

[INCH-POUND]
A-A-52548
March 11, 1996
SUPERSEDES
MIL-H-13531C
11 February 1982

COMMERCIAL ITEM DESCRIPTION

HOSE ASSEMBLY, RUBBER (HYDRAULIC, FLEXIBLE)

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

1. **SCOPE.** This CID covers medium and high pressure hydraulic hose assemblies with permanently attached fittings.
2. **CLASSIFICATION.** Hose assemblies shall be furnished in the following types as specified (see 7.2).

2.1 Type.

- Type I - Single wire braid reinforcement.
- Type II - Double wire braid reinforcement.
- Type III - Double spiral and single wire braid reinforcement.

- 2.2 Classes. Each of Types I, II and III hose will be furnished in the following classes as specified (see 7.2).

- Class A - With heavy cover.
- Class B - With thin cover.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any other data which may improve this document should be sent by letter to: U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/BLUE, Warren, MI 48397-5000.

AMSC N/A

FSC 4720

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

A A 52548

3. SALIENT CHARACTERISTICS

3.1 **Materials.** Unless otherwise specified herein, the material shall be in accordance with the manufacturer's materials specifications for hydraulic hose assemblies. Asbestos, cadmium, and radioactive material shall not be used in this item. Radioactive material is defined by (1) Title 10, Code of Federal Regulations, Part 40, and (2) Other radioactive material in which the radioactivity is greater than 0.002 microcuries per gram or 0.01 microcuries total activity for the item. The use of recovered materials made in compliance with regulatory requirements is acceptable providing that all requirements of this CID are met (see 4.1). Used, rebuilt, or remanufactured components, pieces and parts shall not be incorporated in the hose assemblies.

3.2 **Construction.** Hose shall be constructed with an inner tube, a wire reinforcement, and an outer cover. Hose assemblies shall consist of hose with fittings assembled on each end. Unless otherwise specified, one fitting in each hose assembly shall be of the male type and one of the female type. The female type shall incorporate a swivel. The ferrous fittings (except stainless) when furnished, shall be zinc plated in accordance with ASTM B633, Type II, Fe/Zn5 or ASTM B695, Type II, class 5.

3.2.1 **Inner tube.** The inner tube shall consist of an oil-resistant compound of seamless construction and uniform gage. The inner tube shall have a smooth bore.

3.2.2 **Reinforcement.** The reinforcement of the hose shall be one of the following types:

- a. **Type I.** Type I hose shall consist of one braid of high-tensile steel wire.
- b. **Type II.** Type II hose shall consist of two or more braids of high-tensile steel wire covering two spiral plies of high-tensile steel wire.
- c. **Type III.** Type III hose shall consist of one braid of high-tensile steel wire covering two spiral plies of high-tensile steel wire.

3.2.3 **Outer cover.** Outer cover shall utilize polymerized chloroprene as the basic material, and shall be of such strength as to meet the requirements of this CID.

3.3 **Swivel fittings.** Swivel fittings shall swivel freely with hand torque.

3.3.1 **Screw threads.** Screw threads of fittings shall be in accordance with ASME B1.1 for the size specified. Classes of fits for threads shall be in accordance with the best commercial practice.

3.4 **Performance.** Unless otherwise specified herein, the hose assemblies shall meet the requirements of ANSI/B93.100M.

3.4.1 **Resistance to impulse and proof pressures.** Hose and hose assemblies shall withstand impulse and proof pressures as specified in ANSI B93.100M without hose leakage, leakage between fitting and hose, leakage at the threaded connection, cracking, rupture, or detachment from a fitting.

3.4.2 **Burst pressure.** Hose or hose assemblies shall withstand, without any evidence of leakage, rupture, or detachment of any applicable fittings, the applicable burst pressure specified in Table I.

TABLE I. **Pressure requirements.**

Nominal hose size (ID)		Burst Pressure				Maximum Working Pressure			
		Type I		Type II & III		Type I		Type II & III	
in	mm	psi	MPa	psi	MPa	psi	MPa	psi	MPa
0.19	5.0	12,000	82.7	20,000	137.9	3,000	20.6	5,000	34.4
0.25	6.5	11,000	75.8	20,000	137.9	2,750	18.9	5,000	34.4
0.31	8.0	10,000	68.9	17,000	117.2	2,500	17.2	4,250	29.3
0.38	10.0	9,000	62.0	16,000	110.3	2,250	15.5	4,000	27.5
0.50	12.5	8,000	55.1	14,000	96.5	2,000	13.7	3,500	24.1
0.63	16.0	6,000	41.3	11,000	75.8	1,500	10.3	2,750	18.9
0.75	19.0	5,000	34.5	9,000	62.0	1,250	8.6	2,250	15.5
0.88	22.0	4,500	31.0	8,000	55.1	1,125	7.7	2,000	13.7
1.00	25.5	4,500	31.0	8,000	55.1	1,125	7.7	2,000	13.7
1.25	32.0	2,500	17.2	6,500	44.8	625	4.3	1,625	11.2
1.50	38.0	2,000	13.7	5,000	34.4	500	3.4	1,250	8.6
2.00	51.0	1,500	10.3	4,500	31.0	375	2.5	1,000	6.8

NOTES:

in = inch

mm = millimeters

psi = pounds per square inch

MPa = Mega Pascal

3.4.3 **Length change.** After being subjected to the applicable working pressure of Table I, hose length change shall not exceed the limit specified in Table II.

