

WW-C-566C
October 21, 1975
SUPERSEDING
Fed. Spec. WW-C-566b
May 31, 1962

FEDERAL SPECIFICATION

CONDUIT, METAL, FLEXIBLE

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 cover flexible, metal, aluminum or zinc coated steel, electrical conduit for enclosing electrical wires and cables.

1.2 Classification.

1.2.1 Types. Conduit shall be one of the following types as specified (see 6.2):

Type I - Aluminum
Type II - Zinc coated steel

1.2.2 Sizes. Conduit shall be of the following nominal or trade sizes, in inches, as specified (see 6.2):

5/16	1	2-1/2
3/8	1-1/4	3
1/2	1-1/2	3-1/2
3/4	2	4

2. APPLICABLE DOCUMENTS

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

Federal Specifications:

NN-P-71 - Pallets, Material Handling, Wood, Double-faced, Stringer
Construction.
QQ-S-781 - Strapping, Steel, and Seals.

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- PPP-B-585 - Boxes, Wood, Wirebound.
- PPP-B-601 - Boxes, Wood, Cleated-Plywood.
- PPP-B-621 - Boxes, Wood, Nailed and Lock-Corner.
- PPP-B-636 - Boxes, Shipping, Fiberboard.
- PPP-B-640 - Boxes, Fiberboard, Corrugated, Triple-Wall.
- PPP-F-320 - Fiberboard, Corrugated and Solid, Sheer Stock
(Container Grade), and Cut Shapes.
- PPP-S-760 - Strapping, Nonmetallic, (And Connectors).
- PPP-T-76 - Tape, Pressure-Sensitive Adhesive Paper, Water
Resistant, (For Carton Sealing).
- PPP-T-97 - Tape, Pressure-Sensitive Adhesive, Filament Reinforced.

Federal Standard:

Fed. Std. No. 123 - Marking for Shipment (Civil Agencies).

(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 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 Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, 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.)

Military Specifications:

- MIL-P-116 - Preservation-Packaging, Methods of.
- MIL-C-45662 - Calibration System Requirements.

Military Standards:

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by
Attributes.
- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-147 - Palletized and Containerized Unit Loads 40 Inch x
48 Inch Pallets, Skids, Runners or Pallet Type Base.

(Copies of Military Specifications and Standards required by suppliers 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 document forms a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

National Motor Freight Traffic Association, Inc., Agent:

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Associations, Inc., Tariff Order Section, 1616 P Street, NW, Washington, DC 20036.)

Uniform Classification Committee, Agent:

Uniform Freight Classification.

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

Underwriter's Laboratories, Inc., (UL) Standard:

UL No. 1 - Flexible Metal Conduit.

(Application for copies should be addressed to the Underwriters' Laboratories, Inc., 1285 Walt Whitman Road, Melville, L.I., NY 11746; 1655 Scott Boulevard, Santa Clara, CA 95050; 2602 Tampa East Boulevard, Tampa, FL 33619; 333 Pfingsten Road, Northbrook, IL 60062; 207 East Ohio Street, Chicago, IL 60611.)

3. REQUIREMENTS

3.1 Description. Flexible metal conduit furnished under this specification shall conform to the requirements specified in UL No. 1.

3.2 Fire and casualty hazards.

3.2.1 Each bidder shall submit to the contracting agency proof that the conduit he proposes to supply under this specification conforms to the applicable requirements of UL No. 1. The label or listing mark of the Underwriters Laboratories, Inc., may be accepted as evidence that the conduit conforms to this requirement.

3.2.2 In lieu of the label or listing mark, the bidder may submit independent proof satisfactory to the contracting agency that his conduit conforms to the applicable requirements of the published standards including methods of test of the UL No. 1.

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3.2.3 Compliance with the above preliminary requirements in regard to fire and casualty hazards does not absolve the bidder from complete compliance with the requirements of this specification in order to secure acceptance of his material.

3.3 Workmanship. Conduits shall be fabricated, constructed in accordance with the best practice to produce an item free from all defects which would effect the proper functioning in service. Particular attention shall be given to freedom from chips, dirt, grit, and other foreign material; also to freedom from defects, burrs, sharp edges, corners and points.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.2 Test equipment and inspection facilities. Test and measuring equipment and inspection facilities of sufficient accuracy, quality and quantity to permit performance of the required inspection shall be established and maintained by the contractor. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be in accordance with MIL-C-45662.

