

MIL-V-24439A(SH)  
14 March 1984  
SUPERSEDING  
MIL-V-24439(SHIPS)  
12 May 1972  
(See 6.6)

## MILITARY SPECIFICATION

### VALVES, OXYGEN, HELIUM AND HELIUM OXYGEN MIXTURE, HIGH PRESSURE FOR GAS SERVICES

This specification is approved for use by the Naval Sea Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

#### 1. SCOPE

1.1 Scope. This specification describes valves for high pressure oxygen, helium, and helium oxygen mixture gas services.

1.2 Classification. The valves shall be of the following types and sizes as specified (see 6.2.1).

- Type A - Angle body.
- Type B - Globe body.
- Type C - Check, globe body.
- Type D - Check, angle body.
- Size - 1/4 to 2-1/2 inches.

1.2.1 Pressure rating. The valves described by this specification shall be suitable for use with an operating system pressure of 4500 pounds per square inch (lb/in<sup>2</sup>).

#### 2. APPLICABLE DOCUMENTS

##### 2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified, the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, Naval Sea Systems Command, SEA 5523, Department of the Navy, Washington, DC 20362 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

## MIL-V-24439A(SH)

## SPECIFICATIONS

## FEDERAL

- BB-N-411 - Nitrogen, Technical.
- QQ-C-465 - Copper-Aluminum Alloys (Aluminum Bronze) (Copper Alloy Numbers 606, 614, 630, 632M, and 642); Rod, Flat Products With Finished Edges (Flat Wire, Strip, and Bar), Shapes, and Forgings.
- QQ-N-281 - Nickel-Copper-Alloy Bar, Plate, Rod, Sheet, Strip, Wire, Forgings and Structural and Special Shaped Sections.
- QQ-N-286 - Nickel-Copper-Aluminum Alloy, Wrought.
- PPP-B-566 - Boxes, Folding, Paperboard.
- PPP-B-636 - Boxes, Shipping, Fiberboard.
- PPP-B-665 - Boxes, Paperboard, Metal Edged and Components.
- PPP-B-676 - Boxes, Setup.
- PPP-C-843 - Cushioning Material, Cellulosic.
- PPP-P-115 - Pad, Paper, Macerated.

## MILITARY

- MIL-S-901 - Shock Tests, H.I. (High-Impact); Shipboard Machinery, Equipment and Systems, Requirements for.
- MIL-T-1368 - Tube and Pipe; Nickel-Copper Alloy, Seamless and Welded.
- MIL-B-24480 - Bronze, Nickel-Aluminum Castings, for Seawater Service.
- MIL-L-25567 - Leak Detection Compound, Oxygen Systems.
- MIL-G-27617 - Grease, Aircraft and Instrument, Fuel and Oxidizer Resistant.
- MIL-P-46036 - Plastic Sheets, Rods, Tubes and Discs, Polychlorotrifluoroethylene.
- MIL-C-52211 - Components and Assemblies for Industrial Gas Production, Storage and Transport Equipment, Packaging of.

## STANDARDS

## FEDERAL

- FED-STD-595 - Colors.

## MILITARY

- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-167-1 - Mechanical Vibrations of Shipboard Equipment (Type I - Environmental and Type II - Internally Excited).
- MIL-STD-271 - Nondestructive Testing Requirements for Metals.
- MIL-STD-278 - Fabrication Welding and Inspection; and Casting Inspection and Repair For Machinery, Piping and Pressure Vessels in Ships of the United States Navy.
- MIL-STD-740 - Airborne and Structureborne Noise Measurements and Acceptance Criteria of Shipboard Equipment.

MIL-V-24439A(SH)

(Copies of specifications and standards required by contractors in connection with specific acquisition functions should be obtained from the contracting 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. The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

ASTM

- B 133 - Copper Rod, Bar, and Shapes. (DoD adopted)
- G 63 - Evaluating Materials for Oxygen Service, Guide for.

(Application for copies should be addressed to the ASTM, 1916 Race Street, Philadelphia, PA 19103.)

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE)

- AMS 4500 - Copper Sheet, Strip, and Plate Soft Annealed (CDA 110).

