MILITARY SPECIFICATION

CYLINDER, COMPRESSED AIR, SCUBA DIVER'S STEEL

1. SCOPE

1.1 This specification covers a compressed air cylinder made of seamless steel in accordance with Department of Transporation (DOT) Specification 3AA for stowage of high pressure air for use in demand type, self-contained underwater breathing apparatus.

2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

FEDERAL
BB-A-1034 - Air, Compressed, for Breathing Purposes.
BB-N-411 - Nitrogen, Technical.
TT-C-490 - Cleaning Methods and Pretreatment of Ferrous Surfaces for Organic Coatings.
TT-E-489 - Enamel, Alkyd, Gloss (for Exterior and Interior Surfaces).

MILITARY
MIL-T-704 - Treatment and Painting of Material.
MIL-P-15328 - Primer (Wash), Pretreatment, Blue (Formula No. 117-B for Metals).
MIL-C-81302 - Cleaning Compound, Solvent, Trichlorotrifluoroethane.

STANDARDS

FEDERAL
FED-STD-151 - Metals, Test Methods.
FED-STD-595 - Colors.

MILITARY
MIL-STD-101 - Color Code for Pipelines and for Compressed-Gas Cylinders.
MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-271 - Nondestructive Testing Requirements for Metals.

(Copies of specifications, standards, drawings, and publications 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 documents form 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 BUREAU OF STANDARDS
Handbook H-28 - Screw-Thread Standards for Federal Services.

(Application for copies should be addressed to the Superintendent of Documents, Government Printing Office, Washington, D. C. 20402.)

UNIFORM CLASSIFICATION COMMITTEE
Uniform Freight Classification Rules

(Application for copies should be addressed to the Uniform Classification Committee, 202 Union Station, 516 West Jackson Boulevard, Chicago, Illinois 60606.)

DEPARTMENT OF TRANSPORTATION
Code of Federal Regulations (CFR), Title 49 - Transportation, Parts 1-199.

(Application for copies should be addressed to the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.)

COMPRESSED GAS ASSOCIATION (CGA)
Pamphlet C-1 - Methods for Hydrostatic Testing of Compressed Gas Cylinders.

(Application for copies should be addressed to the Compressed Gas Association, Inc., Suite 2400-6, 500-5th Avenue, New York, New York 10036.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
A123 - Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip, Specification For.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pa. 19103.)

(Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

3. REQUIREMENTS

3.1 Sample for first article inspection. Prior to beginning production a sample shall be tested as specified in 4.3 (see 6.3).

3.2 General. The cylinder shall be for use as the compressed air cylinder in demand type, self-contained underwater breathing apparatus. The cylinder shall conform to DOT Specification 3AA as set forth in CFR, Title 49 - Parts 1-199 and as specified herein.

3.3 Physical parameters. The cylinder shall be of open-hearth steel or equivalent, and of uniform quality, in accordance with figure 1, and have an overall length of 25 ± 3/16 inches. The cylinder wall thickness shall be such as to attain the required buoyancy (see 3.3.3) and shall have a 0.156 inch minimum thickness.

3.3.1 Service pressure and capacity. The cylinder shall be designed for 2250 pounds per square inch gage (psig) service pressure. Each cylinder shall be hydrostatically tested to withstand 3750 psig (see 4.5.1.1). After final heat treatment, but prior to final cleaning and painting, the cylinder shall be capable of withstanding the internal hydrostatic test specified in 4.5.1.1. Capacity shall be 71 ± 1 cubic feet air supply at 2475 psig. The cylinder shall have an internal volume of 700 ± 30 cubic inches.

3.3.2 Air leakage. The completed cylinder shall be capable of withstanding the air leakage test specified in 4.5.1.2.

3.3.3 Buoyancy. The cylinder shall be buoyant in fresh water when empty and closed in accordance with paragraph 3.3.5.2.

3.3.4 Construction. The cylinder shall be true of form, of seamless construction, and leak free (see 3.3.2). Closure of the lower end by drilling or plugging will not be permitted. The cylinder shall not be wire wound nor wrapped with wire.

