

INCH-POUND

MIL-DTL-3701C

21 December 1998

SUPERSEDING

MIL-C-3701B

24 November 1981

DETAIL SPECIFICATION

CYLINDERS, COMPRESSED GAS: DOT-8 AND DOT-8AL ACETYLENE, WITH VALVES

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers new steel cylinders, with applicable valves and caps, intended for acetylene service.

1.2 Classification. The cylinders covered by this specification will be of the capacities shown in table I, as specified (see 6.2).

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Defense Supply Center Richmond (DSCR), ATTN: DSCR-VBD, 8000 Jefferson Davis Highway, Richmond, VA 23297-5610 by using Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 8120

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TABLE 1. Physical characteristics.

Capacity in Cubic feet (ft ³)	Dimensions (in inches)		Inlet threads	Flange specification	Cap specification	Valve, specification MIL-DTL-2
	OD	Ht.				
10 ft ³	4 ± 0.5	12.5 ± 1.0	.375 inch - 18 NGT	N/A	N/A	V3-200-1
40 ft ³	6 ± 0.5	20.0 ± 1.5	.375 inch - 18 NGT	N/A	N/A	V3-200-1
75 ft ³	7 ± 1.0	26.0 ± 2.0	1 inch - 11.5 NGT	MIL-C-17376/2	MIL-C-17376/1	V2-510-0
190 ft ³	9.5 ± 1.0	32.5 ± 2.0	1 inch - 11.5 NGT	MIL-C-17376/2	MIL-C-17376/1	V2-510-0
225 ft ³	12 ± 1.0	29.0 ± 2.0	1 inch - 11.5 NGT	MIL-C-17376/2	MIL-C-17376/1	V2-510-0
360 ft ³	12 ± 0.5	41.0 ± 1.5	1 inch - 11.5 NGT	MIL-C-17376/2	MIL-C-17376/1	V2-510-0

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ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards and handbooks. The following specifications and standard form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

FEDERAL

- | | | |
|----------|---|--|
| TT-C-490 | - | Cleaning methods for ferrous Surfaces and Pretreatments for Organic Coatings |
| TT-E-489 | - | Enamel, Alkyd, Gloss, Low VOC Content |
| TT-P-664 | - | Primer Coating, Alkyd, Corrosion-Inhibiting, Lead and Chromate Free, VOC Compliant |

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- | | | |
|---------------|---|--|
| MIL-C-17376 | - | Caps and Flanges, Compressed-Gas Cylinder, General Specification For |
| MIL-C-17376/1 | - | Caps and Flanges, Compressed-Gas Cylinder: Caps |
| MIL-C-17376/2 | - | Caps and Flanges, Compressed-Gas Cylinder: Flanges, Low Pressure |
| MIL-DTL-2 | - | Valves, Cylinder, Gas (For Compressed or Liquefied Gases), General Specification For |
| MIL-DTL-2/2 | - | Valve, Cylinder, Gas: Acetylene, Outlet 510, Inlet 1.00 Inch |
| MIL-DTL-2/3 | - | Valve, Cylinder, Gas: Acetylene, Outlet 200 |

STANDARD

DEPARTMENT OF DEFENSE

- | | | |
|-------------|---|---|
| MIL-STD-101 | - | Color Code for Pipelines and For Compressed Gas Cylinders |
|-------------|---|---|

(Unless otherwise indicated, copies of the above specifications and standard are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

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2.2.2 Other Government documents. The following other Government documents form a part of this document to the extent specified herein. Unless otherwise specified, the issue is that in the solicitation.

DEPARTMENT OF TRANSPORTATION

Code of Federal Regulations, Title 49-Transportation (49 CFR), Parts 100 to 185

(Copies of the 49 CFR are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-0002.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 329 - Acetone (DoD adopted)

(Applications for copies of ASTM documents should be addressed to the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.)

