INCH-POUND

A-A-50544
September 30, 1993
SUPERSEDING
MIL-H-18551C
20 July 1983

COMMERCIAL ITEM DESCRIPTION

RADIATORS, HEATING, STEAK AND HOT WATER, CAST IRON

This Commercial Item Description (CID) is approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. Abstract. This CID covers small tube, cast-iron radiators used in steam or hot-water heating systems. The radiators are intended -or the heating of residential and public buildings. The radiators can be-used with steam up to 15 pounds per square inch gage (psig) (103.42 kilopascals kPa) (gage)) and low temperature water heating systems. Radiator types are as follows:

Type I - Leg-mounted
Type II - Wall-mounted

2. Salient characteristics.

2.1 Description. The cast-iron steam and hot water heating radiators (referred to herein as "radiators") shall consist of an assembly of small tube cast-iron sections connected by tie rods at the top and bottom, and shall include the tappings, nipples, and fittings. The height of t:he-radiator shall be 19 or 25 inches (462.60 to 635.00 millimeters (mm) with four tubes per section, or 25 inches (635.00 mm) with six tubes per section, as specified (see 6.1). The number of sections for all radiators shall be an even-numbered amount from 2 to 56, as specified (see 6.1 and 6.4).

2.2 Design. The radiators will be designed to withstand, without deformation, leakage or damage, a minimum hydrostatic test pressure of 100 psig (689.47 kPa (gage)).

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, 1000 23rd Avenue, Port Hueneme, CA 93043-4301.

FSC 4520

2.3 Construction.

2.3.1 Mounting. Standard legs for type I radiators shall be 2-1/2 inches (63.50 mm) high measured from the floor to the centerline of the bottom tapping. When specified (see 6.1), legs shall be 4-1/2 inches (114.30 mm) high. Legs shall be integral with end sections. Radiators having 30 sections or more shall have a center-legged section. Type II radiators shall be furnished with two wall-mounting bracket assemblies, except that type II radiators with 30 or more sections shall be furnished with three wall-mounting bracket assemblies.

2.3.2 Connections. Radiator sections shall be assembled with malleable-iron or teflon-coated steel push nipples. Connections shall be provided at both the top and bottom of each section. Location of steam and hot water supply inlet shall be as specified (see 6.1).

2.3.3 Tappings. Each end section shall be furnished with a 1-inch (25.40 mm) or 1-1/4-inch (31.75 mm) top tapping and a 1-1/4- or 1-1/2-inch (31.75 or 38.10 mm) bottom tapping. Vent tappings not less than 1/8 inch (3.18 mm) nominal pipe size (NPS) shall be furnished on the end section opposite the supply section.

2.3.4 Fittings. When specified (see 6.1), tappings shall be bushed. Bushings shall be of the outside hexagon type. Either concentric or eccentric bushings may be furnished unless the eccentric bushing is definitely specified (see 6.1). Bushings shall reduce the tappings to -,he NPS specified, and shall be installed in the top or bottom tappings, supply or return end, as specified (see 6.1). All other tappings shall be plugged with standard radiator plugs.

2.3.5 Pedestals. When specified (see 6.1), radiator pedestals for each leg shall be furnished. The pedestals shall be 1/2, 1, 1-1/2 or 2 inches (12.70, 25.40, 38.10 or 50.80 mm) in height as specified (see 6.1).

2.4 Commercial manual. When specified (see 6.1), a commercial off-the-shelf manual with parts list shall be provided for each cast-iron radiator.

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

4. Quality assurance.

4.1 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.

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 tolerances specified using conversion tables contained in the latest revision of FED-STD-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 specification preparing activity for changes to this document.

5. Packaging. Unless otherwise specified in the contract or order (see 6.1), the preservation, packing, and marking shall be in accordance with ASTM D3951.

