

O-E-910E
March 26, 1979
SUPERSEDING
Fed. Spec. O-E-910D
June 14, 1972

FEDERAL SPECIFICATION

EXTINGUISHER, FIRE, CARBON DIOXIDE

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers hand portable and wheeled type fire extinguishers charged with carbon dioxide.

1.2 Classification.

1.2.1 Types and sizes. The fire extinguishers covered by this specification shall be of the following types and sizes, as specified (see 6.2):

Type I - Hand.

- Size 5 - Nominal 5-lb CO₂ capacity.
- Size 10 - Nominal 10-lb CO₂ capacity.
- Size 15 - Nominal 15-lb CO₂ capacity.

Type II - Wheeled.

- Size 50 - Nominal 50-lb CO₂ capacity.
- Size 100 - Nominal 100-lb CO₂ capacity.

2. APPLICABLE DOCUMENTS

2.1 The following documents, of the issues in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

Federal Specifications:

PPP-B-636 - Boxes, Shipping, Fiberboard.

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

(Single copies of this specification and other Federal Specifications required by activities outside the Federal Government for bidding purposes are available without charge from General Services Administration Business Service Centers in Boston; New York; Philadelphia; Washington, DC; Atlanta; Chicago; Kansas City, MO; Fort Worth; Houston; Denver; San Francisco; Los Angeles; and Seattle, WA.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

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Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

Underwriter's Laboratories (UL), Inc., Standards.

UL 154 - Carbon Dioxide Hand Fire Extinguishers.

UL 711 - Classification, Rating, and First Testing of Classes A, B, and C Fire Extinguishers and for Class D Extinguishers or Agents for Use on Combustible Metals.

(Application for copies should be addressed to the Underwriter's Laboratories, Inc., 1285 Walt Whitman Road, Melville, Long Island, NY 11749, 207 East Ohio Street, Chicago, IL 60611; or 1655 Scott Boulevard, Santa Clara, CA 95050.)

National Motor Freight Traffic Association, Inc., Agents

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Associations, Inc., Traffic Department, 1616 P. Street, N.W., Washington, DC 20036.)

Uniform Classification Committee, Agents

Uniform Freight Classification.

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

3. REQUIREMENTS

3.1 Conformance to Underwriter's Laboratories' requirements. Each contractor shall submit to the contracting agency proof that the fire extinguishers he proposes to supply under this specification conform to the requirements of Underwriter's Laboratories Standard 154 (UL 154). The label or listing with reexamination of UL 154 may be accepted as evidence that the fire extinguishers conform to this requirement. In lieu of such label or listing, the contractor may submit independent proof, satisfactory to the contracting agency, that fire extinguishers conform to applicable requirements, including methods of tests, of UL 154. Compliance with this requirement does not absolve the contractor from complete compliance with the other requirements of this specification in order to secure acceptance of his products.

3.2 Standard commercial product. Fire extinguishers furnished under this specification shall be the manufacturer's standard commercial product except as modified by the provisions of this specification and the applicable contract. All accessories and components normally furnished with the extinguishers when sold commercially shall be included with items supplied under this specification. The quality of such accessories and components shall be equal to that of commercial models.

3.3 Design and construction. Fire extinguishers shall be designed to facilitate operation, inspection, and maintenance. Extinguishers shall be fully operable by the average unimpaired person without a necessity for unusual contortions or manipulations. Gages and other parts which are involved in periodic inspections shall be readily accessible. Necessary maintenance such as recharging shall be capable of being accomplished with the normal tools and equipment used for this purpose. When UL 154 allows for an optional design feature, material, or construction, the choice shall be made by the contractor provided that the items conform to all other requirements and tests of this specification.

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3.3.1 Parts. Aluminum parts shall be treated in accordance with standard commercial practices.

3.3.2 Exterior surfaces. All metal exterior surfaces of fire extinguisher shells and cartridges shall be suitably treated or coated to resist normal atmospheric corrosion. Unless otherwise specified (see 6.2), shells shall be painted red in accordance with standard commercial practices.

3.4 Classification and rating. The fire extinguishers shall be capable of successfully extinguishing UL 711 test fires and shall have the following minimum UL classification and rating:

| Type I size | UL classification and rating | Type II size | UL classification and rating |
|----------------|---------------------------------|-----------------|---------------------------------|
| 5 | 2 B:C | 50 | 20 B:C |
| 10 | 5 B:C | 100 | 40 B:C |
| 15 | 10 B:C | | |

3.5 Carbon dioxide charge. Unless otherwise specified (see 6.2), fire extinguishers shall be furnished with a standard carbon dioxide charge conforming to UL 154. When specified (see 6.2), extinguishers shall be furnished with either a high or low temperature charge. High and low temperature charges shall conform to applicable requirements and tests of UL 154.