(Application for copies should be addressed to the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.)

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

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 Qualification. Valves furnished under this specification shall be products which are qualified for listing on the applicable qualified products list at the time set for opening of bids (see 4.4 and 6.3).

3.2 Materials. Materials shall be as specified in table I. When not specifically noted, commercial materials suitable for the service intended shall be used.

## MIL-V-24439A(SH)

TABLE I. Materials.

Part	Type A and B	Type C and D	Applicable document
Nipple	Nickel-copper	Nickel-copper	MIL-T-1368
Body	Nickel-copper	Nickel-copper	QQ-N-281
Bonnet	Nickel-copper	Nickel-copper	QQ-N-281, QQ-N-286, MIL-B-24480, QQ-C-465, alloy 632M
Union nut	Nickel-copper Bronze	Nickel-copper Bronze	QQ-N-281, QQ-N-286 MIL-B-24480, QQ-C-465, alloy 632M
Disc	Nickel-copper	Nickel-copper	QQ-N-281, QQ-N-286
Synthetic insert	Polychlorotri- fluoroethylene (CTFE) polymer	CTFE polymer, as approved	MIL-P-46036
Bellows	Nickel-copper Electrodeposited nickel	----- -----	QQ-N-281 -----
Wetted stem assembly	Nickel-copper	-----	QQ-N-281, QQ-N-286
External seal	Annealed copper	Annealed copper	AMS 4500 ASTM B 133, alloy 110
Handwheel	Aluminum	-----	Commercial
Other non-wetted parts	Corrosion- resisting steel (CRES) Bronze	CRES	Commercial  MIL-B-24480 QQ-C-465, alloy 632M

3.2.1 Non-metallic materials. Non-metallic materials in contact with the line fluid shall have a minimum spontaneous ignition temperature of 500 degrees Fahrenheit (°F) as determined by the autoignition requirements of ASTM G 63.

3.2.2 Recovered materials. Unless otherwise specified herein, all equipment, material, and articles incorporated in the products covered by this specification shall be new and shall be fabricated using materials produced from recovered materials to the maximum extent practicable without jeopardizing the intended use. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. None of the above shall be interpreted to mean that the use of used or rebuilt products is allowed under this specification unless otherwise specifically specified.

### 3.3 Design and construction.

3.3.1 Valves shall be designed for a system operating pressure of 4500 lb/in<sup>2</sup>.

## MIL-V-24439A(SH)

3.3.1.1 Type A and type B valves shall be of the packless, positive shut-off type, with the stem actuated through a bellows. Two to three complete turns of the valve handle shall be required to operate the valve from fully open to fully closed. The handwheel shall turn in the clockwise direction to close the valve. The valve shall employ either a union bonnet or bolted bonnet construction. The valve shall permit full flow in either direction without any tendency for the valve to automatically close. The valve shall operate smoothly throughout its full range with no sudden uncontrolled changes in flow rate for flow in either direction. Valve orifice sizes shall be in accordance with table II.

TABLE II. Orifice size.

Valve size (inch)	Minimum orifice size (inch diameter)
1/4 and 1/2	0.20
3/4 and 1	.50
1/2 and 2-1/2	1.00

3.3.1.2 Type C and type D valves shall be lift check type and shall be body guided and designed to preclude bypass of the check feature in the reverse flow direction.

3.3.2 Type A and type B valves shall have a maximum seat leakage of  $4 \times 10^{-3}$  cubic centimeters ( $\text{cm}^3$ ) per second per inch orifice size when pressurized to 4500  $\text{lb}/\text{in}^2$  below the seat and exhausting to atmospheric pressure and  $75 \pm 5^\circ\text{F}$  without exceeding the maximum handwheel torques listed in table III, and shall operate properly when installed in any position. Type C and D valves shall have a maximum seat leakage of  $4 \times 10^{-3} \text{ cm}^3$  per second per inch of orifice size when pressurized to 4500  $\text{lb}/\text{in}^2$  in the reverse flow direction and exhausted to atmospheric pressure and  $75 \pm 5^\circ\text{F}$ .

TABLE III. Maximum torque for valve seating operation.

