

[INCH-POUND]
A-A-3023
October 10, 1996

COMMERCIAL ITEM DESCRIPTION

EXTRACTOR, SCREW AND DRILL GUIDE, SCREW EXTRACTOR

The General Services Administration has authorized the use of this Commercial Item Description for procurement of type III extractors specified in GGG-E-936C for all federal agencies.

1. SCOPE.

1.1 Scope. This Commercial Item Description covers hand-operated extractors used in removing broken screws.

2. CLASSIFICATION.

2.1 Classification. Not applicable.

3. SALIENT CHARACTERISTICS.

3.1 Design. The screw extractors shall be of steel construction, straight, straight fluted, and shall be the standard product of the manufacturer. The extractors shall be heat treated and conform to a hardness of 50 to 60 on the Rockwell C scale. Sizes 1 through 5 shall consist of a fluted rod with a sliding turnout nut, shall be similar to Figure 1, and shall conform to the dimensions specified in Table I. Sizes 6 through 8 shall have a square tang, shall be similar to Figure 2, and shall conform to the dimensions specified in Table I. All extractors shall have a lead taper for easy entry into the hole. Dimensions not having a minimum, maximum, or tolerance range are considered to be nominal dimensions. Size deviations that are normal to standard manufacturing practices will be acceptable. The recommended drill size required for using the extractor shall be permanently and legibly marked on each extractor. When required to be tested for hardness, sample extractors shall be tested in accordance with ASTM E 18. When required to be tested for torsional moment, sample extractors shall be tested as follows:

A hole shall be drilled in a low-carbon, unhardened steel plate or block. The hole size shall be determined by referring to the largest drill size for the applicable extractor size listed in Table II. If lead holes are not drilled, care shall be exercised to select drills that are ground on center in order to prevent holes from being drilled oversize. The extractor shall be inserted into the drilled hole and gently driven in sufficiently to provide a firm engagement. A torque-testing machine or other suitable means shall be utilized to exert a steady pressure of torque until the minimum torsional moment in inch-pounds is reached or the extractor fails. Failure shall be deemed to have occurred when the extractor breaks or a permanent bend or twist occurs. If more than one sample fails to meet the minimum inch-pounds specified under torsional moment in Table I, the lot represented by the samples shall be rejected.

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, Tools and Appliances Commodity Center, Kansas City, MO 64131.

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Figure 1. Screw extractor, straight, straight fluted, sliding turnout nut.

TABLE I. Screw extractor, dimensions and requirements

Extractor size number	Diameter over flutes (Inch)	Body diameter between flutes (Inch)	Nominal overall length $\pm 1/16$ (Inches)	Torsional moment, minimum (Inch-pounds)
1	0.132 to 0.139	0.119 to 0.124	2-5/16	55
2	0.198 to 0.205	0.181 to 0.186	2-3/4	210
3	0.266 to 0.272	0.244 to 0.249	3-1/16	560
4	0.335 to 0.341	0.296 to 0.302	3-5/16	1,120
5	0.371 to 0.377	0.326 to 0.332	3-3/4	1,370
6	0.461 to 0.467	0.413 to 0.419	4-1/8	1,780
7	0.525 to 0.531	0.471 to 0.478	4-1/2	3,500
8	0.651 to 0.657	0.585 to 0.592	4-3/4	7,500

TABLE II. Drill sizes

Extractor size number	Use drill size (Inch)	For screw size (Inch)
1	1/8	1/4
2	3/16	5/16
3	1/4	3/8
4	5/16	7/16
5	11/32	1/2
6	7/16	5/8
7	1/2	3/4
8	5/8	1



Figure 2. Screw extractor, straight, straight fluted, square tang.

3.1.1 Drill guides for sizes 1 through 5 screw extractors. When specified (see 7.2), drill guides for use in centering and drilling lead holes shall be of carbon steel, hardened, and plated. The drill guides shall be counterbored to allow for chip clearance. The drill guides shall be similar to Figure 3 and conform to the dimensions specified in Table III.

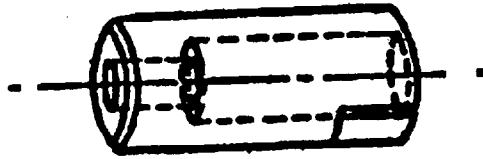


Figure 3. Drill guide for size 1 through 5 screw extractors.

