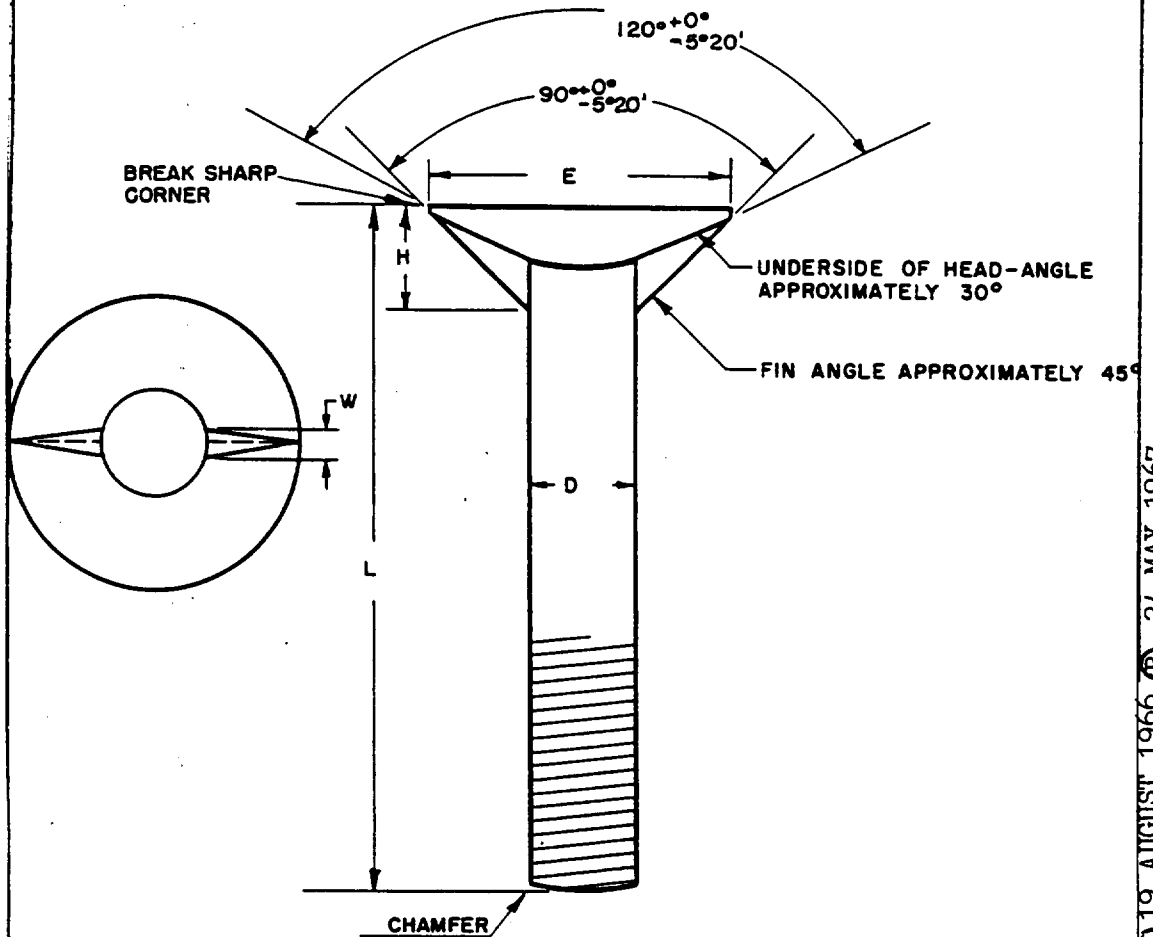


This standard has been approved by the Naval Ship Engineering Center, Department of the Navy, and is mandatory for use by that activity. All other military activities are required to employ this standard where suitable.

FED. SUP. CLASS  
5306



(Project 5306-0287) (B) For changes see sheets 1 through 3

|   |                    |   |                            |
|---|--------------------|---|----------------------------|
| CUSTODIANS<br><b>Ships</b>                | OTHER INT.         | <b>MILITARY STANDARD</b>  | <b>MS 16204</b><br>(SHIPS) |
|   | A -<br>N -<br>AF - | BOLTS, FINNED NECK, COUNTERSUNK<br>FLATHEAD, UNC-2A, NON-MAGNETIC |                            |
| Procurement Specification<br>(B) FF-B-584 |                    | SUPERSEDES:   | SHEET 1 OF 3               |

