

MS16994E  
 5 February 2004  
 SUPERSEDING  
 MS16994D  
 7 December 1979

MS SPECIFICATION SHEET

NUT, PLAIN, KNURLED

Reactivate after 5 February 2004 and may be used for new and existing designs and acquisitions.

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this MS specification sheet and FF-N-836.

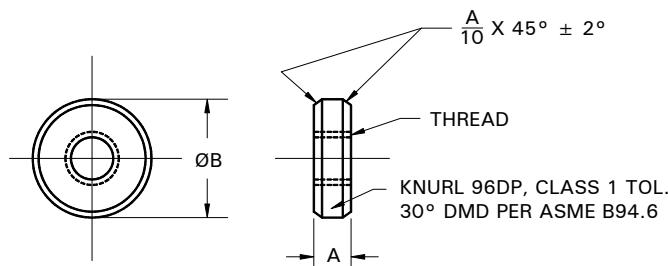


TABLE I. DASH DIMENSIONS.

| DASH NO. |      |              |          | THREAD                       | A   | ØB   | DASH NO. |      |              |          | THREAD                       | A   | ØB   |  |  |
|----------|------|--------------|----------|------------------------------|-----|------|----------|------|--------------|----------|------------------------------|-----|------|--|--|
| BRASS    | CRES | CARBON STEEL | AL ALLOY |                              |     |      | BRASS    | CRES | CARBON STEEL | AL ALLOY |                              |     |      |  |  |
| 1B*      | 1C*  | 1S*          | 1A*      | (NO. 4)<br>.112<br>40UNC-2B  | .06 | .56  | 42B*     | 42C* | 42S*         | 42A*     | (NO. 10)<br>.190<br>24UNC-2B | .12 | .75  |  |  |
| 2B*      | 2C   | 2S           | 2A       |                              | .09 | .88  | 43B      | 43C  | 43S          | 43A      |                              | .23 | .50  |  |  |
| 3B*      | 3C*  | 3S*          | 3A*      |                              | .12 | .38  | 44B      | 44C  | 44S          | 44A      |                              | .25 | .75  |  |  |
| 4B*      | 4C*  | 4S*          | 4A*      |                              | .22 | .31  | 45B*     | 45C* | 45S*         | 45A*     |                              | .31 | .75  |  |  |
| 5B       | 5C   | 5S           | 5A       |                              | .25 | .38  | 46B*     | 46C* | 46S*         | 46A*     |                              | .33 | .50  |  |  |
| 6B       | 6C   | 6S           | 6A       | (NO. 6)<br>.164<br>32UNC-2B  | .50 | .38  | 47B*     | 47C* | 47S*         | 47A*     | (1/4)<br>.25<br>28UNF-2B     | .38 | .75  |  |  |
| 7B*      | 7C*  | 7S*          | 7A*      |                              | .56 | .38  | 46B      | 48C  | 48S          | 48A      |                              | .44 | .75  |  |  |
| 8B*      | 8C*  | 8S*          | 8A*      |                              | .12 | .50  | 49B      | 49C  | 49S          | 49A      |                              | .69 | 1.00 |  |  |
| 9B*      | 9C*  | 9S*          | 9A*      |                              | .16 | .56  | 50B      | 50C  | 50S          | 50A      |                              | .12 | .88  |  |  |
| 10B      | 10C  | 10S          | 10A      |                              | .19 | .50  | 51B*     | 51C* | 51S*         | 51A*     |                              | .25 | 1.00 |  |  |
| 11B*     | 11C* | 11S*         | 11A*     |                              | .22 | .33  | 52B      | 52C  | 52S          | 52A      |                              | .38 | 1.00 |  |  |
| 12B      | 12C  | 12S          | 12A      |                              | .25 | .38  | 53B*     | 53C* | 53S*         | 53A*     |                              | .41 | .62  |  |  |
| 13B*     | 13C* | 13S*         | 13A      |                              | .28 | .41  | 54B      | 54C  | 54S          | 54A      |                              | .50 | .50  |  |  |
| 14B*     | 14C* | 14S*         | 14A*     |                              | .30 | .62  | 55B      | 55C  | 55S          | 55A      |                              | .55 | 1.25 |  |  |
| 15B      | 15C  | 15S          | 15A      |                              | .34 | .50  | 56B*     | 56C* | 56S*         | 56A*     |                              | .56 | .62  |  |  |
| 16B*     | 16C* | 16S*         | 16A*     | .35                          | .62 | 57B* | 57C*     | 57S* | 57A*         | .12      | .56                          |     |      |  |  |
| 17B      | 17C  | 17S          | 17A      | .94                          | .88 | 58B  | 58C      | 58S  | 58A          | .19      | .62                          |     |      |  |  |
| 18B*     | 18C* | 18S*         | 18A*     | (NO. 8)<br>.164<br>32UNC-2B  | .16 | .50  | 59B      | 59C  | 59S          | 59A      | (1/4)<br>.25<br>28UNF-2B     | .25 | .75  |  |  |
