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INCH/POUND

A-A-1357B
February 6, 2002
SUPERSEDING
A-A-1357A
January 19, 1989

COMMERCIAL ITEM DESCRIPTION

WRENCH, ENGINEER'S, SINGLE HEAD, OPEN END, 15 DEGREE

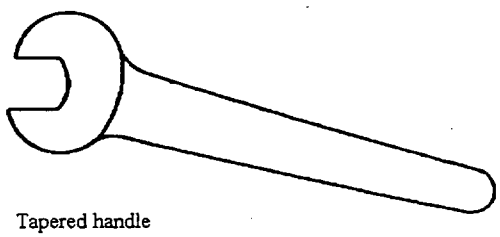
The General Services Administration has authorized the use of this commercial item description by all federal agencies.

1. SCOPE. This commercial item description covers wrenches suitable for hexagonal square-headed bolts and nuts.

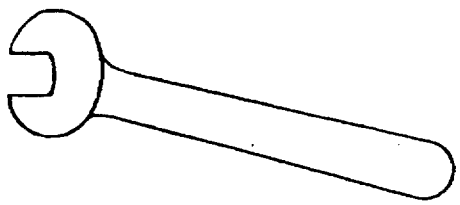
2. CLASSIFICATION. Not applicable

3. SALIENT CHARACTERISTICS.

3.1 Design. Wrenches shall be of an engineer's, single head, open-end 15-degree design and afford a well proportioned, comfortable handgrip. Wrench dimensions and sizes shall conform to section 3.2.



Tapered handle



Flared handle

Wrench, Engineer's

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any other data which may improve this document should be sent to: General Services Administration, Federal Supply Service, Hardware SuperStore (6FEE), 1500 Bannister Rd. Bldg.#6, Kansas City, Missouri. 64131.

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3.2 Dimensions and Sizes.

Wrench Opening (Distance Across Flats) Inches	Length Overall (Max.) Inches	Width Of Head (Max.) Inches	Thickness Of Bead (Max.) Inches	Torque Load (Min.) In.-Lbs.
3/8	4-1/8	1	17/64	540
7/16	4-3/4	1-1/4	5/16	760
½	4-5/8	1-1/4	5/16	1,170
9/16	5-1/2	1-15/32	3/8	1,640
5/8	6-3/8	1-11/16	7/16	2,600
11/16	6-1/2	1-15/16	7/16	3,000
¾	7-1/8	1-15/16	7/16	3,200
13/16	8	2-3/16	1/2	3,480
7/8	8-1/2	2-3/16	1/2	3,910
15/16	9-1/2	2-5/16	9/16	4,860
1	9-1/4	2-5/16	9/16	5,850
1-1/16	10-1/2	2-13/16	5/8	6,390
1-1/8	10-1/2	2-13/16	5/8	6,390
1-1/4	12	3-3/16	3/4	8,500
1-5/16	11-7/8	3-3/16	3/4	9,450
1-7/16	13-1/2	3-7/8	7/8	11,300
1-1/2	13-1/2	3-7/8	7/8	12,420
1-5/8	15	4	7/8	14,850
1-11/16	15	4	7/8	17,280
1-13/16	16-1/2	4-1/2	15/16	22,500
1-7/8	16-1/2	4-1/2	15/16	25,920
2	18-1/4	4-13/16	1	33,480
2-3/16	20	5	1-1/8	46,620
2-1/4	20	5	1-1/8	51,660
2-3/8	22	6	1-1/4	61,560

3.3 Materials. The materials used in the manufacturing of the wrenches shall be such as to produce wrenches conforming to the physical requirements hereinafter described.

3.4 Marking. Each wrench shall be marked on one of the faces or on the handle as close to each head as is practicable in a plain and permanent manner. In addition to size markings, each wrench shall be marked in a plain and permanent manner with the manufacturer's name or trademark of such known character that the source of manufacture may be readily determined.

3.5 Hardness. Wrenches shall be treated to a Rockwell C hardness not less that 38 nor more than 55 when tested per ASTM-E-18.

3.6 Proof Torque. When tested as specified in ASME-B107.6, the wrenches shall withstand the proof torque specified in Table 1 without failure or permanent deformation which might affect the durability or serviceability of the wrenches.

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3.7 Wrench Opening. The nut and bolt head-engaging surfaces of the open end wrench shall be finished in a smooth and well-defined manner. The tips (working ends) of all open end wrenches shall also be chamfered or rounded to eliminate burrs. Tolerances shall be such as to insure acceptance when gaged with gages conforming to ASME B107.17M.

3.8 Handle. Wrench handle shall be flared or tapered.

3.9 Finish.

3.9.1 Surface Finish. All surfaces shall be thoroughly cleaned, free from cracks, and essentially free from burrs, pits, nodules, and other detrimental deficiencies.

3.9.1.1 Minimum Area Surface Finish. Both faces of the open end shall be bright and shall have a maximum roughness height value of 63 microinches. All other surfaces shall not be more than 125 microinches as specified in ANSI B46.1.

3.9.2 Coatings. The coating shall be chrome plate (3.9.2.1) or alternate coating (3.9.2.2) The coating shall be adherent, smooth, continuous, and free from uncoated areas, pits, blisters, nodules, and any other defects that would interfere with their protective value and serviceability.

3.9.2.1 Chrome Plate. Wrenches shall have a protective-decorative nickel-chromium plating. The nickel thickness shall be a minimum of 0.000150 in. The chromium thickness shall be a minimum of 0.000003 in. A nickel-iron undercoating (16% iron max.) may be substituted for nickel.