3.3.5 Cylinder neck. During the forming process, sufficient material shall be provided in the neck of the cylinder to face off a flat diameter of 1-5/8 + 1/8, -0 inches (see figure 1).

3.3.5.1 Threading. The cylinder shall be configured with the crushed O-ring type arrangement of figure 1. The thread shall be 3/4 - 14 NPSM (modified), 12 turns minimum effective thread length. After machining, the threaded area shall show no evidence of folds, cracks, or other imperfections.

3.3.5.2 Closure. The threaded port shall be closed by an oil-free, removal plug or cap, externally threaded. Thread designation shall conform with NGT designation of Handbook H28. The closure shall protect the threads O-ring groove and finish flat surface and prevent the entrance of moisture or foreign matter.

3.3.6 Expansion characteristics. When hydrostatically tested to 3750 psig, the cylinder shall exhibit a total volumetric expansion not exceeding 57 cubic centimeters (cc). The permanent expansion (PE) shall not exceed 5 cc, the remainder shall be elastic expansion (EE).

3.4 Preparation, cleaning, drying, and preservation.

3.4.1 Internal preparation. The interior surface of drawn cylinders prior to necking shall be thoroughly cleaned of all mill scale, rust, burrs, oxidation products, and other contaminants by an abrasive grit blasting process as specified in method I of TT-C-490. The cleaning shall be followed by a wash conforming to MIL-C-81302 or other agent not detrimental to the surface to be painted.

3.4.2 External preparation. The exterior surface of the cylinder, prior to painting, shall have all dirt and scale removed. The surface shall be reasonably smooth and have a uniform surface finish.

3.4.3 Cylinder cleaning. The finished cylinder shall be cleaned of particulate matter, grease, fat, oil, and any impurities which would be detrimental to use with high partial pressures of oxygen. Chemicals that will react with the cylinder or with compressed air shall not be used.

3.4.4 Cylinder drying. The flushed cylinder shall be dried, without cooling, by use of clean, filtered air or nitrogen with a dew point of less than 30°F. to remove residual solvent and moisture. The cylinder shall be plugged while hot to confine the effects of atmospheric moisture to surface staining of the internal walls.

3.4.5 Cylinder preservation. Petroleum base solvents, preservatives, and lubricants shall not be applied to any part of the cylinders.

3.5 Coating. The cylinder shall be treated internally and externally as specified herein. Paint coatings shall be continuous, adherent, and free from blisters, streaks, bare spots, and other defective conditions indicating poor workmanship. All indentations shall be clear and legible.

3.5.1 Internal coating. The interior surface of the cylinder shall be coated with the following, in the order listed after the external surface has been hot dipped galvanized.

(a) Two coats as follows to a total maximum dry film thickness of 6.0 mils. Inorganic zinc coatings for System No. 2 and System No. 3 shall be applied at 2.5 to 3.5 mils dry film thickness. Fabricator may use system No. 1, No. 2, No. 3, or equal. Color of last coating shall be in accordance with system selected or as specified (see 6.2).

System No. 1 (Sherwin-Williams Co.[1/])

(1) One coat Tile-Clad 2 primer.
(2) One coat Tile-Clad 2 catalyzed epoxy of color conforming to white 27722 of FED-STD-595.

System No. 2 (Carboline Co.[1/])

(1) One coat Carboline Carbo Zinc #11 HFP.
(2) One coat Carboline 191 Epoxy Gray #724.

System No. 3 (Ameron Corp.[1/])

(1) One coat Dimetcote #4 Food Grade.
(2) One coat Amercoat #1741 White.

(b) The coating shall not flake or scale.