| 19B      | 19C  | 19S          | 19A      |                              | .19 | .50  | 60B*     | 60C* | 60S*         | 60A*     |                              | .38 | .69  |  |  |
| 20B*     | 20C* | 20S*         | 20A*     |                              | .22 | .44  | 61B      | 61C  | 61S          | 61A      |                              | .50 | .75  |  |  |
| 21B      | 21C  | 21S          | 21A      |                              | .25 | .75  | 62B      | 62C  | 62S          | 62A      |                              | .56 | 1.50 |  |  |
| 22B      | 22C  | 22S          | 22A      |                              | .28 | .50  | 63B      | 63C  | 63S          | 63A      |                              | .65 | .88  |  |  |
| 23B*     | 23C* | 23S*         | 23A*     |                              | .31 | .44  | 64B*     | 64C* | 64S*         | 64A*     |                              | .69 | .56  |  |  |
| 24B*     | 24C* | 24S*         | 24A*     |                              | .34 | .41  | 65B*     | 65C* | 65S*         | 65A*     |                              | .75 | 1.50 |  |  |
| 25B      | 25C  | 25S          | 25A      |                              | .38 | .68  | 66B      | 66C  | 66S          | 66A      |                              | .25 | .88  |  |  |
| 26B*     | 26C* | 26S*         | 26A*     |                              | .41 | .50  | 67B      | 67C  | 67S          | 67A      |                              | .38 | 1.25 |  |  |
| 27B      | 27C  | 27S          | 27A      |                              | .47 | .38  | 68B*     | 68C* | 68S*         | 68A*     |                              | .38 | .62  |  |  |
| 28B      | 28C  | 28S          | 28A      | .50                          | .50 | 69B  | 69C      | 69S  | 69A          | .56      | .88                          |     |      |  |  |
| 29B*     | 29C* | 29S*         | 29A*     | (NO. 10)<br>.190<br>32UNF-2B | .56 | .50  | 70B*     | 70C* | 70S*         | 70A*     | (5/16)<br>.3125<br>24UNF-2B  | .12 | .88  |  |  |
| 30B      | 30C  | 30S          | 30A      |                              | .62 | .75  | 71B      | 71C  | 71S          | 71A      |                              | .25 | .88  |  |  |
| 31B*     | 31C* | 31S*         | 31A*     |                              | .18 | .88  | 72B      | 72C  | 72S          | 72A      |                              | .31 | 1.00 |  |  |
| 32B*     | 32C* | 32S*         | 32A*     |                              | .19 | .75  | 73B*     | 73C* | 73S*         | 73A*     |                              | .38 | .44  |  |  |
| 33B      | 33C  | 33S          | 33A      |                              | .25 | 1.00 | 74B*     | 74C* | 74S*         | 74A*     |                              | .44 | .56  |  |  |
| 34B*     | 34C* | 34S*         | 34A*     |                              | .28 | .75  | 75B      | 75C  | 75S          | 75A      |                              | .50 | .75  |  |  |
| 35B      | 35C  | 35S          | 35A      |                              | .31 | .50  | 76B*     | 76C* | 76S*         | 76A*     |                              | .88 | .75  |  |  |
| 36B      | 36C  | 36S          | 36A      |                              | .33 | .52  | 77B      | 77C  | 77S          | 77A      |                              | .94 | 1.25 |  |  |
| 37B*     | 37C* | 37S*         | 37A*     |                              | .38 | .50  |          |      |              |          |                              |     |      |  |  |
| 38B*     | 38C* | 38S*         | 38A*     |                              | .41 | .50  |          |      |              |          |                              |     |      |  |  |
| 39B*     | 39C* | 39S*         | 39A*     | .44                          | .62 |      |          |      |              |          |                              |     |      |  |  |
| 40B      | 40C  | 40S          | 40A      | .50                          | .50 |      |          |      |              |          |                              |     |      |  |  |
| 41B      | 41C  | 41S          | 41A      | .56                          | .76 |      |          |      |              |          |                              |     |      |  |  |