STEEL STRUCTURES PAINTING COUNCIL (SSPC)

SSPC-SP5 - White Metal Blast Cleaning (DoD adopted)
 SSPC-SP6 - Commercial Blast Cleaning (DoD adopted)
 SSPC-SP10 - Near White Blast Cleaning (DoD adopted)

(Application for copies of SSPC documents should be addressed to the Steel Structures Painting Council, 4400 Fifth Avenue, Pittsburgh, PA 15213.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Construction. The acetylene cylinders shall conform to requirements for DOT-8 or DOT-8AL cylinders in accordance with 49 CFR, parts 171-178. They shall be within the dimensions specified in table I in accordance with figure 1. The cylinders shall be true of form and shall be stable in the upright position. Foot rings formed and welded to convex bottom designs, or rolled from the extended side walls of cylinders of unit construction using concave

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bottom designs, shall have a minimum of two ventilation and two drainage holes equally spaced in the circumference. The properties of the cured filler, the filler shrinkage or clearance limits, and the use of wells under the flange or neck shall conform to 49 CFR. The porosity of the filler shall exceed 83 percent of the total cylinder volume. Acetone infiltration shall be at least 97 percent of the maximum level permitted by 49 CFR. The acetone shall be of technical grade conforming to ASTM D 329.

3.2 Cylinder processing. After shaping, deburring, assembly, and welding, and before placement of the porous filler into the cylinder, the internal surfaces shall be free of residual hydrocarbons. Drawn shells shall be protected against deterioration and corrosion, but internal rust bloom is acceptable. The filler shall be poured into the cylinder and shall be thoroughly cured prior to infiltration with acetone.

3.3 Flanges, valves, and caps. The cylinder shall be fitted with a steel flange conforming to MIL-C-17376/2 as specified in table I. When specified (see 6.2), 10 and 40 cubic foot cylinders shall be supplied with a drilled and threaded boss welded to the cylinder. Each acetylene cylinder shall be fitted with a valve in accordance with MIL-DTL-2 as specified in table I. Valve V2-510-0 shall conform to MIL-DTL-2/2 and valve V3-200-1 shall conform to MIL-DTL-2/3. Each cylinder with a flange shall be supplied with a valve protection cap conforming to MIL-C-17376/1.

3.4 Tare weight. The tare weight of the cylinder shall be the weight of the cylinder, flange, and valve, including the porous filler and acetone, but excluding the valve protection cap. The tare weight for 10-cubic-foot cylinders shall be stamped in 1-ounce increments. Tare weights of larger acetylene cylinders shall be measured in pounds and quarter-pounds, expressed in 4-ounce increments to the nearest quarter-pound. The figures expressing pounds shall be separated from the figures expressing ounces by a dash (-).

3.5 Test date. The cylinders shall be delivered within 1 year of the test date stamped on the cylinder.

3.6 Cylinder identification. Unless otherwise specified herein, marking shall be in characters not less than three-sixteenths inch high for 10-cubic-foot cylinders. On larger cylinders marking shall be in characters not less than three-eighths inch high.

3.6.1 Standard markings. Standard markings shall be plainly and permanently marked by stamping on the shoulder of each cylinder starting near the neck as follows:

- a. DOT-8 or DOT-8AL as applicable, followed by the service pressure.
- b. Serial number (see 6.5).
- c. "US GOVT," Government symbol as registered with the Department of Transportation.
- d. Date of test, stamped diametrically opposite the above marking.
- e. The inspector's official mark as applicable.
- f. Manufacturer's mark, stamped near the date of test (preferably right above it).

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g. The tare weight (see 3.4), stamped in a position other than in sequence with the serial number or test date and preceded by the letters "TW."

h. Capacity of acetylene gas, in cubic feet (see 1.2), preceded by the letters "CAP."

3.6.2 Additional markings. In addition to the above markings, the cylinders shall bear the following markings:

a. The name of the gas, stenciled on the cylinder in accordance with MIL-STD-101.

b. Decalcomanias as specified (see 6.2), affixed diametrically opposite to one another on the sides of the cylinder, 90 degrees from the stenciled name of the gas.

3.7 Treatment and painting.

3.7.1 Cleaning. Each cylinder and cap shall be cleaned in accordance with TT-C-490. Cleaning may be accomplished by:

a. Chemical methods such as solvent cleaning, alkaline cleaning, acid cleaning, pickling, descaling with hydride, or paint stripping; or,

b. Electrochemical chemical cleaning methods such as electrolyte alkaline, electropolishing, or electrolytic pickling; or,

c. Mechanical means such as blasting, chipping, wire brushing, or grinding.

3.7.1.1 Blasting. Where blasting is appropriate, blast in accordance with Steel Structures Painting Council (SSPC) SSPC-SP6 unless SSPC-SP5 or SSPC-SP10 is specified (see 6.2). Blasting shall not be used on surfaces which could be damaged by blasting or on components containing such surfaces unless protective masking has been applied.

3.7.2 Treatment. Cylinders shall be treated as soon as possible after cleaning as specified in 3.7.1 with a zinc phosphate chemical conversion coating in accordance with TT-C-490, type I.

