A-A-50459A
April 14, 1989
SUPERSEDING
A-A-50459
May 24, 1983

COMMERCIAL ITEM DESCRIPTION

SHEARS, METAL CUTTING, ELECTRIC (PORTABLE)

Abstract. This commercial item description (CID) covers two types of portable electric shears for straight and/or contour cutting of ferrous and nonferrous sheet materials:

Salient characteristics.

1. Types and sizes: Types and sizes shall be in accordance with table I and as follows:

   Type I shears shall be manually held and guided type, single shear action with a pair of blades, one the stationary blade, the other blade with reciprocating movement.

   Type II shears shall be hand guided double shear action with one cutting blade pivoted to operate between two stationary blades producing double shear action, and shall be provided with a swivel head having a locking device to fix the head in one of several positions.

TABLE I. Requirements.

Type	Size	Capacity: Manufacturers gage	Capacity: Steel thickness (approx.)	Cutting Rate (min.)	Cutting radius (min.)	Overall length (max.)	Weight w/o cable (max.)
			Inch	Ft Min	Inches	Inches	Pounds
I	1	18 -	0.048	15	1	12	10
I	2	16 -	0.060	15	1-1/2	14	12
I	3	12 -	0.105	15	2-1/2	15	16
II	4	18 -	0.048	15	3	13	5
I	5	14 -	0.075	10	3/4	11	5

Beneficial comments (recommendations, additions, deletions, clarifications, etc., and any other data which may improve this document should be sent by letter to: Commanding Officer, Naval Construction Battalion Center (Code 156), Port Hueneme, CA 93043-5000).

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2. Safety. Shears shall be mechanically and electrically safe. Safety devices shall be provided to protect the operator from accidental contact with rotating, reciprocating or such moving parts which might be hazardous. Electrical components and motor shall be completely enclosed, except for ventilation openings conforming to UL 45.

3. Lubrication. Bearings, except sealed bearings which are prelubricated, gears and moving parts shall be assembled with lubricating medium. Provision for lubricant replacement shall be provided. Lubricant shall not leak from the gear casing or enter the motor compartment.

4. Interchangeability. All parts from the same manufacturer shall be manufactured to standards which will permit interchangeability of similar parts without modification or adjustment.

5. Material. Materials used in fabrication of shears shall be new, of uniform quality and be produced according to standard practices of reputable manufacturers producing equipment which will meet the requirements of this specification.

6. Construction. Shears shall be complete so that when connected to the specified sources of power, they can be used for any designed operation. Construction shall be free from any characteristics or defects that will prevent the machine from satisfactorily performing the requirements of table I.

7. Castings. All castings shall be free from defects, scale or mismatching. In no event shall such processes as welding, peening, plugging or filling with solders or metallic pastes be used on casings for reclaiming any part.

8. Surfaces. Surfaces of all castings, forgings and molded parts shall be cleaned and free of sand, dirt, fins, sprues, scale, flux or other harmful or extraneous materials. External surfaces shall be smooth and all edges shall be rounded or beveled. Surfaces shall be finished according to the manufacturer's standard practice.

9. Welding, brazing or soldering. Welding, brazing or soldering shall be employed only where those operations are included in fabrication of the original design. These operations shall not be employed as repair measures for defective parts.

10. Fastening devices. All screws, pins, bolts and similar parts shall be installed with means of preventing loss of tightness. All such parts, when subject to removal or adjustment, shall not be swaged, peened, staked or permanently deformed. Threaded parts shall be in the inch system and shall conform to National Bureau of Standards Handbook H28-Screw Threads for Federal Services.

11. Components. Shears furnished under this CID shall consist of a motor, switch, cable and plug, wiring, housing, gears, shafts, bearings, cutting blades and handle. Type I shears shall have a yoke and type II shears shall have swivel head.

12. Motor. The motor shall be a continuous duty universal series wound or compensated series wound and designed to operate on 115 volt direct current or 115 volt single phase 60 cycle alternating current. Motors shall be in compliance with the requirements of UL 45 for electric tools for: a. Continuity of grounding connections; b. Insulation resistance; c. Dielectric strength; d. Current input; and e. Temperature rise.

13. Cutting blades. Cutting blades shall be of heat treated alloy tool steel with Rockwell C scale hardness of 57 to 60 for type I shears and 55 to 60 for type II. The reciprocating cutter blades shall be visible to the operator to enable the operator to follow the line to be cut. Cutter blades shall be mounted for convenient adjustment and replacement.

14. Switch. Shears shall be provided with a conveniently located switch of quick break design. Self-releasing switches shall return to the "OFF" position when pressure is removed and shall be provided with a locking pin for locking in "ON" position. Switches other than self-releasing type shall be marked to indicate "ON" and "OFF" positions. Switches shall comply with the requirements of UL 45.

15. Wiring. All wiring, flexible cord, attachment plug cap and grounding means shall be in accordance with UL 45. The cord shall have an attachment plug cap and unless otherwise specified, a minimum free length of 9 feet measured from point of entry into the shears.

16. Housings. Housings shall be of a material of suitable characteristics to withstand stresses imposed by normal usage. Housings shall include the motor case, gear and cam and reciprocating mechanism housing.

17. Gears and shafts. Gears shall be alloy steel. Where worm gearing is used, the gearing shall consist of a steel worm and bronze worm wheel. Gears shall have machine cut or formed teeth and be designed and supported to efficiently transmit imposed loads. Shafts shall be of alloy steel supported by at least two bearings to prevent deflection. Gears and shafts shall be fully enclosed.