4.3 Classification of inspection. Inspection shall be classified as follows:

- (a) Production inspection of the conduit.
- (b) Inspection of preparation for delivery.

4.4 Production inspection.

4.4.1 Sampling. Sampling for examination and tests shall be in accordance with MIL-STD-105.

4.4.2 Examination. Samples selected in accordance with 4.4.1 shall be examined in accordance with UL No. 1, Standard for Flexible Metal Conduit. AQL shall be 4 percent defective.

4.4.3 Tests. Samples selected in accordance with 4.4.1 shall be tested in accordance with UL No. 1 Standard. AQL shall be 4 percent defective.

4.5 Inspection of preparation for delivery. The preservation, packaging, packing and marking shall be examined to determine compliance with section 5 of this specification.

5. PREPARATION FOR DELIVERY

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

5.1.1 Level A.

5.1.1.1 Cleaning. Conduit, Metal, Flexible shall be cleaned in accordance with process C-1 of MIL-P-116.

5.1.1.2 Drying. Conduit, Metal, Flexible shall be dried in accordance with the applicable procedure of MIL-P-116.

5.1.1.3 Preservation application. None required.

5.1.1.4 Unit packaging. Flexible metal conduit in the sizes and lengths as specified shall be individually packaged method III in accordance with MIL-P-116 as follows: Each specified length of conduit shall be wound uniformly into a coil of minimum safe diameter and tied with wire conforming to QQ-S-781, class 2, at a minimum of three places spaced equidistantly around the circumference of the coil. Place the coiled conduit within a close-fitting fiberboard box conforming to PPP-B-636, class weather-resistant, style optional, except that for Navy procurement the fiberboard shall be Grade V3c. Box closure shall be in accordance with the appendix of the box specification.

5.1.2 Level C. Conduit, Metal, Flexible. Each coil of Conduit, Metal, Flexible shall be packaged in a manner that will afford adequate protection against corrosion, deterioration and physical damage during shipment from supply source to the first receiving activity.

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

5.2.1 Level A.

5.2.1.1 Palletized load. A quantity of items, packaged as specified in 5.1, shall be placed on pallets in conformance with MIL-STD-147, load type 1, with a weather-resistant fiberboard cap (storage aid 4) positioned over the load.

5.2.1.2 Less than palletized load. When quantities per destination are less than a pallet load a quantity of items, packaged as specified in 5.1, shall be packed within a close-fitting fiberboard box conforming to PPP-B-640, class 2. Closure shall be in accordance with the appendix of the box specification.

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5.2.2 Level B.

5.2.2.1 Palletized load. A quantity of items, packaged as specified in 5.1, shall be palletized as specified in 5.2.1.1, except that the fiberboard caps shall be class domestic.

5.2.2.2 Less than palletized load. When quantities per destination are less than a pallet load, a quantity of items, packaged as specified in 5.1, shall be packed within a close-fitting fiberboard box conforming to PPP-B-640, class 1. Closure shall be in accordance with the appendix of the box specification.

5.2.3 Level C.

5.2.3.1 Palletized load. A quantity of items, packaged as specified in 5.1, shall be palletized with pallets and caps of the type, size and kind commonly used for the purpose and shall conform to Uniform Freight Classification or National Motor Freight Classification.

5.2.3.2 Less than palletized load. Items, packaged as specified in 5.1, shall be packed in shipping containers in a manner that will afford adequate protection against damage during direct shipment from the supply source to the first receiving activity. Containers and packing shall comply with Uniform Freight Classification or National Motor Freight Classification.

5.3 Marking.

5.3.1 Civil agencies. Marking for civil agencies shall be in accordance with Federal Standard No. 123 (see 6.2).

5.3.2 Military agencies. In addition to any special marking required by the contract, each unit package, interior container, shipping container, and palletized load shall be marked in accordance with MIL-STD-129 (see 6.2).