Orifice size (inch diameter)	Maximum operating torque (inch/pounds)
0.20	50
.50	225
1.00	750

3.3.3 The design of the valve actuating mechanism shall be arranged such that the valve will not be damaged when the handwheel is torqued to the value permitted in table IV. This shall be accomplished by designing the seat and the actuating mechanism with sufficient strength to accommodate the overload condition.

## MIL-V-24439A(SH)

TABLE IV. Torque values.

Orifice size (inch diameter)	Torque (inch/pounds)
0.20	240
.50	300
1.00	1000

3.3.4 Handwheel. The handwheel shall be round with knurling, dimples or other irregularities on the periphery to provide a firm grip. Spoked wheels may be used on the larger sizes but the spokes shall not protrude beyond the rim of the wheel. The connection between the handwheel and the valve stem shall provide a positive drive to the stem in either direction. Connections depending solely upon friction or set screws to transmit the torque are not acceptable.

3.3.5 Cartridge. The valve shall be of the replaceable cartridge type in which the critical sealing and operating parts may be removed for examination or replacement without removing the valve body from the piping system. No grinding, machining or welding shall be required for this operation. The replaceable cartridge assembly for each size of valve shall be usable in either type A or B valve bodies.

3.3.6 Seals. Valve seat, bonnet and any other seals used shall be arranged to prevent leakage of helium. The primary external seal shall be annealed copper in accordance with table I. Metallic seals shall seat in any direction. Synthetic non-metallic sealing materials shall be as specified in table I and shall be contained in such a manner that they will not extrude or cold flow and allow leakage under system pressure at any temperature between minus 65°F and plus 160°F. The seat design shall be such that in the event that the non-metallic seat is destroyed or carried away, there will be a secondary metal-to-metal seat.

3.3.7 Lubrication. No lubrication shall be used within the normal flow path of the system fluid. Threads, thrust bearings and other moving parts located outside of the primary seals may be lubricated with grease in accordance with MIL-G-27617, type III. Lubricants containing petroleum base materials are not suitable for this service.

3.3.8 Shock. Valves shall withstand the grade A, class I, type B shock test requirement in accordance with MIL-S-901 (see 4.4.10).

3.3.9 Vibration. Valves shall withstand the vibration requirements specified in MIL-STD-167-1 for type I equipment (see 4.4.11).

3.3.10 Structureborne and airborne noise. Valves shall meet the noise requirements specified in MIL-STD-740 for type 3, grade D equipment and table V herein (see 4.4.12).

## MIL-V-24439A(SH)

TABLE V. Sound pressure acceptance levels for machinery and equipment in decibels relative to 20 micropascals.

Noise grade	Octave band center frequency - hertz								
	31.5	63	125	250	500	1000	2000	4000	8000
D	91	88	85	82	79	76	73	70	67

3.3.11 Pipe nipples or extensions. Pipe nipples or extensions of nickel-copper alloy in accordance with MIL-T-1368 shall be welded to the valve body inlet and outlet. The length and schedule of these extensions shall be as specified in table VI. Welding shall be in accordance with MIL-STD-278 and nondestructive testing shall be in accordance with MIL-STD-271.

TABLE VI. Length and schedule of extension nipples.

Size of valve (inches)	Pipe schedule	Minimum length of extension (center to end) (inches)
1/4 to 1 (inclusive)	80	7.0
1-1/2 to 2-1/2 (inclusive)	160	12.0

3.3.12 Interchangeability. In no case shall parts be physically interchangeable or reversible unless such parts are also interchangeable or reversible with regard to function, performance and strength.

3.4 Drawings. The contractor shall prepare drawings in accordance with the data ordering documents included in the contract or order (see 6.2.2) and the unique technical features specified in 3.4.1 and 3.4.2 shall be included.

3.4.1 Preliminary drawings. Preliminary drawings shall include the following:

- (a) Sectional assembly which depicts the design and construction of the valve.
- (b) Bill of material listing specification, grade, condition and any other data required to identify the properties of the materials proposed.
- (c) Pictorial details of the seat, disc and stem assembly.
- (d) Outline dimensions, disassembly space, location and size of end connections and mounts.
- (e) Estimated weight and limitations on installation.
- (f) Assembly torque values.