18. Bearings. Armature shafts shall be mounted in ball or roller bearings. Rotating shafts, other than the armature shaft, shall be mounted in ball, roller or needle roller bearings. Reciprocating shafts may be mounted in bronze sleeve bearing. Roller or needle roller bearings which are designed primarily for radial loads shall not be used to absorb trust loads. Steel inserts may be omitted in the mounting of bearings when sufficient contact area and a suitable fit between bearing outer diameter and housing is provided. Bearings shall be of the dustproof sealed type or shall be mounted in a dustproof housing. Ball, roller and needle roller bearings shall conform to ANSI B3.5 for tolerances, B3.6 for dimensions and B3.8 for mounting requirements for the type and size bearings used and (AFBMA Standard Section No. 5) for identification.

19. Yoke. The yoke shall contain the stationary cutter blade and shall be attached to the reciprocating cutter housing. The yoke shall be of a material and cross-sectional area suitable to maintain cutter blade adjustment and alignment.

20. Handles. Type I shears shall be equipped with a comfortable closed double grip handle. Type II shears shall have a pistol grip handle.

21. Swivel head. Type II shears shall be provided with a swivel head having a locking device to fix the head in one of several positions. The swivel head shall contain the cutting blades.

22. Electromagnetic interference. When specified, each shear shall be electromagnetic interference free in accordance with the requirements of MIL-STD-1337 for class II B equipment. If electromagnetic interference suppression is required the manufacturer shall provide certification that the electromagnetic suppression network in the shears offered is identical to that of the shears previously tested and approved.

23. Moisture-and-fungus-resistant-treatment. When specified in the contract, electrical components of shears covered by this specification shall be moisture-and-fungus-resistant treated with material conforming to and applied as required by MIL-T-152 and MIL-V-173 as applicable.

24. Identification plate. A corrosion resistant nameplate, permanently, and legibly marked to include the following information shall be securely attached to the shear:

    a. Manufacturer's name, model or serial number.
    b. Mild steel cutting capacity.
    c. Voltage.
    d. Rated-load amperes.

25. Instruction book. Unless otherwise specified in the contract, the manufacturer shall furnish one copy of his standard instruction book and parts list with each shear.

26. Accessories. Each shear shall be furnished with one extra set of cutting blades and such accessories and other extra parts as normally furnished commercially.

27. Workmanship. Workmanship of the shears shall be of the quality prevailing among manufacturers normally producing shears of the type and sizes specified herein.

Contractor certification. The contractor shall certify and maintain substantiating evidence that the product offered meets the salient charcteristics of this and that the product conforms to the producer's own drawings, specifications, standards and quality assurance practices. The Government reserves the right to require proof of such conformance prior to first delivery and thereafter as may be otherwise provided for under the provisions of the contract.

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 specified tolerances using conversion tables contained in the latest revision of Federal Standard No. 376, and all other requirements of this Commercial Item Description 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.

The contracting officer has the option of accepting or rejecting the product.

Regulatory requirements. The offeror/contractor is encouraged to use recovered materials in accordance with Public Law 94-580 to the maximum extent practicable.

Preservation, packaging, packing and marking.

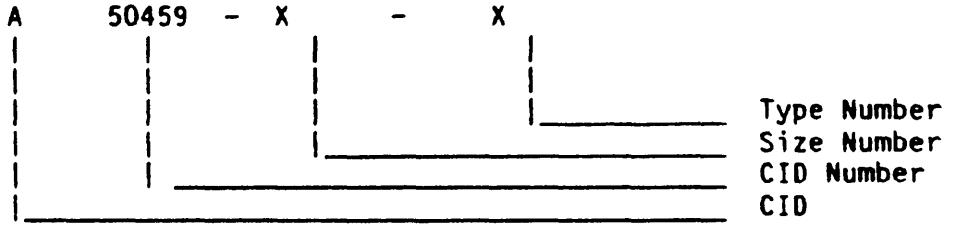
1. Preservation, packaging, packing and marking shall be in accordance with the requirements of MIL-H-15424 for portable electric grinders. Levels of preservation, packaging and packing shall be as specified in the contract or order.

2. Marking.

   a. Military agencies. In addition to any special marking required by the contract, or order, or herein, interior and exterior shipping containers shall be marked in accordance with MIL-STD-129.

   b. Civil agencies. In addition to any special marking specified in the contract or order, each unit and intermediate package and shipping container shall be marked in accordance with Fed. Std. No. 123.

CID base part identifying number (PIN). The PIN to be used for shears acquired to this Commercial Item Description are created as follows:



Notes.

Purchasers should select the perferred options permitted herein and include the following information in procurement documents:

1. Title, number and date of this specification.

2. Type and size required.
3. Length of cord, if different from standard 9 ft.
4. Electromagnetic interference, when specified.
5. Moisture-and-fungus-resistant treatment when required.
6. Instruction book requirements, if different.
7. Levels of preservation, packaging and required.

American National Standards are available from the American National Standards Institute, Inc., 1430 Broadway, New York, New York 10018.

Anti-Friction Bearing standards are available from the Anti-Friction Bearing Manufacturers' Association, 60 East 42nd Street, New York, NY 10017.

National Motor Freight Classification standards are available from the Amercan Trucking Associations Inc., Traffic Department, 1616 P Street, N.W., Washington, DC 20036.

National Bureau of Standards (NBS) Handbook are available from superintend of documents Government printing office Washington, D.C. 20402.

UL standards are available from the Underwriters' Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062.

Uniform Freight Classification standards are available from the Uniform Classification Committee, Suite 1106, 222 South Riverside Plaza, Chicago, IL 60606.

MILITARY INTERESTS:

Custodians

Navy - SH
Air Force - 99

Review Activity

Air Force - 84

CIVIL AGENCY COORDINATING ACTIVITIES:

GSA - FSS

PREPARING ACTIVITY:

Navy - YD

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