3.7.3 Painting. Coatings shall be applied in an ambient temperature of not less than 50 °F nor more than 90 °F. Paint shall be applied by any method which will deposit the specified film coat thickness and comply with any applicable transfer efficiency regulations. Paint and surface shall be approximately the same temperature except when hot spray is used.

3.7.3.1 Primer. Primer conforming to TT-E-664 shall be applied to each dry, clean cylinder as soon as practicable after cleaning and treatment (see 3.7.1 and 3.7.2). Dry film thickness of primer shall be 0.7 to 1.0 one-thousandth of an inch (mil).

3.7.3.2 Finishing coat. Finishing coat conforming to TT-E-489 shall be applied to each cylinder, color conforming to the cylinder color code requirement of MIL-STD-101. Dry film thickness of finishing coat shall be 1.0 to 1.5 mil.

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3.8 Workmanship. Cylinder, valves, plugs, flanges, and caps shall be clean and free from grit and loose scale. Edges shall be rounded or chamfered. Cylinders shall be cleaned and free of other surface defects detrimental to the intended use.

4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as conformance inspection.

4.2 Conformance inspection.

4.2.1 Examination. Each cylinder shall be examined for defects as listed in table II. The presence of one or more defects shall be cause for rejection.

TABLE II. Processing defects.

Defect Code	Defect	Requirement
101	Cylinder not in accordance with 49 CFR, specification DOT-8 or DOT-8AL.	Para. 3.1
102	Dimensions not as specified.	Para 3.1
103	Construction not as specified.	Para. 3.1
104	Porous filler and acetone infiltration not as specified.	Para. 3.1
105	Cylinder processing not as specified	Para. 3.2
106	Flanges, valves and caps not as specified.	Para. 3.3
107	Tare weight as specified.	Para. 3.4
108	Test date more than 1 year prior to the date of acceptance by the Government.	Para. 3.5
109	Marking not as specified.	Para. 3.6
110	Treatment not as specified.	Para. 3.7
111	Workmanship not as specified.	Para. 3.8

4.2.2 Tests. Each cylinder shall be tested in accordance with 49 CFR to determine compliance with the specified requirements. Nonconformance to any requirement of 49 CFR shall constitute failure of this test.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of material is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite

6. NOTES

M 3701 = XXX Example of PIN: M3701-75

└──────────┘
Cylinder capacity in cubic feet (see table I)

└───┘
Dash

└──────────┘
Specification number

└──────────┘
Prefix for military specification

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6.4 Cross-reference. The cataloging data for acetylene cylinders, listed by capacity, between this revision and MIL-C-3701B are as follows:

<u>Cubic feet capacity</u>	<u>MIL-C-3701B</u>	<u>MIL-DTL-3701C</u>
10	3701-1	M3701-10
40	3701-2	M3701-40
50	3701-3	Deleted
75	3701-5	M3701-75
190	3701-6	M3701-190
225	3701-4	M3701-225
360	3701-7	M3701-360

6.5 Serial numbering. Cylinder serial numbers will be prefixed by a two or three digit symbol designating the procuring agency and will have a two-letter suffix designating the supplier. The number will be assigned and affixed by the supplier to the individual cylinders. These numbers may be consecutive with the supplier's regular production numbers or of a series established specifically for customer's cylinders. However, all cylinders on a given contract will be numbered consecutively and controls will be exercised to preclude duplication with future deliveries to the Government.