6. Notes.

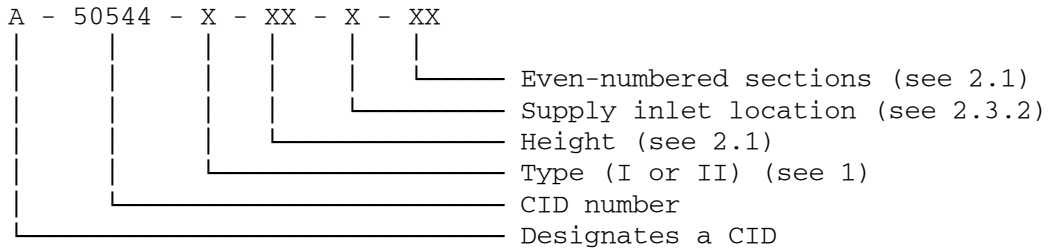
6.1 Ordering data. Acquisition documents should specify the following:

a. Title, number, and date of this CID.
b. Type of radiator required (see 1).
c. Height of radiator, number of tubes per section, and number of sections required (see 2.1).
d. When 4-1/2-inch (114.30 mm) legs are required on type I radiators (see 2.3.1).
e. Whether supply inlet is located on right or left side of the radiator (see 2.3.2).
f. When bushings are required; when eccentric bushings are definitely required; and size and location of the bushings (see 2.3.4).
g. When leg pedestals for type I radiators are required; and the height of the pedestals (see 2.3.5).
h. When commercial manual shall be provided (see 2.4).
i. When preservation, packaging, packing, and marking is to be other than as specified (see 5).

6.2 Source of documents. Copies of Federal and military documents are available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

6.3 Source for non-Government association documents. ASTM D3951 is available from ASTM, 1916 Race Street, Philadelphia, PA 19103.

6.4 CID-based part identification numbers. The following part identification numbering procedure is for Government purposes and does not constitute a requirement for the contractor.



6.5 Radiator rating and dimensions. The equivalent direct radiation (EDR) for the specified height and number of tubes and sections should be as given in table I. The EDR rating shall be based on the emission of 240 British thermal

units per hour (Btu/hr) per square foot of EDR with steam at 215 degrees Fahrenheit (degrees F), while the radiator stands free in an ambient room temperature of 70 degrees F. Under these conditions, the total Btu/hr heat emission of the radiator shall be not less that the applicable value of the EDR multiplied by 240 for 215 degrees F steam or by 150 for 170 degrees F steam or by 150 for 170 degrees F water. Table I is provided for information in it's simplest form and is not metricized.

TABLE I. Radiator ratings and dimensions.
(Heat emission - based on 240 Btu (steam) per square foot per hour)

		Four-tube		Six-tube	
Number of Sections	Length 1-3/4 inches per section	19-in. height 1.6 sq. ft. per section 0.914 sq.ft. per lineal in.	25-in. height 2.0 sq. ft. per section 1.143 sq.ft. per lineal in.	25-in. height 3.0 sq. ft. per section 1.714 sq.ft. per lineal in.	32-in. height 3.7 sq. ft. per section 2.114 sq.ft. per lineal in.
2	3.5	3.2	4	6	7.4
4	7.0	6.4	8	12	14.8
6	10.5	9.6	12	18	22.2
8	14.0	12.8	16	24	29.6
10	17.5	16.0	20	30	37.0
12	21.0	19.2	24	36	44.4
14	24.5	22.4	28	42	51.8
16	28.0	25.6	32	48	59.2
18	31.5	28.8	36	54	66.6
20	35.0	32.0	40	60	74.0
22	38.5	35.2	44	66	81.4
24	42.0	38.4	48	72	88.8
26	45.5	41.6	52	78	96.2
28	49.0	44.8	56	84	103.6
30	52.5	48.0	60	90	111.0
32	56.0	51.2	64	96	118.4
34	59.5	54.4	68	102	125.8
36	63.0	57.6	72	108	133.2
38	66.5	60.8	76	114	140.6
40	70.0	64.0	80	120	148.0
42	73.5	67.2	84	126	155.4
44	77.0	70.4	88	132	162.8
46	80.5	73.6	92	138	170.2
48	84.0	76.8	96	144	177.6
50	87.5	80.0	100	150	185.0
52	91.0	83.2	104	156	192.4
54	94.5	86.4	108	162	199.6
56	98.0	89.6	112	168	207.2

Note 1: Heat emissions for various average hot water temperatures.

Av. water temp. in radiator	220	215	210	200	190	180	170	160	150
Heat emission Btu per sq. ft.	250	240	230	210	190	170	150	130	110

Note 2: Add 1/2 inch (12.70 mm) to length for each bushing.

6.6 Supersession data. This CID replaces military specification MIL-H-18551C dated 20 July 1983.

MILITARY INTERESTS:

Custodians

Navy - YD1
Air Force - 99

Review Activities

Army - CE
Navy - MC
DLA - CS

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSS

PREPARING ACTIVITY:

Navy - YD1

(Project 4520-0341)