## MIL-V-24439A(SH)

3.4.2 Final drawings. In addition to the information of 3.4.1, final drawings shall also include the following:

- (a) Applicable assembly drawing number(s).
- (b) Instruction for assembly and disassembly of valve.
- (c) Intended service.
- (d) Valve description.
- (e) Details of all parts normally furnished in the cartridge.
- (f) Recommended assembly torques.
- (g) Table of spring part numbers.
- (h) Reference shock and vibration approval for valve and test report numbers.

3.5 Identification of product. Each valve shall be permanently and legibly marked with the following:

- (a) VALVE, GAS SERVICE, HIGH PRESSURE.
- (b) Specification MIL-V-24439.
- (c) Manufacturer's name or trademark.
- (d) Manufacturer's part number.
- (e) National stock number (if known).
- (f) Nominal pipe size of valve.
- (g) Component identification number (CID or APL, if known).

#### 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. Except as otherwise specified in the contract or purchase order, 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 Classification of inspections. The inspection requirements specified herein are classified as follows:

- (a) Qualification inspection (see 4.4).
- (b) Quality conformance inspection (see 4.5).

4.3 Inspection conditions. Unless otherwise specified herein, all inspections shall be performed in accordance with test conditions specified in 4.3.1 and 4.3.2.

4.3.1 High pressure gas. The high pressure gas used in quality conformance testing shall be water pumped nitrogen conforming to BB-N-411, or air equivalent in dryness to BB-N-411 nitrogen, or commercially pure helium, as a minimum. The high pressure gas used in qualification testing shall be commercially pure helium, as a minimum.

## MIL-V-24439A(SH)

4.3.2 Test temperature. Unless otherwise specified in the contract or order (see 6.2.1), all tests except 4.4.6 shall be conducted at room temperature of  $75 \pm 5^\circ\text{F}$ .

4.4 Qualification inspection. Qualification inspection shall be conducted at a laboratory satisfactory to NAVSEA. Qualification inspection shall consist of the examinations of 4.4.2 and 4.4.13 and tests specified in 4.4.3 through 4.4.12 conducted in the order listed. Test equipment shall be satisfactory to NAVSEA.

4.4.1 Qualification test samples for each type shall consist of two valves of each size in accordance with table VII. Qualification approval of the type A or B valves will qualify all other types provided the same body or a scaled variation of the body is used for types C and D and that the covers of type C and D valves are simplifications of the bonnet assemblies used for type A and B valves. Preliminary drawings, in accordance with 3.4.1, of the test valve and valves for which derivation approval is sought shall be submitted by the manufacturer to NAVSEA for review and approval prior to qualification testing.

TABLE VII. Valve sizes required for qualification and extension of qualification.

Test size (inches)	Extends qualification for these sizes (inches)
2-1/2	2, 1-3/4, 1-1/2
1	3/4
1/2	1/4, 3/8

4.4.2 Examination of product. Each valve shall be examined, without disassembly, to determine conformance with this specification with respect to materials, workmanship, design, construction and marking.

4.4.3 Shell pressure test. Helium at  $6750 \text{ lb/in}^2$  shall be applied to the valve with the outlet capped and the valve in the open position. Leakage detection compound for oxygen systems in accordance with MIL-L-25567, type I shall be applied to body to bonnet external leak paths. The duration of the test shall be 5 minutes. There shall be no evidence of distortion or leakage during this time.

4.4.4 Operating torque. Opening and closing torques shall be measured with  $4500 \text{ lb/in}^2$  pressure applied to the valve in each of the following conditions:

- (a) Pressure applied below the seat with the outlet capped.
- (b) Pressure applied above the seat with the outlet open. Valve to be closed bubble tight.
- (c) Pressure applied below the seat with the outlet open. Valve to be closed bubble tight.

## MIL-V-24439A(SH)

4.4.4.1 The torque required to operate the valve shall not exceed the limits in table III.

4.4.5 Endurance. The valve shall be installed in a pipeline supplied with 4500 lb/in<sup>2</sup> helium pressure and cycle tested. Each cycle shall consist of opening the valve through its complete travel and returning it again to the closed position. The operation shall be smoothly and uniformly performed.

