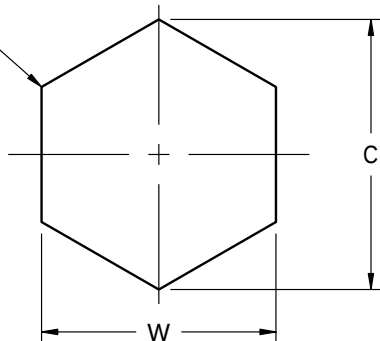


CORNERS' CONTOUR SHALL BE WITHIN THE LIMITS DEFINED BY ØC MIN, W MIN AND W MAX.



FED. SUPPLY CLASS

53GP

TABLE I – DIMENSIONS

NOMINAL ACROSS FLATS /7/	W BASIC SIZE ACROSS FLATS	W LIMITS OF SIZE ACROSS FLATS		C ACROSS CORNERS MIN /3/ /4/
		MIN /1/	MAX /2/	
5/32	.1562	.150	.1562	.171
* 3/16	.1875	.181	.1880	.207
7/32	.2188	.212	.2190	.242
1/4	.2500	.243	.2500	.277
9/32	.2812	.274	.2812	.313
* 5/16	.3125	.305	.3140	.348
* 11/32	.3438	.336	.3450	.383
3/8	.3750	.367	.3760	.410
* 7/16	.4375	.429	.4380	.480
* 1/2	.5000	.492	.5020	.552
* 9/16	.5625	.554	.5640	.623
5/8	.6250	.616	.6270	.694
* 11/16	.6875	.678	.6900	.764
* 3/4	.7500	.741	.7530	.836
13/16	.8125	.803	.8160	.907
* 7/8	.8750	.865	.8780	.978
* 15/16	.9375	.928	.9420	1.050
1	1.0000	.990	1.0040	1.120
1 1/16	1.0625	1.053	1.0650	1.192
* 1 3/16	1.1875	1.177	1.1910	1.346
1 1/8	1.1250	1.115	1.1290	1.263
1 3/16	1.1875	1.177	1.1910	1.334
1 1/4	1.2600	1.239	1.2540	1.405
1 5/16	1.3125	1.302	1.3170	1.476
1 7/16	1.4376	1.427	1.4430	1.619
* 1 1/2	1.5000	1.489	1.5050	1.690
* 1 5/8	1.6250	1.614	1.6310	1.832
* 1 11/16	1.6875	1.676	1.6930	1.903
* 1 13/16	1.8125	1.801	1.8190	2.046
* 1 7/8	1.8750	1.863	1.8820	2.117
2	2.0000	1.988	2.0080	2.259
* 2 1/16	2.0625	2.050	2.0710	2.330
* 2 1/8	2.125	2.113	2.1270 /6/	2.402
* 2 1/4	2.250	2.238	2.2590	2.545
2 3/16	2.1876	2.175	2.1970	2.473
2 3/8	2.3750	2.360	2.3850	2.684

THIS IS A DESIGN
STANDARD. NOT TO
BE USED AS A PART
NUMBER.

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THE INITIAL RELEASE OF THIS DOCUMENT SUPERSEDES MS21132, REVISION A.

THIRD ANGLE PROJECTION	CUSTODIAN NATIONAL AEROSPACE STANDARDS COMMITTEE	REVISION 1
PROCUREMENT SPECIFICATION NONE	TITLE WRENCHING ELEMENT, EXTERNAL HEXAGON, FOR THREADED FASTENERS	CLASSIFICATION DESIGN STANDARD
		MSM21132 SHEET 1 OF 2

Notes:

- /1/ Minimum dimension across flats = $W - .01 \sqrt[4]{W}$ where "W" is the basic size expressed as the complete decimal equivalent of the fractional size.
- /2/ Dimensions are compatible with FED-STD-346 ASME B107.17 gages, wrench openings.
- /3/ For sizes smaller than 3/8 (.375), "C" = (1.141) X (W minimum).
- /4/ For sizes 3/8 (.375) and larger, "C" = (1.141) X (W minimum) - (.009).
- (5) The hexagon sizes listed here are based on the following criteria:
 - (a) The size required to envelop the outside diameter of the minimum bearing area of the bolt head and nut face required by the bearing yield strength of the bolted material.
 - (b) Bolted material bearing yield strength of 83 KSI.
 - (c) Tension bolt material tensile strength of 125 KSI.
 - (d) Shear bolt material ultimate tensile strength of 160 KSI.
 - (e) Sizes for which wrenches are available.
 - (f) Sizes are not based on the design requirements of flanged or ring base bolt heads or nuts.
- /6/ Maximum dimension across flats = $W + .002$.
- /7/ Asterisks (*) indicate that certain provisions (limits for across flats dimensions "W") of this standard are the subject of International Standardization Agreement ASCC AIR-STD-17/2. When revision or cancellation of this standard is proposed which will affect or violate the international agreement concerned, the preparing activity will take appropriate reconciliation action through international standardization channels, including departmental standardization offices, if required.
- (8) This standard takes precedence over documents referenced herein.
- (9) Unless otherwise specified herein, referenced documents shall be the issue in effect on date of manufacture. However, existing material inventory certified to a previous revision of the applicable material specification(s) is acceptable for use until depletion.
- (10) This standard establishes dimensions of standard hexagons for fasteners.
- (11) Dimensions in inches.
- (12) Dimensioning and tolerancing per ANSI Y14.5M-1982.

REVISION

1

NAS21132

SHEET 2

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