



Standard Specification for Stainless Steel Socket Head Cap Screws¹

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This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers the chemical and mechanical requirements for stainless steel inch socket head cap screw (SHCS) with nominal thread 0.060 through 1.500 in. and intended for use in applications requiring general corrosion resistance.

1.2 Two groups of stainless steel alloys are covered, austenitic Group 1 and martensitic Group 5.

1.3 Four property conditions are covered: austenitic Alloy Group 1 in an annealed condition (AF) at 85 ksi maximum, in two cold worked conditions (CW) at 80 ksi minimum, (CW1) at 102 ksi minimum, and martensitic Alloy Group 5 in a heat treated condition (HT) at 160 ksi minimum.

1.4 The following precautionary caveat pertains only to the test method portion, Section 13, of this specification: *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

A 262 Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels²

A 342 Test Methods for Permeability of Feebly Magnetic Materials³

A 380 Practice for Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems²

A 555/A 555M Specification for General Requirements for Stainless Steel Wire and Wire Rods²

A 751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products²

A 967 Specification for Chemical Passivation Treatments for Stainless Steel Parts²

D 3951 Practice for Commercial Packaging⁴

E 18 Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials⁵

E 92 Test Method for Vickers Hardness of Metallic Materials⁵

E 384 Test Method for Microhardness of Materials⁵

F 593 Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs⁶

F 606 Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets⁶

F 788/F 788M Specification for Surface Discontinuities on Bolts, Screws, and Studs, Inch and Metric Series⁶

F 1470 Guide for Fastener Sampling for Specified Mechanical Properties and Performance Inspection⁶

2.2 ASME Standard:

ASME B18.3 Socket Cap, Shoulder, and Set Screws—Inch Series⁷

3. Classification

3.1 The designation of the alloy group and condition for the two materials and conditions of this specification shall be consistent with the stainless steel designations in Specification F 593.

3.2 The austenitic stainless steel socket head cap screw shall be designated F 837 Group 1 Condition AF, F 837 Group 1 Condition CW, or F 837 Group 1 Condition CW1.

3.3 The martensitic stainless steel socket head cap screw shall be designated F 837 Group 5 Condition HT.

4. Ordering Information

4.1 Orders for socket head cap screws under this specification shall include:

4.1.1 Quantity (number of pieces of each item).

4.1.2 Name of the item (socket head cap screws, SHCS).

4.1.3 Size (nominal diameter, thread pitch, thread class, screw length) or part number.

4.1.4 Alloy Group and Condition (Group 1 AF, Group 1

¹ This specification is under the jurisdiction of ASTM Committee F16 on Fasteners and is the direct responsibility of Subcommittee F16.04 on Nonferrous Fasteners.

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² Annual Book of ASTM Standards, Vol 01.03.

³ Annual Book of ASTM Standards, Vol 03.04.

⁴ Annual Book of ASTM Standards, Vol 15.09.

⁵ Annual Book of ASTM Standards, Vol 03.01.

⁶ Annual Book of ASTM Standards, Vol 01.08.

⁷ Available from Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112.