A A-52548

TABLE II. Physical requirements.

Nominal hose size		Allowable length change	Hose length impulse test		Nominal hose size		Allowable length change	Hose length impulse test		Nominal hose size		Allowable length change	Hose length impulse test	
in	mm		in	mm	in	mm		in	mm	in	mm		in	mm
0.19	5.0	+0 to -6	18	457	0.50	12.5	+2 to -4	23	584	1.00	25.5	+2 to -4	18	457
0.25	6.5	+0 to -6	18	457	0.63	16.0	+2 to -4	28	711	1.25	32.0	+2 to -4	18	457
0.31	8.0	+2 to -4	18	457	0.75	19.0	+2 to -4	31	787	1.50	38.0	+2 to -4	18	457
0.38	10.0	+2 to -4	18	457	0.88	22.0	+2 to -4	18	457	2.00	51.0	+2 to -4	18	457

3.4.4 Oil resistance. Hose inner tube and outer cover specimens shall withstand immersion in oil conforming to MIL-H-6083 at a temperature of 158 degrees Fahrenheit ($^{\circ}\text{F}$) $\pm 3.6^{\circ}\text{F}$ (70 degrees Celsius ($^{\circ}\text{C}$) $\pm 2.0^{\circ}\text{C}$) for 168 ± 0.5 hours, with their average volume increasing not more than 30 percent and 100 percent respectively.

3.4.5 Fungus resistance. The hose assemblies shall be constructed of materials that will not support fungus growth.

3.4.6 Identification marking. Markings shall be permanent and legible and shall include as a minimum, the manufacturer's CAGE code, type, class, size, and the part identification number (PIN) in accordance with CID specification sheets A-A-52548/1 and A-A-52548/2 as applicable.

4. REGULATORY REQUIREMENTS

4.1 Recovered material. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with paragraph 23.403 Federal Acquisition Regulation (FAR).

5. QUALITY ASSURANCE PROVISIONS

5.1 Responsibility for inspection. The contractor is responsible for the performance of all inspections (examinations and tests).

5.2 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, workmanship standards, and quality assurance practices. Items with known defects shall not be submitted for Government acceptance. The Government reserves the right to require proof of such conformance prior to the first delivery and thereafter as may be otherwise provided for under the provisions of the contract.

6. PACKAGING

Preservation, packing, and marking shall be as specified in the contract or order (see 7.2).

7. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

7.1 Addresses for obtaining copies of referenced documents.

7.1.1 Government document. Copies of MIL-H-6083 "Hydraulic Fluid, Petroleum Base, for Preservation and Operation" are available from the Defense Printing Service Detachment Office, Bldg. 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094. The Code of Federal Regulations (CFR) is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

7.1.2 Non-Government publications. Copies of ANSI/B93.100M "Hydraulic Fluid Power - Hose Assemblies - Method of Test" are available from the National Fluid Power Association, 3333 N. Mayfair Road, Suite 311, Milwaukee, WI 53222-3219. Copies of ASTM B633 "Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel" (DOD adopted), and copies of ASTM B695 "Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel" (DOD adopted) are available from the American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959. Copies of ASME B1.1 "Unified Inch Screw Threads (UN and UNR Thread Form)" (DOD adopted) are available from the American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017.

7.2 Ordering data. Acquisition documents must specify the following:

- a. Title, number, and date of this CID.
- b. Issue of Department of Defense Index of Specifications and Standards (DODISS) to be cited in the solicitation, and if required, the specific issue of individual documents referenced.
- c. Hose, type, class and nominal size.
- d. Fitting description
 - (1) Male or female.
 - (2) Fixed or swivel.
 - (3) Thread size.
 - (4) Hose to pipe or hose to tube.
 - (5) Flare or flareless.
- e. Selection of applicable level and packaging requirements.

A A 52548

7.3 Cross reference data. Hose assemblies conforming to this CID are interchangeable/ substitutable with hose assemblies conforming to MIL-H-13531C, MS500077C(AT) and MS500083C(AT).

MILITARY INTERESTS

Custodians:

Army - AT
Navy - MC
Air Force - 99

Review Activities:

Army - AR, AV, ME, MI
Air Force - 82
DLA - CS

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FSS

Preparing Activity:

Army - AT

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