3.9.2.1.1 Chrome Plate Tests.
One measurement of the thickness of each electroplated coating shall be conducted in accordance with any of the following, as appropriate, methods:

ASTM B 487: Standard Method for Measurement of metal and oxide coating thickness by microscopical examination of a cross section.

ASTM B 499: Standard Test Method for Measurement of coating thickness by the magnetic method: nonmagnetic coatings of magnetic basis metals.

ASTM B 504: Standard Method for Measurement of thickness of metallic coatings by the coulometric method.

ASTM B 530: Standard Test Method for Measurement of coating thickness by the magnetic method: electrodeposited nickel coatings on magnetic and nonmagnetic substrates.

ASTM B 568: Standard Test Method for Measurement of coating thickness by x-ray spectrometry.

ASTM B 748: Standard Method for Measurement of thickness of metallic coatings by measurement of cross section with a scanning electron microscope.

ASTM A 754: Standard Test Method for Coating thickness by x-ray fluorescence.

Visible contact marks resulting from electroplating operations shall be confined to the interior of the wrenching and drive openings. Surfaces of the electroplated tool shall be adherent, smooth, continuous,

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and free of visible defects, such as blisters, pits, roughness, cracks, and uncoated areas. Surfaces shall not be stained or discolored and shall have a bright appearance.

The electroplated tool shall be clean and free of damage. The tool shall be tested for adhesion of electroplated materials in accordance with ASTM B571, Standard Test Methods for Adhesion of Metallic Coatings, by one of the following methods: Grind-Saw, Push, File, or Burnishing.

3.9.2.2 Alternative Coatings. Alternate coatings may be used in lieu of nickel-chromium and shall be subjected to the Alternative Coating Test as specified below.

3.9.2.2.1 Alternative Coating Test.
The test consists of an adhesion, abrasion, and corrosion test specified below:

Test Preparation. The quantity and condition of the wrenches used for the following testing shall be per the manufacturer's standard practice or as mutually agreed to by the manufacturer and the GSA.

Adhesion Test. Sample wrenches shall pass the file or grind-saw test of ASTM B 571.

Abrasion Test. Sample wrenches shall have no base material exposed after being subjecting to 100 liters of falling sand per ASTM D 968 Method A.

Corrosion Test. The exterior surfaces of sample wrenches shall be tested for corrosion resistance by exposure to a 72-hour salt spray test, as specified in ASTM B 117, without falling below the ASTM B 537 rating of 6.

4. REGULATORY REQUIREMENTS.

4.1 Recovered Material. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal acquisition Regulation (FAR).

5. PRODUCT CONFORMANCE.

5.1 Product Conformance. The product provided shall meet the salient characteristics of this Commercial Item Description, conform to the producer's own drawing , specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial market. The government reserves the right to require proof of such conformance.

5.2 Responsibility for Inspection. Unless otherwise specified, the contractor is responsible for the performance of all inspection requirements and may use any commercial facilities (including the contractor's own facilities) suitable for performance of the inspection requirements, unless disapproved by the Government. The Government reserves the right to perform any of the inspections deemed necessary to assure the item conforms to the specified requirements.

6. PACKAGING. Preservation, packaging and marking shall be as specified in the contract or order.
7. NOTES. This section contains information of a general or explanatory nature that is not mandatory.

7.1 Source of Documents.

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American Society of Mechanical Engineers (ASME),. Manuel Gutierrez, Managing Director, 3 Park Avenue, New York, NY 10016.

American Society for Testing and Materials (ASTM), 100 Barr Harbor Dr., W. Conshohocken, PA, 19428-2959.

Federal Acquisition Regulation (FAR): Government Printing Office, Superintendent of Documents, Washington DC. 20401-9371.

7.2 Ordering data. Purchasers should select the preferred options permitted herein and should include the following information in procurement documents.

a. Title, number and date of Commercial Item Description.
b. Wrench Opening
c. Packaging requirements.

7.3 National Stock Numbers (NSN's). A list of NSN's assigned that correspond to this CID. The list may not be indicative of all possible NSN's associated with the CID.

NSN	Wrench Opening	NSN	Wrench Opening
5120-00-277-1261	3/8	5120-00-277-1250	1-1/4
5120-00-277-1262	7/16	5120-00-277-1247	1-5/16
5120-00-277-1259	1/2	5120-00-277-1248	1-7/16
5120-00-277-1260	9/16	5120-00-277-1246	1-1/2
5120-00-277-1258	5/8	5120-00-277-1244	1-5/8
5120-00-184-8595	11/16	5120-00-277-1245	1-11/16
5120-00-277-2691	3/4	5120-00-277-1242	1-13/16
5120-00-277-1256	13/16	5120-00-277-1243	1-7/8
5120-00-277-1253	7/8	5120-00-277-1240	2
5120-00-277-1254	15/16	5120-00-277-1238	2-3/16
5120-00-277-1251	1	5120-00-277-1239	2-1/4
5120-00-277-1252	1-1/16	5120-00-277-1236	2-3/8
5120-00-277-1249	1-1/8		

7.4 Key words. Wrench; Engineer's; single head; open end; 15 degree head.

MILITARY INTERESTS:
NONE: DoD has no registered interest in revisions and amendments to this Commercial Item Description until further notice.

Preparing Activity:
GSA-FSS