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* METRIC *

A-A-50503
February 28, 1992

COMMERCIAL ITEM DESCRIPTION

SCALE, BALANCE, BEAM INDICATING: METRIC, 2610 GRAM CAPACITY

The General Services Administration has authorized the use of this Commercial Item Description (CID) in preference to Military Specification MIL-S-19423D.

Abstract. This CID covers a bench-top, triple-beam, low-form, beam indicating metric balance scale that is intended for general purpose laboratory work. The scale has a basic capacity of 610 grams which is extended in 500 gram increments to a total capacity of 2610 grams by a set of counterpoise weights attached at the end of the weighbeam. The scale has a sensitivity of 0.1 gram.

1. Classification. The scales shall be of the following styles, as specified in the contract or order:

   Style A - With flat plate-type load receiver.
   Style B - With pan-type load receiver.
   Style C - With scoop-type load receiver.

Salient Characteristics.

1. Description. The beam indicating balance scales, referred to as scales, shall be bench-top, triple-beam, low-form balances consisting essentially of a base, weighbeam assembly, a set of counterpoise weights, and a load-receiving plate, pan, or scoop, in accordance with the style specified in the contract or order.

2. Design. The scales shall be designed to meet the applicable performance requirements and basic acceptance tolerances of NBS H44 as converted in table I of this CID and to the metric system. The scales shall be designed to support, without permanent deformation or misalignment, a 3260-gram load or a load equal to 125 percent of the nominal capacity, whichever is greater. The scales shall be capable of accurately registering weight indications irrespective of repeated manipulation of any scale element, as in normal usage, including: (1) repeated

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Beneficial comments (recommendations, additions, deletions) and any pertinent
*data which may be of use in improving this document should be addressed to: *
*Commanding Officer (Code 156), Naval Construction Battalion Center, Port *
*Hueneme, CA 93043-5000. *

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application and removal of maximum loads and attachment weights, (2) repeated operation of locking devices, or (3) repeated displacement of all weighbeam poises to the limit of each beam scale. The sensitivity of the scales under all conditions of use specified herein shall be 0.1 gram or less and the sensibility reciprocal shall not exceed 3.5 grams.

TABLE I. Basic acceptance tolerances for under-registration and over-registration.

Percent of full load	Test Load (grams)	Basic acceptance tolerances (grams)
12.5	325	0.9
25.0	650	0.9
37.5	975	1.8
50.0	1300	1.8
75.0	1950	2.7
100.0	2600	2.7

3. Details of components.

a. Base. The base shall be a sturdy metal casting with a moisture- and acid-resistant finish. The base shall be equipped at the beam end with a post graduated, as required, to provide a definite and clear zero position and to indicate an out-of-balance condition. The post shall be equipped with stops so located, as to permit a total weighbeam travel between stops of not less than 10 millimeters (mm). The base shall be formed with smooth rounded surfaces to prevent undue accumulation of dust or spilled material.

b. Weighbeam. The weighbeam shall consist of three bars: (1) a 500-gram capacity beam notched at 100-gram intervals, (2) a 100-gram capacity beam notched at 10-gram intervals, and (3) a 10-gram capacity, front, smooth, fractional bar graduated in increments of 0.1 gram. The individual beam shall be tiered from front to rear to increase scale readability and poise visibility. The weighbeam shall be equipped with a threaded zero adjusting nut at the loading end. Means shall be provided to dampen beam oscillations after application or removal of a load.

c. Pivots and bearings. Bearings shall be self aligning and shall be hardened steel, ceramic, or polished agate. Pivot knife edges shall be sharp and straight and shall be hardened steel. Bearings shall be protected by dust covers or equivalent enclosures to minimize contamination and corrosion of the precision bearing surface.

d. Load receivers. Stainless steel specified herein for load receivers shall conform to ASTM A 167, type 301.

(1) Style A. Plates for style A scales shall be stainless steel and shall be 152 +/- 13 mm in diameter. Plates shall be flat except that a raised peripheral lip not exceeding 7 mm in height will be acceptable.

(2) Style B. Pans for style B scales shall be stainless steel and shall be 152 +/- 13 mm in diameter by 25 +/- 7 mm in depth.

(3) Style C. Scoops for style C scales shall be not less than 254 mm long, 152 mm wide, and 65 mm in depth. The scoops shall be stainless steel or break-resistant polypropylene.

e. Attachment weight set. Each scale shall be furnished with a set of attachment counterpoise weights consisting of one 500-gram and two 1000-gram weights. Each weight shall be legibly marked to indicate the equivalent load capacity. Means shall be provided on the base for storage of the weights when not in use.

4.Accessories.

a. Cover. A translucent or opaque plastic fitted cover shall be furnished with each scale.

b. Tare weight assembly. The tare weight assembly shall consist of a separate tare beam and poise, or a tare counterpoise weight. The tare assembly shall be adjustable within a range up to at least 200 grams. When specified in the contract or order, a tare weight assembly shall be furnished with each scale.

c. Specific gravity assembly. The specific gravity assembly shall consist essentially of a stand or counter-clamp and rod for supporting the scale above the counter surface at a height of at least 254 mm. When specified in the contract or order, a specific gravity assembly shall be furnished with each scale.

5. Marking. The manufacturer’s name and identification number and scale capacity shall be clearly and permanently marked on each scale.

Contractor certification. The contractor shall certify, and maintain substantiating evidence, that the product offered meets the salient characteristics of this CID, 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.

Regulatory requirements. In accordance with Section 23.403 of the Federal Acquisition Regulations (FAR), the Government’s policy is to acquire items composed of the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition without adversely affecting performance requirements or exposing the supplier’s employees to undue hazards from the recovered materials.

CID based part or identification number (PIN). The following CID based part identification numbering procedure shall be used to identify the items covered by this CID. The purpose of this procedure is to assist Government catalogers in developing correct equipment/material PINs. This procedure does not constitute a requirement for the contractor.

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  *      *-------- Style (A, B, or C).
  *---------------- Basic CID identifier.
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Packaging. The scales shall be preserved, packed, and marked in accordance with the domestic or overseas requirements of ASTM D3951, as applicable, and/or as specified in the acquisition documents.

Notes.

1. ASTM Standards are available from ASTM, 1916 Race Street, Philadelphia, PA 19103.

2. NBS Handbook 44 is available from Superintendent of documents, U.S. Government Printing Office, Washington, DC 20402.

3. Definitions.

   a. Beam indicating scale. A balance scale on which the weights of loads are indicated solely by means of the position of fixed weights (poises) on individually graduated beams on a weighbeam either alone or in combination with counterpoise weights.

   b. Fractional beam. The individually graduated beam on the weighbeam that has the smallest capacity for obtaining weight indications. For scales covered by this document, the 10-gram beam graduated in 0.1 grams is the fractional beam.

   c. Sensibility reciprocal. The sensibility reciprocal of scales is the minimum change in load required to alter the position of the end of the weighbeam from the balance position to either of the reference post stops.

   d. Sensitivity. The sensitivity of scales is the smallest change in weight or weight differential which can be detected and quantified using the fractional poise and thus is normally equivalent to the smallest graduation on the fractional beam.

   e. Weighbeam. An element of a balance scale to which is attached a load receiving element on one end, one or more individually graduated beams with movable weights (poises) and attachment points for counterpoise weights on the other end, and pivot points in between the ends.

MILITARY INTERESTS:

Custodians

Army - GL
Navy - YD
Air Force - 99

Review activities

Army - ME
Navy - MS
DLA - GS

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSS

PREPARING ACTIVITY:

Navy - YD

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