

FOREWORD:

This standard sets forth a standard test method to determine the hardness of all types of structural fasteners.

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THE INITIAL RELEASE OF THIS DOCUMENT SUPERSEDES MIL-STD-1312-6. DESIGNATION FOR THIS TEST METHOD REMAINS MIL-STD-1312-6.

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PROCUREMENT SPECIFICATION NONE	TITLE FASTENER TEST METHODS, METHOD 6, HARDNESS	CLASSIFICATION STANDARD PRACTICE NAS 1312-6

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1. SCOPE

- 1.1 Applicability. This test method covers a procedure for testing fastener hardness. This method is applicable to all types of structural fasteners: single and multiple piece, blind, threaded and nonthreaded.

2. REFERENCED DOCUMENTS

Not applicable.

3. DEFINITIONS

Not applicable.

4. GENERAL REQUIREMENTS

4.1 Test apparatus.

- 4.1.1 Rockwell hardness tester. This instrument measures an increase in depth of penetration from a minor to a major load. Two combinations of indenter and major load are recommended. The B scale utilizes a 1/16 inch ball penetrator with a major load of 100 kilograms. A diamond brale (a spherical-tipped conical diamond of a 120 degree angle and 0.2 millimeter tip radius), with a major load of 150 kilograms, is required for the C scale.

- 4.1.2 Rockwell superficial hardness tester. The superficial hardness tester is similar to the instrument specified in 4.1.1, except that the indentation is much shallower. The 30T scale utilizes a 1/16 inch ball penetrator with a major load of 30 kilograms, while the 30N scale utilizes the diamond brale with a 30 kilogram load.

- 4.1.3 Micro hardness tester. A micro hardness tester shall be used when the size or configuration of the test piece does not permit testing on the Rockwell (normal or superficial) equipment. It shall be used also for molded specimens (where dial gage hardness is subject to the errors of unrecovered vertical motion of the specimen upon release of the major load), or where variation of hardness in small distances is being investigated. The penetrator is a diamond square pyramid with a face angle of 136 degrees (diamond pyramid hardness (DPH)) or a diamond rhombus pyramid with 172 degrees included angle (Knoop).

- 4.1.4 Calibration. Each tester shall be calibrated with standard test blocks for the applicable testing scales in use and the test results recorded on a daily basis during tester usage. Calibration cards shall be available at the machines. Minimum distance between the impressions during calibration shall be in accordance with 5.1.4.

- 4.1.5 Condition of indenter. Indenters shall be periodically checked under a microscope for defects. Flattening of steel ball indenters or cracking and chipping of diamond indenters results in error in the hardness numbers.

- 4.1.6 Micrometer microscope. For micro hardness testing, a micrometer microscope is required. This instrument shall be so constructed that the length of the diagonals of an impression in a properly surface-finished specimen can be measured to within ± 0.0005 millimeter or ± 0.5 percent, whichever is larger.

4.2 Test specimens.

- 4.2.1 General. The part will be sectioned with parallel surfaces of the specimen prepared by filing, sanding, grinding, or polishing or a combination thereof as specified and tabulated in Table I. Care shall be taken so as not to overheat or work-harden the surface.

- 4.2.2 Surface condition. For the greatest accuracy, the surface of the specimens should be flat, normal to the axis of the indenter, and representative of sound metal. Plating, scale, paint, or grease shall be removed and the part should be sanded or sectioned. The better the surface condition, the more reliable the hardness reading. The more shallow the indentation, the more critical the surface condition.

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