\* INACTIVE FOR DESIGN AFTER 27 FEB 1976

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TABLE I - DASH NUMBERS AND DIMENSIONS - CONTINUED

| DASH NO. |       |              |          | THREAD        | A                | ØB    | BRASS | CRES  | CARBON STEEL | AL ALLOY      | THREAD       | A     | ØB   |
|----------|-------|--------------|----------|---------------|------------------|-------|-------|-------|--------------|---------------|--------------|-------|------|
| BRASS    | CRES  | CARBON STEEL | AL ALLOY |               |                  |       |       |       |              |               |              |       |      |
| 78B*     | 78C*  | 78S*         | 78A*     | (3/8)<br>.375 | .09              | .84   | 104B* | 104C* | 104S*        | 104A*         | (1/2)<br>.50 | .09   | 1.00 |
| 79B      | 79C   | 79S          | 79A      |               | .12              | .50   | 105B  | 105C  | 105S         | 105A          |              | .12   | 1.12 |
| 80B*     | 80C*  | 80S*         | 80A*     |               | .12              | .62   | 106B* | 106C* | 106S*        | 106A*         |              | .19   | 1.75 |
| 81B      | 81C   | 81S          | 81A      |               | .16              | .94   | 107B  | 107C  | 107S         | 107A          |              | .25   | .75  |
| 82B*     | 82C*  | 82S*         | 82A*     |               | .19              | .52   | 108B  | 108C  | 108S         | 108A          |              | .38   | 1.00 |
| 83B      | 83C   | 83S          | 83A      |               | 32UNEF-2B        | .25   | .69   | 109B* | 109C*        | 109S*         |              | 109A* | .44  |
| 84B      | 84C   | 84S          | 84A      | 24UNF-2B      | .31              | 1.00  | 110B  | 110C  | 110S         | 110A          | .47          | 1.50  |      |
| 85B*     | 85C*  | 85S*         | 85A*     |               | .38              | .69   | 111B* | 111C* | 111S*        | 111A          | .56          | .97   |      |
| 86B      | 86C   | 86S          | 86A      |               | .75              | .75   | 112B  | 112C  | 112S         | 112A          | .75          | 1.50  |      |
| 87B*     | 87C*  | 87S*         | 87A*     |               | .88              | .62   | 113B  | 113C  | 113S         | 113A          | .88          | 2.50  |      |
| 88B*     | 88C*  | 88S*         | 88A*     |               | .09              | .69   | 114B  | 114C  | 114S         | 114A          | 1.25         | 1.25  |      |
| 89B      | 89C   | 89S          | 89A      |               | .12              | .69   | 115B* | 115C* | 115S*        | 115A*         | .08          | 1.75  |      |
| 90B*     | 90C*  | 90S*         | 90A*     | .19           | .62              | 116B  | 116C  | 116S  | 116A         | .12           | 1.72         |       |      |
| 91B*     | 91C*  | 91S*         | 91A*     | (3/8)<br>.22  | .55              | 117B* | 117C* | 117S* | 117A*        | (33/4)<br>.25 | 1.91         |       |      |
| 92B      | 92C   | 92S          | 92A      | .375          | .25              | 118B* | 118C* | 118S* | 118A*        | .75           | 1.06         |       |      |
| 93B*     | 93C*  | 93S*         | 93A*     | 24UNF-2B      | .38              | .88   | 119B  | 119C  | 119S         | 119A          | .39          | 1.25  |      |
| 94B      | 94C   | 94S          | 94A      | (3/8)<br>.375 | .50              | .75   | 120B  | 120C  | 120S         | 120A          | .44          | 1.88  |      |
| 95B*     | 95C*  | 95S*         | 95A*     |               | .77              | .77   | 121B  | 121C  | 121S         | 121A          | .75          | 1.50  |      |
| --       | 122C  | --           | --       |               | 16UNC-2B         | .50   | 1.25  |       |              |               |              |       |      |
| 96B*     | 96C*  | 96S*         | 96A*     |               | (7/16)<br>*.4375 | .09   | 1.19  |       |              |               |              |       |      |
| 97B*     | 97C*  | 97S*         | 97A*     |               |                  | .12   | 1.00  |       |              |               |              |       |      |
| 98B*     | 98C*  | 98S*         | 98A*     |               |                  | .16   | 1.50  |       |              |               |              |       |      |
| 99B*     | 99C*  | 99S*         | 99A*     | .31           |                  | .88   |       |       |              |               |              |       |      |
| 100B*    | 100C* | 100S*        | 100A*    | .44           |                  | .88   |       |       |              |               |              |       |      |
| 101B*    | 101C* | 101S*        | 101A*    | 20UNF-2B      |                  | .47   | 1.00  |       |              |               |              |       |      |
| 102B*    | 102C* | 102S*        | 102A*    |               | .75              | 1.50  |       |       |              |               |              |       |      |
| 103B*    | 103C* | 103S*        | 103A*    |               | .88              | 1.00  |       |       |              |               |              |       |      |