3.6 Body. The bodies of fire extinguishers shall be gas cylinders that conform to all requirements of UL 154. When specified (see 6.2), a nonshatterable cylinder conforming to the Department of Transportation Specification 3AA option cited in UL 154 shall be furnished.

3.7 Mounting bracket. A mounting bracket as specified in UL 154 shall be furnished with each type I fire extinguisher. When specified (see 6.2), a suitable vehicle mounting bracket shall be furnished. Such brackets shall have successfully passed the vibration and salt spray tests in UL 154. When specified (see 6.2), a marine mounting bracket shall be furnished, and it shall be the part specified in the marine approval on the extinguisher instruction plate.

3.8 Coast Guard approval. All type I fire extinguishers shall be U.S. Coast Guard approved.

3.9 Type I, antirecoil. Type I fire extinguishers shall not move more than 1/4 inch in any direction when tested in accordance with 4.3.2.

3.10 Type II. The type II wheeled fire extinguishers shall conform to the following requirements in addition to those requirements specified in UL 154.

3.10.1 Discharge hose. The discharge hose furnished on size 50 fire extinguishers shall be a minimum of 15 ft long, and that on size 100 shall be a minimum of 40 ft long. Lengths shall be measured from cylinder connections to horn handles.

3.10.2 Extension handle. The extension handle on the horn shall be equipped with a squeeze-grip type of valve for intermittent discharge. The combined length of the handle and horn shall be not less than 3 ft.

3.10.3 Running gear. The running gear shall be adequate to support the extinguisher in either vertical or inclined attitudes. A swivel wheel or skid shall be so located that the angle between the longitudinal axis of the extinguisher and a level surface upon which the extinguisher rests is $25^{\circ} \pm 5^{\circ}$ when the extinguisher is in its inclined attitude. A steel plate, 1/8 inch thick, shall be secured to the base of the skid for additional support on soft surfaces. The plate shall have a minimum surface area of 12 square inches, and the shortest dimension of the surface area shall be a minimum of 3 inches.

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3.10.4 Wheels and tires. The wheels of the running gear shall be fabricated from steel and shall be of either disc or spoked design. Wheels shall be bearing mounted and shall be removable. The minimum diameter of the main wheels shall be 12 inches with a width of not less than 1-1/2 inches. The swivel wheel shall be not less than 2 inches in diameter. When specified (see 6.2- the main wheels shall be furnished with either pneumatic or semipneumatic tires. When no tire type is specified for main wheels, the contractor shall supply solid semipneumatic, or pneumatic tires at his option.

3.10.5 One hundred-pound fire extinguisher. Each 100-lb fire extinguisher shall consist of either two 50-lb cylinders, mounted together and manifolded into one discharge connection, or one 100-lb cylinder with one manual operation.

3.11 Markings. Each fire extinguisher shall have all the marking required by UL 154, including the "Shape-Symbol Code." The markings shall include the UL classification and rating, the appropriate "Marine Type" designation and the weight of the gas cylinder assembly to the nearest 1/4 lb.

3.12 Workmanship. Extinguishers shall have no rough or sharp surfaces or edges which could cause injury to users or damage to clothing.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein.

4.2 Acceptance inspection.

4.2.1 Sampling. Sampling for acceptance inspection shall be in accordance with inspection level S-2 of MIL-STD-105 with an acceptable quality level (AQL) of 4.0 percent defective.

4.2.2 Inspection. Each of the sample fire extinguishers shall be inspected for the following defects. Presence of one or more of these defects in any sample shall constitute failure of that sample.

1. Extinguisher not of type or size specified (see 1.2).
2. No suitable evidence of conformance to UL 154 (see 3.1).
3. Design and construction not as specified (see 3.3).
4. Extinguisher not having proper UL classification and rating for its type and size (see 3.4).
5. Carbon dioxide charge not of type specified (see 3.5).
6. Nonshatterable cylinders not furnished when specified (see 3.6).
7. Mounting bracket not furnished or of wrong type (see 3.7).
8. Not Coast Guard approved (see 3.8).
9. Type II extinguisher fails to meet requirements of 3.10.
10. Marking not in conformance with 3.11.
11. Workmanship not in accordance with 3.12.

4.3 Tests.

4.3.1 UL tests. The UL label or other acceptable proof (see 3.1) shall be suitable evidence that extinguishers offered under this specification have passed all tests required in UL 154 and UL 711. In lieu of such acceptable proof the contractor will be required to conduct all testing specified in both UL 154 and UL 711. Failure to satisfactorily complete any test shall be cause for rejection.

