Hex Nuts

RATIONALE

J483 has been reaffirmed to comply with the SAE five-year review policy.

1. Scope

Included in this SAE Recommended Practice are complete general and dimensional data for the high and low types of crown nuts recognized as SAE Standard. These nuts are primarily intended for application in automotive and other ground-based motor vehicles and industrial equipment to provide an ornamental or protective closure over end of bolts, studs, or screws.

2. References

2.1 Applicable Publication

The following publication forms a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply.

2.1.1 SAE PUBLICATION

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J995—Mechanical and Material Requirements for Steel Nuts

2.1.2 ASME PUBLICATION

Available from the ASME, 22 Law Drive, PO Box 2900, Fairfield, NJ 07007-2900, Tel: 973-882-1170, www.asme.org.

ASME B1.1—Unified Inch Screw Threads (UN and UNR Thread Form)

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: http://www.sae.org

SAE values your input. To provide feedback on this Technical Report, please visit
http://www.sae.org/technical/standards/J483_201304

2.1.3 ASTM PUBLICATIONS

Available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM F 467—Nonferrous Nuts for General Use
ASTM F 594—Stainless Steel Nuts

3. General Specifications

3.1 Dimensions

All dimensions in this document are given in inches and apply before coating unless otherwise stated.

3.2 Options

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

3.3 Construction

Nuts may be either solid or of two-piece construction with a cap attached to a hex nut. The bearing surface shall be flat with chamfered corners or washer faced. The diameter of chamfer circle or washer face shall be equal to the maximum width across flats within a tolerance of -5%. The length of chamfer at hexagon corners shall be from 5 to 15% of the basic thread diameter. The surface of chamfer may be slightly convex or rounded.

3.4 Rounding at Corners

A rounding or lack of fill at junction of hex corners with chamfer shall be permissible, provided the minimum width across corners is reached and maintained beyond a distance equal to 17.5% of the basic thread diameter from the chamfered face and the junction of hexagon faces with crown fillet.

3.5 Taper of Sides

No transverse section through hexagon portion of nut between 25 and 75% of the actual hexagon thickness, as measured from the bearing face, shall be less than the minimum width across flats. The maximum width across flats shall not be exceeded except for milled-from-bar nonferrous nuts where the maximum (basic) width may conform with the commercial tolerances of the bar stock material.

3.6 Angularity of Bearing Surface

The bearing surface shall be at right angle to the axis of the tapped hole within 2 degrees for 1 in size or smaller, and within 1 degree for larger sizes. Therefore, the maximum total runout of bearing face shall equal the tangent of the angular deviation times the distance across flats.