\*INACTIVE FOR NEW DESIGN AFTER 27 FEB 1976.

REQUIREMENTS:

MATERIALS: Brass – Copper alloy 230, 240, 260, 268 per ASTM B36, H02 or alloy 342, 353 per ASTM B121, H02 or alloy 360 per ASTM B16, H02.

Corrosion resisting steel (CRES) – 300 series per SAE-AMS-STD-66.

Carbon steel – AISI 1010 to 1020 per SAE-AMS-STD-66.

Aluminum alloy – 2024, temper T4, in accordance with SAE-AMS-QQ-A-225/6.

FINISH: Brass – Black chemical per MIL-F-495.

CRES – Passivate in accordance with SAE-AMS-QQ-P-35

Steel - Cadmium plate, type II, class 3, in accordance with SAE-AMS-QQ-P-416.

Aluminum alloy – Anodic coating in accordance with MIL-A-8625.

MAGNETIC PERMEABILITY: CRES fasteners shall have a magnetic permeability of 2.0 maximum (AIR=1.0) for a Field strength of H=200 oersteds using magnetic indicator per ASTM A342.

THREADS: The threads shall be in accordance with FED-STD-H28/2.

DIMENSIONS: All dimensions are in inches unless otherwise specified.

TOLERANCE: XX ±.01.

Where A/10 is less than .025, chamfer by breaking sharp edges only.

PART NUMBER: The part number consists of the MS number plus the dash number from Table I.

EXAMPLE: MS16994-1B

For design feature purposes, this standard takes precedence over procurement document referenced herein.

Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Custodians:

Air Force - 99  
DLA-IS

Preparing activity:

DLA-IS  
(Project 5310-2709)