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4.3.2 Anti-recoil test. One sample shall be selected from the first lot offered under each contract. The sample shall be placed on a smooth, flat, horizontal surface with the longitudinal axis of the extinguisher parallel to that surface. Mark the exact location of the extinguisher. Clamp the discharge valve in an open position and expend the gas charge in a horizontal direction. The position of the cylinder after discharge shall again be carefully measured. Any movement in excess of the limit specified in 3.9 shall constitute failure of the test. When the contractor's extinguisher has passed the anti-recoil test, no retesting shall be required during the contract period unless the design of the extinguisher being furnished is changed from the sample previously tested.

4.4 Examination of preparation for delivery. An examination shall be made to determine compliance with the requirements of section 5. The sample unit shall be one shipping container fully prepared for delivery. Sampling shall be in accordance with MIL-STD-105. The inspection level shall be S-2 with an AQL of 4.0 expressed in terms of percent defective.

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging. Preservation and packaging shall be level A or commercial, as specified (see 6.2).

5.1.1 Level A. Each extinguisher shall be disassembled to the degree necessary to safeguard parts known to be subject to damage or loss and to reduce the cube to its practicable minimum without affecting the storage of the charge. The exterior surfaces of the extinguishers or carriages, subject to corrosion, shall be protected with a preservative coating. When wheels are removed from the carriage, the interior bearing surfaces of the hubs and bearings and bearing surfaces of the axles shall be coated with a preservative grease. The instructions and record cards shall be placed in a heat sealed polyethylene bag. Each type I extinguisher with disassembled parts, including mounting bracket with mounting hardware, instructions, and record cards, shall then be packaged in a close-fitting box conforming to PPP-B-636, class weather resistant, style optional. Blocking and bracing within the box in the form of die cut fiberboard pads or plastic cushions shall be utilized to prevent movement within the box. The boxes shall be closed and waterproof sealed in accordance with the appendix to PPP-B-636. Each type II extinguisher shall have the hose removed, coiled to its minimum practicable diameter, secured a minimum of two places with cotton tape or twine, and packaged for physical and mechanical protection. The wheel openings and coated surfaces of the axles shall be protected with grease-proof barrier material and the entire unit package in a close-fitting box conforming to PPP-B-636, class weather resistant, style optional. Closure and waterproof sealing of the boxes shall be in accordance with the appendix to PPP-B-636. Alternatively, cleated plywood, wirebound or nailed wood boxes shall be acceptable shipping containers when lined with a waterproof barrier material. The edges of the barrier material shall be sealed with waterproof tape or adhesive. Blocking and bracing shall be provided within the box to prevent movement.

5.1.2 Commercial. The extinguishers shall be preserved and packaged in accordance with normal commercial practice. The complete package shall be designed to protect the extinguisher against damage during shipment, handling, and storage.

5.2 Packing. Packing shall be level A or commercial, as specified (see 6.2).

5.2.1 Level A. Type I extinguishers of like description, packaged as specified in 5.1.1, shall be packed in quantities as specified in the contract or order in close-fitting boxes conforming to PPP-B-636, class weather resistant, style optional. Closure and waterproof sealing of the boxes shall be in accordance with the appendix to PPP-B-636. Alternatively, cleated plywood, wirebound or nailed wood boxes shall be acceptable shipping containers when lined with a waterproof barrier material. The edges of the barrier material shall be sealed with waterproof tape or adhesive. Type II extinguishers, packaged as specified in 5.1.1, shall require no further packing.

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5.2.2 Commercial. The extinguishers of like description, packaged as specified in 5.1.2, shall be packed in fiberboard boxes to insure delivery at destination, to provide for redistribution by the initial receiving activity, and shall be acceptable by common carrier under National Motor Freight Classification and Uniform Freight Classification.

5.3 Marking. Packages and shipping containers shall be marked as specified in the contract or order.

6. NOTES

6.1 Intended use. These portable CO₂ fire extinguishers are intended for use in locations where Classes B and C fires are anticipated; that is, where there is fire hazard involving oils, greases, flammable volatile liquids, or energized electrical equipment.

6.2 Ordering data. Purchasers should select the preferred options permitted herein, and include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Type and size required (see 1.2.1).
- (c) Colors of finish if different from 3.3.2.
- (d) Type of charge if other than standard charge is required (see 3.5).
- (e) When nonshatterable cylinders is required (see 3.6).
- (f) When vehicle or marine mounting bracket is required (see 3.7).
- (g) When pneumatic or semipneumatic tires are required on type II extinguishers (see 3.10.4).
- (h) Level of preservation and packaging required (see 5.1).
- (i) Level of packing required (see 5.2).

MILITARY CUSTODIANS:

Army - ME
Navy - YD
Air Force - 99

Review activity:

Army - SM
DLA - CS

User activities:

Army - AR, CE
Navy - MC, OS

Preparing activity:

GSA-FSS

CIVIL AGENCY COORDINATING ACTIVITIES:

GSA-FSS
COM-NBS
TVA

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Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See Section 2 of this specification to obtain extra copies and other documents referenced herein.