APPROVED 8 MAY 1957 REVISED (A) 19 AUGUST 1966 (B) 24 MAY 1967

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FED. SUP. CLASS  
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| Nominal size<br>Threads per inch | 3/8   | 1/2            |                | 5/8            |                | MS part No. | FIIN | MS part No. | FIIN | MS part No. | FIIN |
|----------------------------------|-------|----------------|----------------|----------------|----------------|-------------|------|-------------|------|-------------|------|
|                                  |       | A <sup>1</sup> | B <sup>1</sup> | A <sup>1</sup> | B <sup>1</sup> |             |      |             |      |             |      |
| Head diameter (E)<br>Max.        | 0.861 | 1.148          | 1.430          | 1.716          | 2.000          | 11          | 28   | 11          | 28   | 11          | 28   |
| Head diameter (E)<br>Min.        | 0.844 | 1.125          | 1.408          | 1.696          | 1.980          | 12          | 27   | 12          | 27   | 12          | 27   |
| Pin height (H)<br>Max.           | 0.567 | 0.853          | 1.139          | 1.425          | 1.711          | 13          | 28   | 13          | 28   | 13          | 28   |
| Pin height (H)<br>Min.           | 0.550 | 0.836          | 1.122          | 1.408          | 1.694          | 14          | 29   | 14          | 29   | 14          | 29   |
| Pin width (W)<br>Max.            | 0.102 | 0.108          | 0.114          | 0.120          | 0.126          | 15          | 30   | 15          | 30   | 15          | 30   |
| Pin width (W)<br>Min.            | 0.085 | 0.091          | 0.097          | 0.103          | 0.109          | 16          | 31   | 16          | 31   | 16          | 31   |
| Body Diameter (D)<br>Max.        | 0.888 | 1.174          | 1.460          | 1.746          | 2.032          | 17          | 32   | 17          | 32   | 17          | 32   |
| Body Diameter (D)<br>Min.        | 0.871 | 1.157          | 1.443          | 1.729          | 2.015          | 18          | 33   | 18          | 33   | 18          | 33   |
| Length (L)<br>Length tolerance   |       |                |                |                |                | 19          | 34   | 19          | 34   | 19          | 34   |
| 4                                |       |                |                |                |                | 20          | 35   | 20          | 35   | 20          | 35   |
| 5                                |       |                |                |                |                | 21          | 36   | 21          | 36   | 21          | 36   |
| 6-1/2                            |       |                |                |                |                | 22          | 37   | 22          | 37   | 22          | 37   |
| 7-1/2                            |       |                |                |                |                | 23          | 38   | 23          | 38   | 23          | 38   |
| 8-1/2                            |       |                |                |                |                | 24          | 39   | 24          | 39   | 24          | 39   |
| 9                                |       |                |                |                |                | 25          | 40   | 25          | 40   | 25          | 40   |
| 10                               |       |                |                |                |                | 26          | 41   | 26          | 41   | 26          | 41   |
| 11                               |       |                |                |                |                | 27          | 42   | 27          | 42   | 27          | 42   |
| 12                               |       |                |                |                |                | 28          | 43   | 28          | 43   | 28          | 43   |
| 13-1/2                           |       |                |                |                |                | 29          | 44   | 29          | 44   | 29          | 44   |
| 20-1/2                           |       |                |                |                |                | 30          | 45   | 30          | 45   | 30          | 45   |
| 23                               |       |                |                |                |                | 31          | 46   | 31          | 46   | 31          | 46   |

<sup>1</sup>Copper-nickel alloy.  
<sup>2</sup>Austenitic corrosion-resisting steel.

CUSTODIANS  
Ships

OTHER INT.  
A -  
N -  
AF -

**MILITARY STANDARD**

BOLTS, PINNED NECK, COUNTERSUNK  
PLAT HEAD, UNF-2A, NON-MAGNETIC

**MS 16204**  
(SHIPS)

PROCUREMENT SPECIFICATION  
(B) FF-B-584

SUPERSEDES:

SHEET 2

APPROVED 8 MAY 1957 REVISED (B) For changes see sheets 1 through 3

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FED. SUP. CLASS  
5306

Material: Copper silicon alloy shall be in accordance with copper alloy 651 of QQ-C-591. Austenitic corrosion resisting steel shall be in accordance with class 302, 303, 304, 305, 310 or 316 of Specification QQ-S-763 or composition FS 302, 304, 310 or 316 of Specification QQ-W-423.

Magnetic permeability: The magnetic permeability of finished bolts shall not exceed 2.0 when measured with a low  $\mu$  permeability indicator in accordance with Specification MIL-I-17214.

Minimum breaking strength: The minimum breaking strength of bolts made from copper silicon alloy shall be 85,000 p.s.i. The minimum breaking strength of bolts made from austenitic corrosion-resisting steel shall be 70,000 p.s.i.

Stress area: Minimum breaking strength of bolts is based upon the stress area calculated using the following formula:

$$3.1416 \left( \frac{E}{2} - \frac{3H}{16} \right)^2$$

Where:

E = Basic pitch diameter and H = Depth of sharp V thread.

Threads: Threads shall be in accordance with Handbook H-28.

Thread length: Minimum thread length - twice the nominal diameter (size) plus 1/4 inch for bolt lengths to 6 inches inclusive. Twice the nominal diameter plus 1/2 inch for bolt lengths over 6 inches. Maximum thread length equals the minimum plus 3/16 inches.

Dimensions: All dimensions are in inches, unless otherwise specified.

Packaging and packing: Packaging and packing shall be in accordance with standard commercial practice. Preservation is not required.

Finish: Corrosion-resisting steel bolts shall be passivated in accordance with QQ-P-35.

Notes:

1. Referenced documents shall be the issue in effect on date of invitation for bids.
2. In case of conflict with any referenced document, this standard shall govern.

APPROVED 8 MAY 1957 REVISED (B) For changes see sheets 1 through 3

|   |                    |  |                            |
|---|--------------------|--|----------------------------|
| CUSTODIANS<br>Ships                       | OTHER INT.         | <b>MILITARY STANDARD</b><br>BOLTS, FINNED NECK, COUNTERSUNK<br>FLAT HEAD, UNC-2A, NON-MAGNETIC | <b>MS 16204</b><br>(SHIPS) |
|   | A -<br>N -<br>AF - |  |                            |
| Procurement Specification<br>(B) FF-B-584 |                    | SUPERSEDES:  | SHEET 3                    |