(NOTE: These systems based on manufacturer's recommendations. Systems No. 2 and No. 3 are currently used inside the Ship Salvage Air Receivers, 55 cu. ft. capacity, procured under NAVSHIPS drawing 000-044 17776-A. Where an inorganic zinc coating is used, the cured coating shall be thoroughly washed with fresh water and dried to remove all residual surface deposits just prior to topcoating.)

3.5.2 External coating. The exterior surface (except the flat at the cylinder neck) shall be hot dip galvanized in accordance with ASTM A123. The cylinder shall be cleaned, treated and painted in accordance with type B of MIL-T-704 for zinc surfaces. Apply one coat of pretreatment coating in accordance with MIL-P-15328 (formula 117B) to a maximum dry film thickness of 1 mil. The finish coat shall conform to class A of TT-E-489, color number 17038 of FED-STD-595, and in accordance with MIL-STD-101 to provide uniform recognition throughout the Department of Defense. A single green color band, conforming to class A of TT-E-489, color number 14187 of FED-STD-595 (for Air, Water Pumped), shall be painted on each cylinder as specified in MIL-STD-101 to provide a warning of danger from the hazard involved in handling the high pressure air to be placed in the cylinder and to separate and distinguish these cylinders for convenience in handling, storing, shipping and using when charged.

3.6 Marking. The cylinder shall be serialized and marked as specified herein.

3.6.1 Serial number. The cylinder shall be marked with a serial number (see 3.6.2) assigned by the manufacturer so that no two cylinders, either in the same lot or offered for delivery in consecutive calendar years, will bear the same cylinder number.

3.6.2 Markings. The cylinder shall be plainly and permanently marked (indented) by stamping, to a stamping depth of 0.030 +0.005, -0 inch, in the order listed, on the shoulder of each cylinder, starting as close to the neck of the cylinder as practicable. Stamping shall be accomplished after final heat treatment and finishing operations, but before painting.

[1/] Or equivalent.

(a) On one side, the following information.

(1) The DOT Specification 3AA reference, followed by the service pressure in psig and, unless otherwise specified (see 6.2), in kilograms per square centimeter (kg/sqcm) in characters not less than 3/8 inch high. Example: DOT 3AA 2250 psig (158 kg/sqcm)
(2) The serial number of the cylinder, located just below the marking in item (a)(1) (see 3.6.2). This number shall be stamped in characters not less than 1/2 inch high. Example: 1234-70
(3) The Government identifying symbol as registered with the Bureau of Explosives, located below or immediately following the marking in item (a)(2) in characters not less than 1/2 inch high. Example: US GOVT
(4) The inspector's official mark, located below the marking in item (a)(3) in characters not less than 1/4 inch high. Example: ⚓

(b) On the opposite side of the markings in (a) in characters not less than 1/4 inch high, the following information.

(1) Actual measured wall thickness of the cylinder in decimal fractions with prefix A. On the same line, with prefix M, the minimum thickness permitted by the specification. Example: A0.195/M0.156
(2) The initials of the manufacturer or his trademark, located directly above the initial test date by the manufacturer, followed by the number of this specification. Example: U. S. S. MIL-C-24447(SHIPS) (for U. S. Steel)
(3) Date of test (month-year), with test pressure in psig and, unless otherwise specified (see 6.2), in kilograms per square centimeter (kg/sqcm). Example: Test 3750 psig (264 kg/sqcm) 5-70 (5-70 for May 1970)
(4) Leave space below item (b)(3) to receive the stamp dates of subsequent tests, along with the mark of the tester/retester. Example: Retest 3750 psig (264 kg/sqcm) 5-71

(c) Two easily removable decalcomanias shall be applied on the shoulder of each cylinder, diametrically opposite to each other and at right angles to the title. Each decalcomania shall state UNCHARGED, in letters not less than 2 inches high, to indicate that the cylinders are shipped in an uncharged condition. When later charged by the service user, these decalcomanias are to be removed and discarded.