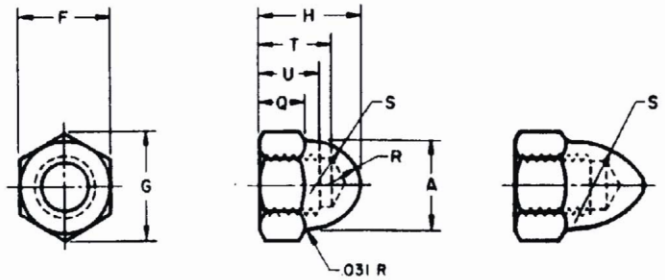

FIGURE 1—DIMENSIONS OF NUTS

TABLE 1—DIMENSIONS OF HIGH AND LOW CROWN NUTS

Nominal Size[1] or Basic Major Dia of Thread	Nominal Size[1] or Basic Major Dia of Thread	Width Across Flats F Max (Basic)	Width Across Flats F Max (Basic)	Width Across Flats F Min	Width Across Corners G Max	Width Across Corners G Min	Body Dia A	High Crown Over-all Height H	High Crown Hexagon Height Q	High Crown Nose Radius R	High Crown Body Radius S	High Crown Drill Depth T Max	High Crown Full Thread U Min	Low Crown Over-all Height H	Low Crown Hexagon Height Q	Low Crown Nose Radius R	Low Crown Body Radius S	Low Crown Drill Depth T Max	Low Crown Full Thread U Min
No. 6	0.1380	5/16	0.3125	0.302	0.361	0.344	0.30	0.42	0.17	0.05	0.25	0.28	0.19	0.34	0.16	0.08	0.17	0.25	0.16
No. 8	0.1640	5/16	0.3125	0.302	0.361	0.344	0.30	0.42	0.17	0.05	0.25	0.28	0.19	0.34	0.16	0.08	0.17	0.25	0.16
No. 10	0.1900	3/8	0.3750	0.362	0.433	0.413	0.36	0.52	0.20	0.06	0.30	0.34	0.25	0.41	0.19	0.09	0.22	0.28	0.19
No. 12	0.2160	3/8	0.3750	0.362	0.433	0.413	0.36	0.52	0.20	0.06	0.30	0.38	0.28	0.41	0.19	0.09	0.22	0.31	0.22
1/4	0.2500	7/16	0.4375	0.428	0.505	0.488	0.41	0.59	0.23	0.06	0.34	0.41	0.31	0.47	0.22	0.11	0.25	0.34	0.25
5/16	0.3125	1/2	0.5000	0.489	0.577	0.557	0.47	0.69	0.28	0.08	0.41	0.47	0.38	0.53	0.25	0.12	0.28	0.41	0.31
3/8	0.3750	9/16	0.5625	0.551	0.650	0.628	0.53	0.78	0.31	0.09	0.44	0.56	0.47	0.62	0.28	0.14	0.33	0.45	0.38
7/16	0.4375	5/8	0.6250	0.612	0.722	0.698	0.59	0.88	0.34	0.09	0.50	0.62	0.53	0.69	0.31	0.16	0.36	0.52	0.44
1/2	0.5000	3/4	0.7500	0.736	0.866	0.840	0.72	1.03	0.42	0.12	0.59	0.75	0.62	0.81	0.38	0.19	0.42	0.59	0.50
9/16	0.5625	7/8	0.8750	0.861	1.010	0.982	0.84	1.19	0.48	0.16	0.69	0.81	0.69	0.94	0.44	0.22	0.50	0.69	0.56
5/8	0.6250	15/16	0.9375	0.922	1.083	1.051	0.91	1.28	0.53	0.16	0.75	0.91	0.78	1.00	0.47	0.23	0.53	0.75	0.62
3/4	0.7500	1-1/16	1.0625	1.045	1.227	1.191	1.03	1.45	0.59	0.17	0.84	1.06	0.94	1.16	0.53	0.27	0.59	0.88	0.75
7/8	0.8750	1-1/4	1.2500	1.231	1.443	1.403	1.22	1.72	0.70	0.20	0.98	1.22	1.09	1.36	0.62	0.31	0.70	1.00	0.88
1	1.0000	1-7/16	1.4375	1.417	1.660	1.615	1.41	1.97	0.81	0.23	1.14	1.38	1.25	1.55	0.72	0.36	0.81	1.12	1.00
1-1/8	1.1250	1-5/8	1.6250	1.602	1.876	1.826	1.59	2.22	0.92	0.27	1.28	1.59	1.41	1.75	0.81	0.41	0.92	1.31	1.12
1-1/4	1.2500	1-13/16	1.8125	1.788	2.093	2.038	1.78	2.47	1.03	0.28	1.44	1.75	1.56	1.95	0.91	0.45	1.03	1.44	1.25

1. Where specifying nominal size in decimals, zeros in the fourth decimal place shall be omitted.

3.7 Threads

3.7.1 Form and Tolerance

Threads shall conform to ASME B1.1 Unified Standard, Class 2B.

3.7.2 Series

Threads shall be coarse (UNC) or fine (UNF) thread series.

3.7.3 Countersink

The tapped hole shall be countersunk on the bearing face. The maximum countersink diameter shall be the thread basic (nominal) major diameter plus 0.025 in for 3/8 size or smaller, and 1.08 times the basic major diameter for larger sizes. No part of the threaded portion shall extend beyond the bearing surface.

3.8 Materials

3.8.1 Steel

Suitable properties for steel nuts are covered in SAE J995.

3.8.2 Corrosion-Resistant Steels

Unless otherwise specified, nuts made of corrosion-resistant steels shall conform to the requirements of ASTM F 594.

3.8.3 Nonferrous Metals

Unless otherwise specified, nonferrous nuts shall conform to the requirements of ASTM F 467.

3.8.4 Other Materials

Other materials shall be as agreed upon by the manufacturer and user.

3.9 Finish

3.9.1 Plain

Unless otherwise specified, nuts shall be supplied plain (unplated or uncoated), as processed.

3.9.2 Plated

Where plating is specified, the thickness or quality of plating shall be measured or tested on the side of the nut.

3.10 Defects

Nuts shall be free from burrs, seams, laps, loose scale, and any other defects that affect serviceability.