4.4.5.1 A total of 5000 complete open to close cycles shall be performed at a rate of 3 to 5 cycles per minute. The outlet pressure shall be allowed to bleed off through the seat between each cycle. Complete closure of the valve shall be indicated by the cessation of exhaust flow before starting the next cycle. Pressure at valve seat shall be as follows:

- (a) System pressure applied under valve seat for 2500 cycles.
- (b) System pressure applied above valve seat for 2500 cycles.

4.4.5.2 There shall be no malfunction, and, after each 500 cycles the valve shall be inspected for bonnet leakage, seat leakage and increase in operating torque.

4.4.6 Elevated and low temperature tests. The valves shall be tested for operating torques and complete closure (bubble tight) at temperatures of 160 + 2°F and minus 65 + 2°F. Helium at 4500 lb/in<sup>2</sup> pressure shall be applied to the valve with the outlet open or connected to an exhaust line and the valve closed. The valve shall be conditioned for 1 hour at the respective temperatures. The valve shall be tested by partially opening the valve (moderate flow) and closing the valve for 5 open-close cycles at each temperature condition. Complete closure (bubble tight) shall be attained at the end of each cycle and the operating torque shall not exceed the allowable torque (see table III) at any time during the cycle.

4.4.7 Full flow. Stop valves shall be tested to assure that full flow in both directions is obtained through the valve as specified in 3.3.1. There shall be no tendency for the valve to close with the flow in either direction. Check valves shall not fail to close in the reverse flow direction.

4.4.8 Seat and bonnet tightness. The valve shall be pressurized with helium at a minimum of 4500 lb/in<sup>2</sup> alternately on each side of the seat with the valve closed with torque not to exceed that listed in table III and the other port connected to a bubble-o-meter leak detector. Seat leakage shall be in accordance with 3.3.2. Helium at 4500 lb/in<sup>2</sup> shall be applied to the valve in the open position with the other port capped. Leakage detection compound for oxygen systems in accordance with MIL-L-25567, type I shall be applied to body to bonnet external leakage paths. The duration of the test shall be a minimum of 5 minutes. There shall be no evidence of external leakage during this time.

4.4.8.1 Operating torque. The seat tightness test of 4.4.8 shall be accomplished without exceeding the torque values of table III. Excessive torque requirements shall be cause for rejection.

## MIL-V-24439A(SH)

4.4.9 Pressure retention. The valve shall be pressurized with helium as specified in 4.3.1 at 4500 lb/in<sup>2</sup> applied below the valve seat and the valve closed with the torque not to exceed that listed in table III and inspected for leakage (bubble tight). A pressure gage, manometer or other device shall be attached directly to the valve outlet to indicate any leakage past the seat. These conditions shall be held continuously for a period of 5 days. During this period, the maximum leakage rate shall be in accordance with 3.3.2. The ambient temperature at the start of the test shall be used as the reference temperature. The pressurized helium shall be stabilized at the ambient condition, and the reading shall be corrected to the starting condition at the end of the test.

4.4.10 Shock. High impact shock tests shall be conducted in accordance with the requirements of MIL-S-901 as follows:

- (a) Grade A equipment.
- (b) Subsidiary components.
- (c) Class I.
- (d) Lightweight test.
- (e) Type B.
- (f) The valve shall perform identically before and after the test.
- (g) Valves shall be installed with approximately 2 inches of pipe between the valve and the supporting bracket. Breakage of the pipe shall constitute failure of the valve.
- (h) The valve shall be in the closed position when shock tested.
- (i) The valve shall be hydrostatically pressurized on the upstream side at the design pressure of 4500 lb/in<sup>2</sup>.
- (j) Following tests and examination, the valve shall be retained by the manufacturer for disposition.
- (k) No exceptions to the above requirements and MIL-S-901 shall be permitted.
- (l) Testing of items from each regular production run shall not be required.

4.4.11 Vibration. Valves shall be subjected to and pass type I environmental vibration test in accordance with MIL-STD-167-1.