3.6.3 Title. Exact identification of the cylinder to indicate its intended use for high-pressure air shall be by means of a written title as specified in MIL-STD-101. The title shall appear in two locations diametrically opposite and parallel to the longitudinal axis of the cylinder. They shall be applied by use of upper case letters 2 inches high. When specified (see 6.2) a modifier, such as WATER PUMPED, shall be shown in letters approximately 3/4 inch as high and immediately following the title.

3.7 Delivery date. Cylinders shall be shipped by the manufacturer within one year of the stamped test date thereon. After one year, retests shall be accomplished and a new test date stamped as specified in 3.6.2 (b)(4).

3.8 Workmanship. Except where specified, all surfaces shall be smooth and continuous and there shall be no evidence of cracks or gross tools marks. Threads shall be smooth, properly formed, and free from burrs, nicks, folds, cracks and other imperfections.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier 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 specifications where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Part and material inspection. The supplier is responsible for ensuring that parts and materials used are manufactured, examined and tested in accordance with referenced specifications and standards.

4.2 Classification of inspection. Inspections shall be classified as follows:

(a) First article inspection (see 4.3).
(b) Quality conformance inspection (see 4.4).
(c) Inspection of preparation for delivery (see 4.6).

4.3 First article inspection. First article inspection shall consist of the examination and tests specified in 4.4.4 and 4.5.

4.4 Quality conformance inspection. Quality conformance inspection shall consist of the visual and dimensional examination of 4.4.4 and the groups A and B tests of 4.4.5 and 4.4.6.

4.4.1 Lot. A lot shall consist of not more than 200 cylinders produced from the same heat of steel, having the same heat treatment cycle, and offered for delivery at the same time.

4.4.2 Sampling for visual and dimensional examination. Sample cylinders shall be selected from each lot in accordance with inspection level S4 of MIL-STD-105. Each of the sample cylinders shall be subjected to the visual and dimensional examination of 4.4.4. The AQL shall be 4.0 percent defective.

4.4.3 Sampling for group B tests. Sample cylinders shall be selected from each lot in accordance with inspection level S4 of MIL-STD-105. Each of the sample cylinders shall be subjected to the hydrostatic and leakage tests of 4.5.1.1 and 4.5.1.2. Sampling for the physical tests of 4.5.1 shall be as specified in DOT Specification 3AA.

4.4.4 Visual and dimensional examination. Cylinders selected in accordance with 4.4.2 shall be examined and measured to verify conformance with all the requirements of this specification which do not involve tests. Threads shall be checked by means of "GO" and "NO-GO" gages as specified in Handbook H-28.

4.4.5 Group A tests. Each cylinder shall be subjected to the tests shown in table I.

Table I. Group A tests.

Tests	Paragraph
Water volume	4.5.2
Wall thickness	4.5.3
Oil free	4.5.4

4.4.6 Group B tests. Sample cylinders selected in accordance with 4.4.3 shall be subject to the tests shown in table II.

Table II. Group B tests.

Tests	Paragraph
Hydrostatic	4.5.1.1
Physical	DOT Specification 3AA
Leakage	4.5.1.2

4.5 Tests and test procedures.

4.5.1 Test required by DOT Specification 3AA. The test required by 178.37-14, 178.37-15, 178.37-16, and 178.37-17 of DOT Specification 3AA shall be conducted as specified in that specification. Leakage test shall be in accordance with method 442.1 of FED-STD-151, as amplified in 4.5.1.2.

4.5.1.1 Hydrostatic test. Hydrostatic test shall be conducted by the water jacket method of CGA Pamphlet C-1.

4.5.1.1.1 Inspection. Ends and necks of cylinders shall be inspected by the magnetic particle method in accordance with MIL-STD-271 after the hydrostatic test has been completed. The indirect method of magnetization using 100-120 volt alternating current (ac) shall be employed provided the ac yoke by comparative test shall be shown to be equal to direct current magnetization of 100-125 amperes per inch of spacing between contact areas in accordance with MIL-STD-271.