6.6 Subject term (key word) listings.

Acetone
Cap
Flange
Porous filling

6.7 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

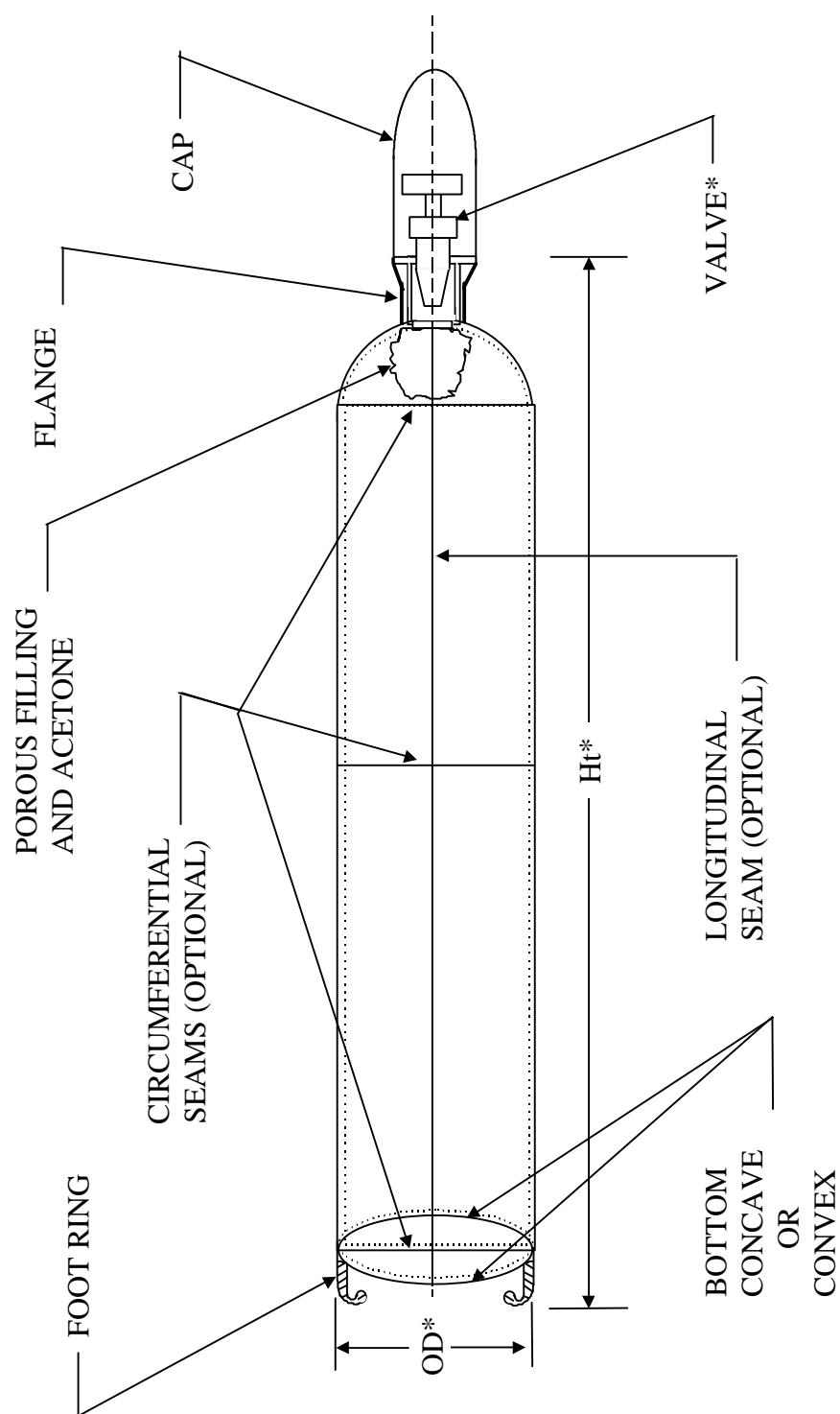
Custodian:
Navy - SH

Preparing activity:
DLA - GS

Reviewers:
Navy - MC, YD1

(Project 8120-1040)

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* See Table I.

FIGURE 1. Acetylene cylinders DOT-8 or DOT-8AL.

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:

1. DOCUMENT NUMBER
MIL-DTL-3701C

2. DOCUMENT DATE (YYMMDD)
21 DECEMBER 1998

3. DOCUMENT TITLE CYLINDERS, COMPRESSED GAS: DOT-8 AND DOT-8AL ACETYLENE, WITH VALVES

4. NATURE OF CHANGE Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)

b. ORGANIZATION

c. ADDRESS (Include Zip Code)

d. TELEPHONE (Include Area Code)
(1) Commercial
(2) AUTOVON
(if applicable)

7. DATE SUBMITTED
(YYMMDD)

8. PREPARING ACTIVITY

a. NAME DEFENSE SUPPLY CENTER RICHMOND

b. TELEPHONE Include Area Code)
(1) Commercial (2) AUTOVON

c. ADDRESS (Include Zip Code)
ATTN: DSCR-VBD
8000 JEFFERSON DAVIS HIGHWAY
RICHMOND, VA 23297-5610

IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:
DEFENSE QUALITY AND STANDARDIZATION OFFICE
5203 Leesburg Pike, Suite 1403, Falls Church, VA 22401-3466
Telephone (703) 756-2340 AUTOVON 289-2340