4.4.12 Structureborne and airborne noise. Valves shall be subjected to and pass the grade D and type 3 noise test in accordance with MIL-STD-740. The system flow conditions shall be 29 standard cubic feet per minute minimum per inch of orifice size.

4.4.13 Visual examination. Upon completion of tests specified in 4.4.3 through 4.4.12, the valves shall be completely disassembled and all parts inspected to determine wear, distortion or other damage. The valve parts shall not be excessively worn or damaged.

4.5 Quality conformance inspection. Each valve shall be tested as specified in 4.5.1 and 4.5.2.

4.5.1 Shell pressure test. Each valve shall be proof tested with nitrogen, air, or helium (see 4.3.1) at a minimum pressure of 6750 lb/in<sup>2</sup>. There shall be no visual evidence of leakage or distortion (see 4.4.3).

## MIL-V-24439A(SH)

4.5.2 Seat and bonnet tightness. Seat and bonnet tightness shall be tested as specified in 4.4.8 and 4.4.8.1.

4.6 Inspection of packaging. Sample packages and packs, and the inspection of the preservation-packaging, packing and marking for shipment and storage shall be in accordance with the requirements of section 5 and the documents specified therein.

## 5. PACKAGING

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

5.1 Cleaning, drying, preservation-packaging.5.1.1 Levels A and C.

5.1.1.1 General. Valves shall be cleaned, dried, and preserved-packaged in accordance with MIL-C-52211 level E or as specified (see 6.2.1). Packaging operations shall be accomplished in an area not conducive to valve contamination by hydrocarbons.

5.1.1.2 Unit packaging. Unless otherwise specified (see 6.2.1), valves shall be individually protected in accordance with the method B preservation-packaging procedure. The barrier bag shall be of sufficient size to obtain two subsequent heat seals on the barrier bag end used for package entry. Each packaged item shall be supplemented by a paperboard or fiberboard box conforming to any one of the following specifications at the contractor's option.

<u>Specification</u>	<u>Container</u>
PPP-B-566	Box, paperboard, folding
PPP-B-636	Box, fiberboard
PPP-B-665	Box, paperboard, metal-stayed
PPP-B-676	Box, paperboard, setup

Box sealing and closure, as applicable, shall be in accordance with the applicable box specification or appendix thereto.

5.2 Packing. Packing shall be level A, B, or C as specified (see 6.2.1) in accordance with the requirements of MIL-C-52211 and as follows:

- (a) Packs shall be designed and constructed to provide a compact nonshifting load.
- (b) Fiberboard containers shall not be used to pack type III loads, unless such loads are converted to type I or II loads by use of liners, pads, separators, cells, trays, diecuts, or similar media; care shall be exercised to support all sides and faces of the containers internally, and voids shall not be filled with loose-fill type stuffing materials such as excelsior, newspaper and expanded polystyrene. Voids if existent, shall be filled with material such as cellulosic wadding (PPP-C-843), paper pads (PPP-P-115) or similar media.

## MIL-V-24439A(SH)

5.3 Marking. In addition to any special marking herein and as required by the contract or order (see 6.2.1), interior packages (unit and intermediate) and shipping containers shall be marked in accordance with the requirements of MIL-STD-129.

5.3.1 Special marking. Each interior, (bag and box) unit and intermediate, package and shipping container shall contain a green warning label and shall match as near as possible color number 14187 of FED-STD-595. Lettering shall be black. The label shall contain the information as shown on the following sample when oxygen cleanliness of MIL-C-52211 is used.

"WARNING CLEANED FOR OXYGEN SERVICE  
THIS PART HAS BEEN CLEANED AND IS  
READY FOR USE IN OXYGEN, HELIUM AND  
HELIUM OXYGEN MIXTURE SYSTEMS.  
DO NOT OPEN UNTIL READY FOR USE  
MIL-C-52211.

NATIONAL STOCK NUMBER  
ITEM DESCRIPTION  
QUANTITY AND UNIT  
CONTRACT OR PURCHASE ORDER NUMBER  
LEVEL OF PRESERVATION-PACKAGING AND DATE"

## 6. NOTES

6.1 Intended use. This specification covers valves to be used on high pressure gas services including such gases as oxygen, helium and helium oxygen mixtures. The valve is designed for services in which external leakage must be maintained at an absolute minimum seat tightness maintained for gases of small molecular structure and services requiring clean piping systems.