4.5.1.2 Air leakage test. After the hydrostatic test of 4.5.1.1, a valve such as the Aqua-Lung 3/4-inch "J" valve (No. 0525), the Swimmaster constant reserve valve (V-1J), or equal, shall be threaded into the cylinder which shall then be charged to the indicated service pressure with oil-free air conforming to source I of BB-A-1034 or nitrogen conforming to type I, class I, grade B of BB-N-411. The cylinder shall be immersed in water covering the neck and valve of the cylinder and then observed for bubbles for a period of 2 minutes. Any bubbles shall constitute failure of the test. However leakage occuring around the valve stem may be corrected and the cylinder retested.

4.5.2 Water volume test. The water volume of each cylinder in the lot shall be determined to the nearest cubic inch. Cylinders that fail to meet the requirements of 3.3.1 shall be rejected.

4.5.3 Wall thickness test. The wall thickness of each cylinder in the lot shall be determined by pulse echo type ultrasonic equipment calibrated to an accuracy of 3 percent. Cylinders that fail to meet the wall thickness requirements of 3.3 shall be rejected.

4.5.3.1 Recalibration. Ultrasonic inspection equipment shall be recalibrated periodically to ensure optimum results. It shall also be recalibrated if there is any change in frequency or crystal size used.

4.5.4 Oil-free test. After the cylinders are cleaned as specified in 3.4.1, they shall be inspected internally by ultraviolet light ("Black light": 3200 to 4000 Angstrom units); all oils that come into contact with the cylinder during fabrication shall be of a type that will fluoresce under an ultraviolet light examination. If there is any evidence of fluorescence on the interior or machined surfaces the flask shall be recleaned, this time with the solvent specified in MIL-C-81302. The cylinder shall be thoroughly dried immediately then subjected again to the oil-free test.

4.5.5 Retests.

4.5.5.1 Reheat. Cylinders which fail to conform to the physical tests specified herein may be subjected to a reheat treatment. Subsequent thereto, the cylinders shall be subjected to and shall pass all of the tests specified herein.

4.5.5.2 Surface imperfections. Surface imperfections detected during the tests of 4.5 which would require rejection in accordance with 3.5 and DOT Specification 3AA but can be made acceptable by grinding or machining may be so treated and then retested.

4.6 Inspection of preparation for delivery. The packaging, packing, and marking of the cylinder shall be inspected to determine compliance with the requirements of section 5.

5. PREPARATION FOR DELIVERY

(The preparation for delivery requirements specified herein apply only for direct Government procurements. For the extent of applicability of the preparation for delivery requirements of referenced documents listed in section 2, see 6.4.)

5.1 Domestic shipment and early equipment use.

5.1.1 Preservation and packaging. Preservation and packaging which may be the supplier's commercial practice, shall be sufficient to afford adequate protection against corrosion, deterioration and physical damage during shipment from the supply source to the using activity and until early installation.

5.1.2 Packing. Packing shall be accomplished in a manner which will insure acceptance by common carrier at the lowest rate and will afford protection against physical or mechanical damage during direct shipment from the supply source to the using activity for early installation. The shipping containers or method of packing shall conform to the Uniform Freight Classification Rules or other carrier regulations as applicable to the mode of transportation and may conform to the suppliers commercial practice.

5.1.3 Marking. Shipment marking information shall be provided on interior packages and exterior shipping containers in accordance with the contractor's commercial practice. The information shall include item, name, Federal stock number or manufacturer's part number, contract or order number, contractor's name and destination.

5.2 Domestic shipment and storage or overseas shipment. The requirements, and levels of preservation, packaging, packing and marking for shipment shall be specified by the procuring activity (see 6.2).

5.2.1 The following provides various levels for protection during domestic shipment and storage or overseas shipment, which may be required when procurement is made (see 6.2).