TABLE III. Drill guides for size 1 through 5 screw extractors

Nominal outside diameter (Inch)	Inside diameter (Inch)	Nominal overall length (Inches)
9/32	0.125 to 0.131	1-3/16
5/16	0.125 to 0.131	1-3/16
11/32	0.125 to 0.131	1-3/16
3/8	0.125 to 0.131	1-3/16
13/32	0.1875 to 0.193	1-3/16
7/16	0.1875 to 0.193	1-3/16
15/32	0.1875 to 0.193	1-3/16
1/2	0.1875 to 0.193	1-3/16
17/32	0.250 to 0.256	1-3/16
9/16	0.250 to 0.256	1-3/16

3.1.2 Drill guide assembly. When specified (see 7.2), a drill guide assembly consisting of a guide, nut, spacers, bushings, and a 1/4-inch-diameter, 6-inch-long, twist drill shall be provided. The spacers and bushing shall be of carbon steel, hardened, and plated. The drill guide assembly shall be similar to Figure 4 and conform to the dimensions specified in Table IV.

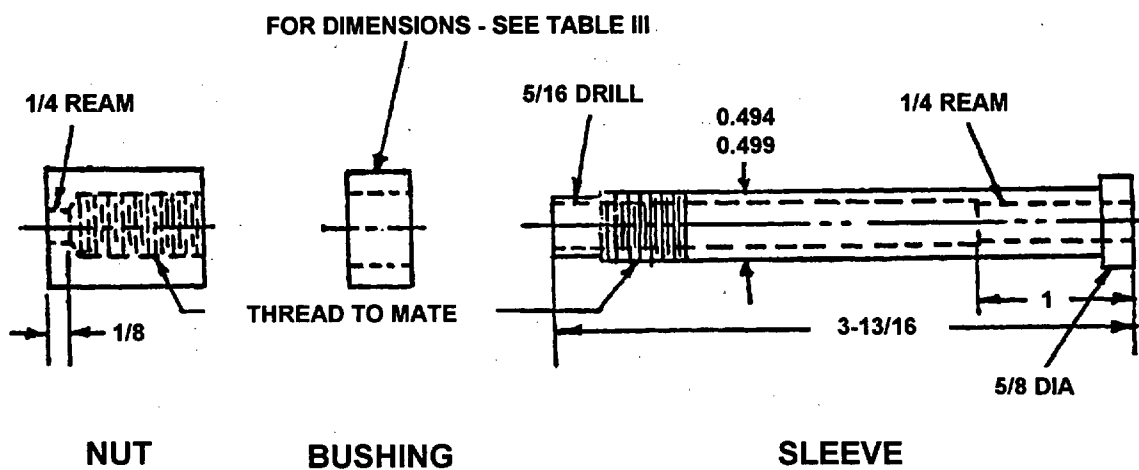


Figure 4. Assembly-type drill guide for screw extractors.

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TABLE IV. Screw extractors, sleeve bushings for assembly-type drill guide

Nominal outside diameter of bushing (Inch)	Inside diameter (Inch)	Nominal overall length (Inch)	Quantity
5/8 1/	0.501 to 0.506	3/4	4
21/32	0.501 to 0.506	3/8	2
11/16	0.501 to 0.506	3/8	2
23/32	0.501 to 0.506	3/8	2
25/32	0.501 to 0.506	3/8	2
13/16	0.501 to 0.506	3/8	2
27/32	0.501 to 0.506	3/8	2
29/32	0.501 to 0.506	3/8	2
15/16	0.501 to 0.506	3/8	2
31/32	0.501 to 0.506	3/8	2
1-1/32	0.501 to 0.506	3/8	2
1-1/16	0.501 to 0.506	3/8	2
1-3/32	0.501 to 0.506	3/8	2

1/ Spacers

3.2 Extractor sets. When sets of extractors are specified (see 7.2), the parts of the sets shall conform to the requirements of the respective items covered by this commercial item description. The sets shall be provided in wraps or rolls of durable plastic or fabric with individual pockets for each extractor and its components, arranged to fold in such a manner as to enclose the extractor and its components, and shall be secured with durable snaps or ties. When boxes for sets are specified, the boxes shall be either metal, plastic, or wood, with partitions for holding the components and a cover, and shall have a positive- or friction-type catch. When wooden blocks are specified, the blocks shall have round drilled holes to accommodate each extractor in the set. The interior and exterior surfaces of metal, wooden boxes, or wooden blocks shall have a suitable protective coating. When plastic wraps (pouches) are furnished, the plastic shall be of flexible vinyl film having a 1.58 maximum volatility rating, 1.30 maximum specific gravity, 13-gage (0.013 inch) minimum thickness and shall have the capacity to pass a 0° to -5° Fahrenheit Maslan cold crack test.

