

INCH POUND

A-A-58049B

04 Apr 2008

SUPERSEDING

A-A-58049A

14 Jan 1998

## COMMERCIAL ITEM DESCRIPTION

### MAGNETIC PARTICLE INSPECTION UNITS, 52 INCH & 100 INCH

The General Services Administration has authorized the use of this Commercial Item Description (CID) for all federal agencies.

1. **SCOPE.** This Commercial Item Description (CID) covers 52 inch and 100 inch wet horizontal magnetic particle inspection unit which will be capable of performing conventional magnetization of ferromagnetic parts.

2. **CLASSIFICATION.** The magnetic particle inspection units shall be of the following sizes:

Size I: 52 inch

Size II: 100 inch

3. **SALIENT CHARACTERISTICS.**

3.1 General. It shall provide alternating current (AC) and full wave rectified direct current (DC) from a three-phase AC power supply.

3.1.1 The input power 200-240 VAC with 230 VAC nominal or 400-480 VAC with 460 VAC nominal, 50-60 Hertz, 3 phase. The unit shall have a press-to-test system indicating that the proper electricity connections have been made.

3.1.2 The rated maximum output shall be at least DC 6000 amperes with not more than 6% ripple, and for AC is 5000 amperes.

3.1.3 The unit shall be self-contained requiring only connections for electrical and compressed air supply for operation.

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3.2 The unit shall be capable of performing magnetic particle inspection processes as described ASTM E1444.

3.3 The unit shall be capable of magnetizing a work piece in the longitudinal and circular directions.

3.4 The maximum contact head:

Size I 52 + 2 inches

Size II 100 + 2 inches

3.5 The overall length of the unit shall be as follows:

Size I no greater than 73 inches

Size II no greater than 124 inches

3.6. Instruments for inspection shall be conveniently located to permit the operator manipulation and viewing from the inspection station.

3.6.1 Digital ammeter shall display AC root mean square (RMS) amperes or DC amperes at the coil or contact. The meter shall incorporate a sample and hold the display that will be reset after magnetizing or demagnetizing current push button is depressed.

3.6.2 The current control shall be continuously variable.

3.6.3 The magnetization activation switch shall be of a type that can be activated by a knee push bar.

3.6.4 The magnetization time shall be variable from 0.20 to 2.0 seconds.

3.6.5 The headstock pressurization shall be foot switch activated

3.6.6 The coil shall be rail mounted, have an inside diameter of 16 inches, and be capable of producing 15,000 Ampere-turns AC and DC.

3.7 The unit shall be capable of demagnetizing any work piece previously magnetized by the same unit to less than three gauss in any directions. Both reversing DC and AC ramp demagnetization capabilities shall be built into the unit.

3.8 The operating air pressure range shall be at least 60 to 110 PSI.

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3.9 The equipment shall be capable of operating at the following duty cycles indefinitely without damage to any components

<u>Period magnetizing current "on"</u>	<u>Period magnetizing current "off"</u>	<u>Allowable percent of maximum rated magnetizing current</u>
10 seconds	3 minutes	40 percent
5 seconds	4 minutes	100 percent

3.10 Electrical systems components, devices, wiring and insulation shall be suitable for voltages, current and duty characteristics of the circuits in which they are used shall meet the applicable requirements of the National Electrical Manufacturers Association (NEMA) standards.

3.11 Accessories. The following accessories shall be included:

3.11.1 A copper rod one inch in diameter by eighteen inches in length that will provide a low resistance path for determining magnetizing current through the contact heads.

3.11.2 Four auxiliary cables consisting of two No. 4/0 extra flexible insulated conductors with each cable being 15 feet in length, and two No. 2/0 extra flexible insulated cable conductors with each being 10 feet in length. Each conductor shall have a 4/0 connector on each end and shall have a suitable heavy duty, oil-resisting insulation.

3.11.3 A 100 Watt black light for reviewing fluorescent magnetic particle indications shall be provided.

3.11.3.1 The black light shall have an intensity of at least 1000 microwatts per square centimeter at 15 inches, and shall have a peak transmission wavelength of 365 nanometers + 1.0%.

3.11.3.2 The lamp shall be mounted on swivel bracket which shall permit the lights to be directed at the parts under inspection.

3.11.4 A hood suitable for fluorescent inspections including flame retardant curtains, a white light source and ventilation fan shall be provided.

3.11.4.1 The hood shall allow not more than 2 foot-candles (20 lux) of ambient light into the inspection area.

3.11.5 A set of replaceable copper braid pads for the headstock and tailstock contact plates.

3.11.6 The unit shall have a tank suitable for holding the suspension and particles, it shall include a hose long enough to reach the entire inspection area, and a nonmagnetic low pressure spray nozzle.

3.11.7 The units shall have an agitation system capable of maintaining magnetic particles in suspension.

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3.11.8 The unit shall be delivered with all equipment necessary for immediate operation (e.g. circuit breaker box, air pressure regulator, air filter).

4. **REGULATORY REQUIREMENTS.** 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

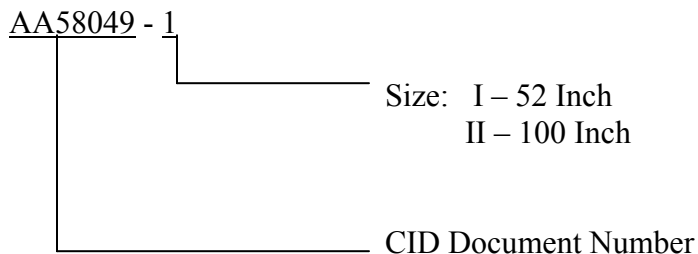
5.1 Product conformance. The products provided shall meet the salient characteristics of this Commercial Item Description, conform to the producer's own drawings, specifications, standards and quality assurance practices, and be the same product offered for sale in the commercial market. The government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

6. **PACKAGING.** Preservation, packing and marking shall be specified in the contract or order.

## 7. NOTES.

7.1 Part Identification Number (PIN). The following part identification numbering procedure is for government purposes and does not constitute a requirement for the contractor.

Example of reference part number: A-A-58049-I or A-A-58049-II



7.2 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 in conversion tables contained in the latest version of FED-STD-376 and all other requirements of this CID are met. If the manufacturer elects to use metric dimensions as the basis upon which to derive or base a mechanical feature, a request shall 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.

## 7.3 Source of Documents.

7.3.1 ASTM documents may be obtained at ASTM International - Standards Worldwide or from American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

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7.3.2 NEMA documents may be obtained at NEMA - National Electrical Manufacturers Association or from National Electrical Manufacturers Association, 1300 North 17th Street Suite 1752, Rosslyn, Virginia 22209

7.4 Ordering data.

- a) Title, number, and date of this CID.
- b) Specify special packaging requirements.
- c) Contracting officer may request proof of certification of commercial item prior to first contract delivery.

7.5 Subject term (key word) listing.

- 1. Ferromagnetic
- 2. Inspection Unit
- 3. Magnetic
- 4. Particle

Custodians:

Air Force - 99  
Navy -AS  
DLA - GS

Preparing Activity:

Air Force - 84

Agent:

Air Force – 99

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NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <http://assist.daps.dla.mil>