(5.2.1.1 Packaging. Cylinders, cleaned and capped in accordance with 3.3.5.2, 3.4.2, 3.4.3 and 3.4.4, shall be packaged in accordance with level A or C as specified (see 6.2).

5.2.1.1.1 Level A. Cylinders shall be cushioned, blocked or braced in accordance with MIL-STD-1186 and individually packaged in accordance with the requirements of MIL-P-116.

5.2.1.1.2 Level C. Packaging shall be sufficient to afford adequate protection against corrosion, deterioration, chemical contamination and physical damage to the cylinders from the supply source to the using activity for immediate use. When it meets these requirements, the supplier's commercial practice may be utilized.

5.2.1.2 Packing. Packing shall be in accordance with level A, B, or C, as specified (see 6.2).

5.2.1.2.1 Level A. Cylinders, packaged in accordance with 5.2.1.1 shall be individually packed in boxes conforming to any one of the following specifications at the option of the contractor:

Specifications	Class
PPP-B-636	Class weather-resistant
PPP-B-640	Class 2

5.2.1.2.1.1 Cushioning, blocking and bracing in accordance with MIL-STD-1186 shall be required. All center and edge seams and the manufacturer's joint shall be sealed and waterproofed with pressure-sensitive tape in accordance with the applicable box specification or appendix thereto. Shipping containers shall be closed and reinforced in accordance with the applicable box specification or appendix thereto, except that reinforcement shall be accomplished using filament-reinforced, pressure-sensitive tape in accordance with the appendix to the box specification.

5.2.1.2.2 Level B. Cylinders, packaged in accordance with 5.1 shall be individually packed in boxes conforming to any one of the following specifications at the option of the contractor:

Specifications	Class
PPP-B-636	Class domestic
PPP-B-640	Class 1

5.2.1.2.2.1 Cushioning, blocking and bracing in accordance with MIL-STD-1186 shall be required. Shipping containers shall be closed in accordance with the applicable box specification.

5.2.1.2.3 Level C. Packing shall be accomplished in a manner which will ensure acceptance by common carrier, at lowest rate, and will afford protection against physical or mechanical damage during direct shipment from the supply source to the using activity. The shipping containers or method of packing shall conform to the Uniform Freight Classification Rules or other carrier regulations applicable to the mode of transportation. When it meets these requirements, the manufacturer's commercial practice may be utilized.

5.2.1.3 Use of polystyrene (loose-fill) material.

5.2.1.3.1 For domestic shipment and early equipment use and level C packaging and packing. Unless otherwise approved by the procuring activity (see 6.2), use of polystyrene (loose-fill) material for domestic shipment and early equipment installation and level C packaging and packing applications such as cushioning, filler and dunnage is prohibited. When approved, unit packages and containers (interior and exterior) shall be marked and labelled as follows:

"CAUTION:

Contents cushioned, etc., with polystyrene (loose-fill) material.
Remove and discard loose-fill material before shipboard storage.
If required, recushion with cellulosic material bound fiber. fiberboard or transparent flexible cellular material."

5.2.1.3.2 For level A packaging and level A and B packing. Use of polystyrene (loose-fill) material is prohibited for level A packaging and level A and B packing applications such as cushioning, filler and dunnage.

5.2.1.4 Palletization. When specified (see 6.2), shipping containers shall be palletized for shipment in accordance with MIL-STD-147.

5.2.1.5 Marking. In addition to any special marking required by the contract or order (see 6.2), unit packages, intermediate packages, shipping containers and palletized loads shall be marked in accordance with MIL-STD-129.)

6. NOTES

6.1 Intended use. The cylinders covered by this specification are intended for use by a diver in demand type, self-contained underwater breathing apparatus.