5.4 General.

5.4.1 Army and Navy procurements (see 5.2.1, 5.2.2 and 5.2.3).

5.4.1.1 Level A packing shall be as follows:

5.4.1.1.1 Palletized load. A quantity of items, packaged as specified in 5.1, shall be placed on a pallet, load type 1, conforming to MIL-STD-147 except that the pallet shall be softwood conforming to NN-P-71, type IV, size 2. A fiberboard cap shall be employed over the load having two sides extending down the stacked load at least 12 inches to accommodate marking requirements. The cap shall be fabricated of fiberboard conforming to PPP-F-320, class weather-resistant, W5s or V3c. The load shall be "bonded" to the pallet by strapping conforming to QQ-S-781, type 1, finish A or shrink film.

5.4.1.1.2 Less than palletized load. When quantities per destination are less than a pallet load, the items packaged as specified in 5.1, shall be water-proofed with tape conforming to PPP-T-76, in accordance with the taping requirements of the appendix of the box specification. A quantity of the water-proofed containers shall be packed within a close-fitting box conforming to PPP-B-601, overseas type; PPP-B-621, style 4, class 2; or PPP-B-585, style 2 or 3, class 3. When the gross weight exceeds 200 pounds, or the container length and width is 48 x 24 inches or more and the weight exceeds 100 pounds, 3 x 4 inch skid, laid flat, shall be applied in accordance with the requirements of the container specification, or if not specified in the specification, in a manner which will adequately support the item and facilitate the use of material handling equipment. Closure and strapping shall be in accordance with the applicable container specification, or appendix thereto except that metal strapping shall conform to QQ-S-781, type 1, finish A.

5.4.1.2 Level B packing shall be as follows:

5.4.1.2.1 Palletized load. A quantity of items, packaged as specified in 5.1, shall be palletized as specified in 5.4.1.1.1.

5.4.1.2.2 Less than palletized load. When quantities per destination are less than a pallet load, a quantity of item packaged as specified in 5.1, shall be packed within a close-fitting fiberboard box conforming to PPP-B-640, class 2, style E, or PPP-B-636, type CF, class weather-resistant, variety DW. The gross weight of boxes conforming to PPP-B-640 shall not exceed 250 pounds. When the gross weight exceeds 200 pounds, or the container length and width is 48 x 24 inches or more and the weight exceeds 100 pounds, containers will be pallet-mounted on pallets conforming to NN-P-71, type IV. Closure shall be in accordance with the appendix of the applicable box specification. Reinforcing shall be by pressure-sensitive filament tape banding or nonmetallic strapping conforming to PPP-T-97, type IV and PPP-S-760, type II, respectively; selection of the material and application shall be in accordance with the appendix of the applicable box specification.

5.4.1.3 Level C packing shall be as follows:

5.4.1.3.1 Palletized load. A quantity of items, packaged as specified in 5.1, shall be palletized as specified in 5.4.1.1.1, except that the fiberboard caps shall be class domestic.

5.4.1.3.2 Less than palletized load. When quantities per destination are less than a pallet load, a quantity of items, packaged as specified in 5.1, shall be packed as specified in 5.4.1.2.2, except that the fiberboard boxes shall conform to PPP-B-640 and PPP-B-636, class 1 and class domestic, respectively, and reinforcing shall not be required for boxes conforming to PPP-B-636.

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6. NOTES

6.1 Intended use. The conduit is intended for use as a raceway for the wires or cables of an electrical system where abnormal contours and restricted space necessitate the use of flexible conduit.

6.2 Ordering data. Purchasers should exercise any desired options offered herein and procurement documents should specify the following:

- (a) Title, number, and date of this specification.
- (b) Type and size conduit (see 1.2.1 and 1.2.2).
- (c) Administrative provisions for inspection records (see 4.1).
- (d) Levels of preservation, packaging, packing and marking
(see 5.1, 5.2 and 5.3).
- (e) Whether civil or military marking is required (see 5.3.1
and 5.3.2).
- (f) When rough handling is required.

MILITARY CUSTODIANS:

Army - EL
Navy - YD
Air Force - 85

Review activities:

Army - ME
Navy - YD
Air Force - 80
DSA - GS

CIVIL AGENCY COORDINATING ACTIVITIES

GSA - FSS

Preparing Activity:

Army - EL

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