The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
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SURFACE VEHICLE RECOMMENDED PRACTICE

Submitted for recognition as an American National Standard

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CROWN (BLIND, ACORN) NUTS

Foreword—This reissued document has been changed only to reflect the new SAE Technical Standards Board format.

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 Documents**—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.

SAE J429—Mechanical and Material Requirements for Externally Threaded Fasteners

3. *General Specifications*

3.1 **Dimensions**—All dimensions in this document are illustrated in Figure 1 and are expressed in inches in Table 1 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. 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.

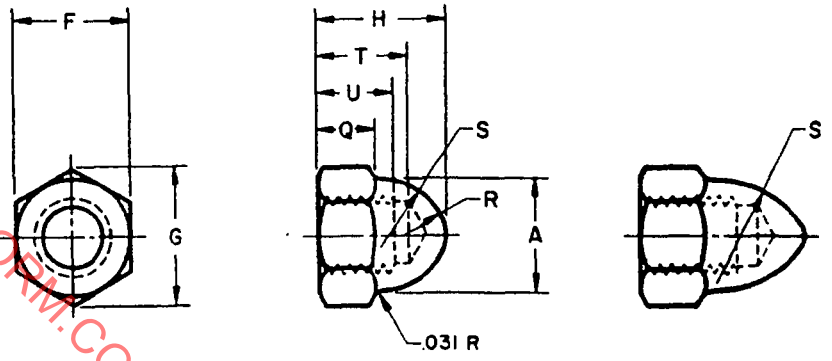

FIGURE 1—DIMENSIONS OF NUTS

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.

3.5 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.

3.7 Threads

3.7.1 FORM AND TOLERANCE—Threads shall conform to 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 1.06 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 J429.

3.8.2 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.

PREPARED BY THE SAE FASTENERS COMMITTEE