6.2 Ordering data. Procurement documents should specify the following:

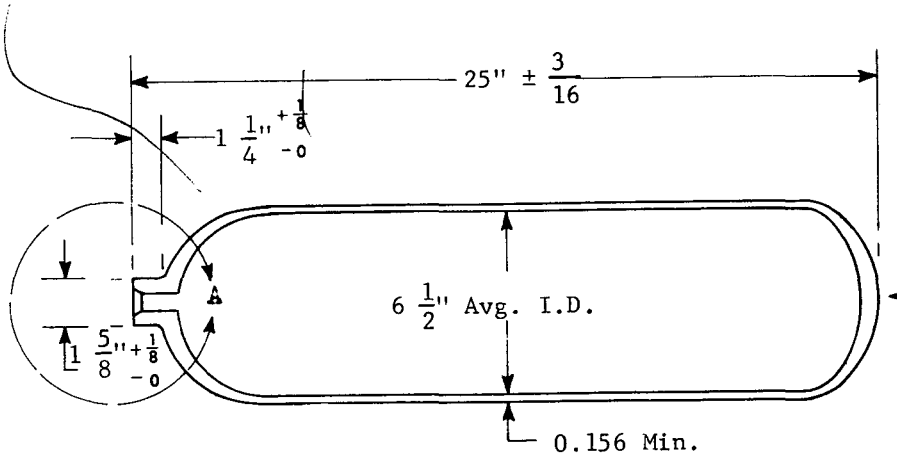
(a) Title, number and date of this specification.
(b) Internal coating required (if other than as specified) (see 3.5.1).
(c) If pressure rating in kilograms per square centimeter should not be included (see 3.6.2(a)(1) and 3.6.2(b)(3).
(d) Level of packaging (see 5.2).

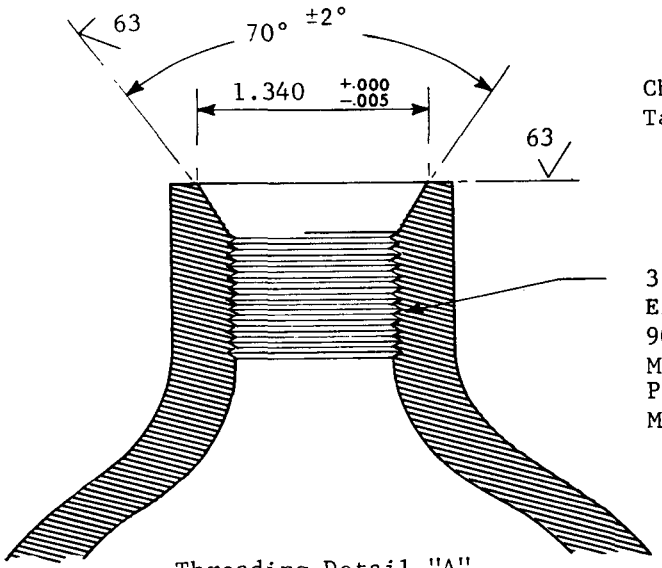
(e) If use of polystyrene is permitted (see 5.2.1.3).
(f) Palletization for shipment, when required (see 5.2.1.4).
(g) Special instructions and markings, when required (see 3.6.2, 3.6.3, 5.2.1.4 and 5.2.1.5).

6.3 First article inspection. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection as to those bidders offering a product which has been previously procured or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending procurement.

6.4 Sub-contracted material and parts. The preparation for delivery requirements of referenced documents listed in section 2 do not apply when material and parts are procured by the supplier for incorporation into the equipment and lose their separate identity when the equipment is shipped.

Preparing acitivty:
Navy - SH
(Project 4220-N177)





Threading Detail "A"

Chamfer Concentric with ℄ of
Tapping within .010

3/4-14-NPSM modified thread, 12 turns min.
Effective thread length, tapping must be
90° ± 0°-20' to top face of neck
Minor diameter - .9413 - .9547
Pitch diameter - .9889 - .9934
Major diameter - 1.036 min.

FIGURE 1. CYLINDER

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