3.3 Identification marking. The tool shall be marked with the manufacturer's name or identifying symbol and the state or country of manufacture, unless otherwise specified. All identification markings shall be engraved, etched, molded, or indented directly on the item's surface in such a manner that it remains clearly legible throughout the life of the item.

3.4 Workmanship. Details of workmanship shall be in accordance with the best commercial practice. Paints, coatings, platings, and finishes shall be smooth, adherent, continuous, and not stained or discolored. External surfaces shall be free of tool and gouge marks, nicks, or other surface imperfections. The item shall be free from manufacturing workmanship defects (e.g., sharp or rough external edges, corners, or surfaces) and material workmanship defects (e.g., pits, rips, fins, burrs, tears, nodules, cracks, blisters) which may adversely impact the item's serviceability, durability, safety, or appearance.

4. REGULATORY REQUIREMENTS.

4.1 Recovered materials. 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).

4.2 Metric products. Products manufactured to metric dimensions will be considered on an equal basis with those manufactured using inch-pound units, provided they fall within the tolerances specified (using conversion tables

contained in the latest revision of Federal Standard 376) and all other requirements of this document are met. If a product is manufactured to metric dimensions and those dimensions exceed the tolerances specified in the inch-pound units, a request should be made to the contracting officer to determine if the product is acceptable.

5. QUALITY ASSURANCE PROVISIONS:

5.1 Product conformance. The product provided to the Government shall conform to the contractually specified requirements. For product characteristics and requirements which are not contractually specified, the provided product shall conform to the producer's own drawings, standards, specifications, and quality assurance practices for the highest quality product commercially offered by the producer. If the product is not commercially offered by the producer, the best commercial practices shall apply. The Government reserves the right to require proof of such conformance prior to first delivery and thereafter as provided for under the provisions of the contract.

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 inspections deemed necessary to assure the item conforms to the specified requirements.

5.3 Bid sample(s). When a bid sample requirement is specified in the solicitation, the bid sample(s) shall be inspected for all salient characteristics by the Government. A failure of any bid sample to meet the salient characteristics shall be cause for rejection.

5.4 First article sample(s). When a first article requirement is specified in the contract, the first article sample(s) shall be inspected for all salient characteristics. A failure of any first article sample to meet the salient characteristics shall be cause for rejection.

6. PACKAGING.

6.1 Packaging. Requirements of preservation, packing, packaging, and marking of packages 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 Addresses for obtaining copies of referenced documents:

Federal Specifications and Standards: Federal Supply Service Bureau, Specification Section, Suite 8100, 470 L'Enfant Plaza, SW, Washington, DC 20407.

Federal Acquisition Regulations (FAR): Government Printing Office, Superintendent of Documents, Washington, DC 20402-9371.

ANSI/ASQC Z1.4: American Society for Quality Control, P.O. Box 3005, 611 East Wisconsin Avenue, Milwaukee, WI 43201-4606.

ASTM E18: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

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 this Commercial Item Description.
- (b) When applicable, the appropriate NSN(s).

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- (c) When screw extractors are ordered in sets, specify whether sizes 1 through 5, or sizes 1 through 8 are required. Specify if the drill guides (3.1.1) and drills (Table II), also if assembly type drill guide with bushings (3.1.2) is required.
- (d) If bid samples are required, the number of samples required, and the subjective inspection requirements.
- (e) If first article samples are required and the number of samples required.
- (f) If lot sampling inspection is required and the applicable lot sampling requirements. For example:

Sampling for inspection. Sampling for inspection (both examinations and testing) shall be in accordance with ANSI/ASQC Z1.4.

Inspection. Each sample tool shall be examined and tested for all salient characteristics. The Inspection Level shall be S-2 with an Acceptable Quality Level of 4.0, expressed in terms of defects per hundred units.

- (g) What preservation, packing, packaging, and marking of packages are required.
- (h) Whether sets are to be furnished and type of wrap or container; i.e., plastic, fabric wraps or rolls, or metal, plastic or wooden boxes or wooden blocks.
- (i) Whether drill guides or drill guide assemblies are to be furnished (see 3.1.1 and 3.1.2).

7.3 National Stock Numbers (NSNs). The following list of NSNs corresponds to the extractor specified in this CID. This list may not be indicative of all possible NSNs associated with this CID.

NSN	EXTRACTOR SIZE NUMBER
5120-00-223-6940	1
5120-00-223-6941	2
5120-00-223-6942	3
5120-00-223-6943	4
5120-00-223-6944	5

MILITARY INTERESTS:

NONE: DoD has no registered interest in revisions or notices to this Commercial Item Description until further notice.

PREPARING ACTIVITY:

GSA - FSS