6.2 Ordering data.

6.2.1 Acquisition requirements. Acquisition documents should specify the following:

- (a) Title, number and date of this specification.
- (b) Type and size required (see 1.2).
- (c) Test temperature if other than specified (see 4.3.2).
- (d) Cleaning requirements if other than specified (see 5.1.1.1).
- (e) Individual valve protection when other than method B (see 5.1.1.2).
- (f) Level of packing (see 5.2).
- (g) Special marking required (see 5.3).
- (h) Supplemental requirements for special sizes, capacities and applications.

## MIL-V-24439A(SH)

6.2.2 Data requirements. When this specification is used in an acquisition which incorporates a DD Form 1423, Contract Data Requirements List (CDRL), the data requirements identified below shall be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved CDRL incorporated into the contract. When the provisions of DAR 7-104.9 (n)(2) are invoked and the DD Form 1423 is not used, the data specified below shall be delivered by the contractor in accordance with the contract or purchase order requirements. Deliverable data required by this specification is cited in the following paragraphs.

<u>Paragraph no.</u>	<u>Data requirement title</u>	<u>Applicable DID no.</u>	<u>Option</u>
3.4	Drawings, engineering and associated lists	DI-E-7031	Level 2 Design activity designation - contractor Drawing number - contractor
4.5	Report, test/inspection	UDI-T-23473	----

(Data item descriptions related to this specification, and identified in section 6 will be approved and listed as such in DoD 5000.19L., Vol. II, AMSDL. Copies of data item descriptions required by the contractors in connection with specific acquisition functions should be obtained from the Naval Publications and Forms Center or as directed by the contracting officer.)

6.2.2.1 The data requirements of 6.2.2 and any task in sections 3, 4, or 5 of this specification required to be performed to meet a data requirement may be waived by the contracting/acquisition activity upon certification by the offeror that identical data were submitted by the offeror and accepted by the Government under a previous contract for identical item acquired to this specification. This does not apply to specific data which may be required for each contract regardless of whether an identical item has been supplied previously (for example, test reports).

6.3 With respect to products requiring qualification, awards will be made only for products which are, at the time set for opening of bids, qualified for inclusion in Qualified Products List QPL-24439 whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification. The activity responsible for the Qualified Products List is the Naval Sea Systems Command, SEA 5523, Department of the Navy, Washington, DC 20362 and information pertaining to qualification of products may be obtained from that activity. Application for qualification tests shall be made in accordance with "Provisions Governing Qualification SD-6" (see 6.3.1).

6.3.1 Copies of "Provisions Governing Qualification SD-6" may be obtained upon application to Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

MIL-V-24439A(SH)

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 acquired by the contractor for incorporation into the equipment and lose their separate identity when the equipment is shipped.

6.5 Provisioning. Provisioning Technical Documentation (PTD), spare parts, and repair parts should be furnished as specified in the contract.

6.5.1 When ordering spare parts or repair parts for the equipment covered by this specification, the contract should state that such spare parts and repair parts should meet the same requirements and quality assurance provisions as the parts used in the manufacture of the equipment. Packaging for such parts should also be specified.

6.6 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Preparing activity:  
Navy - SH  
(Project 4820-N464)

## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER MIL-V-24439A(SH)		2. DOCUMENT TITLE	
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (Mark one)	
b. ADDRESS (Street, City, State, ZIP Code)		<input type="checkbox"/> VENDOR <input type="checkbox"/> USER <input type="checkbox"/> MANUFACTURER <input type="checkbox"/> OTHER (Specify): _____	
5. PROBLEM AREAS			
a. Paragraph Number and Wording:			
b. Recommended Wording:			
c. Reason/Rationale for Recommendation:			
6. REMARKS			
7a. NAME OF SUBMITTER (Last, First, MI) - Optional		b. WORK TELEPHONE NUMBER (Include Area Code) - Optional	
c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional		8. DATE OF SUBMISSION (YYMMDD)	