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DETAIL SPECIFICATION

VALVES, COMBINED VENT-CHECK, FOR SUBMARINE MBT BLOW LINES (SIZES 2.00 AND 2.50 INCHES)

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 covers the construction, testing, and operation of combined vent-check valves with a nominal pressure seating of 4,500 pounds per square inch gage (psig), for use in submarine main ballast tank (MBT) high-pressure air blow lines (sizes 2.00 and 2.50 inches).

2. APPLICABLE DOCUMENTS

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

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-S-901	-	Shock Tests, H.I. (High-Impact) Shipboard Machinery, Equipment, and Systems, Requirements for

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-22	-	Welded Joint Design
MIL-STD-167-1	-	Mechanical Vibrations of Shipboard Equipment (Type I - Environmental and Type II - Internally Excited)

Comments, suggestions, or questions on this document should be addressed to: Commander, Naval Sea Systems Command, ATTN: SEA 05S, 1333 Isaac Hull Avenue, SE, Stop 5160, Washington Navy Yard DC 20376-5160 or emailed to CommandStandards@navy mil, with the subject line "Document Comment". Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at https://assist.dla.mil.

MIL-STD-798	-	Nondestructive Testing, Welding, Quality Control, Material Control, and Identification and HI-Shock Test Requirements for Piping System Components for Naval Shipboard Use
MIL-STD-1308	-	Material Application and Processing Requirements

(Copies of these documents are available online at http://quicksearch.dla.mil/.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

NAVAL SEA SYSTEMS COMMAND (NAVSEA) DRAWINGS

803-1385884	-	Unions, Fittings, and Adapters Butt and Socket Welding, 6,000 PSI, WOG, and OXY IPS
803-8436621	-	Valve, Assembly and Details, 2.00 & 2.50 EMBT Vent-Check

(Copies of these documents are available from the applicable repositories listed in S0005-AE-PRO-010/EDM. Copies of S0005-AE-PRO-010/EDM are available online at https://nll2.ahf nmci.navy.mil.)

NAVAL SEA SYSTEMS COMMAND (NAVSEA) PUBLICATIONS

0948-LP-045-7010	-	Material Control Standard
S9074-AR-GIB-010/278	-	Requirements for Fabrication Welding and Inspection, and Casting Inspection and Repair for Machinery, Piping, and Pressure Vessels
T9074-AS-GIB-010/271	-	Requirements for Nondestructive Testing Methods

(Copies of these documents are available online at https://nll2.ahf.nmci navy mil. These publications can be located by searching the Navy Publications Index for the TMIN without the suffix.)

2.3 Order of precedence. Unless otherwise noted herein or in the contract, 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 Qualification. Valves furnished under this specification shall be products that are authorized by the qualifying activity for listing on the applicable Qualified Products List (QPL) before contract award (see 4.2 and 6.4).

3.2 Valve description. Valves shall be spring-loaded check valves installed to prevent seawater backflow into submarine MBT high-pressure air blow lines. A vent shall be incorporated to automatically open when the check poppet closes and thus eliminate residual upstream pressure and assure maximum seating differential across the check poppet. The vent shall close against upstream pressures as high as 4,500 pounds per square inch gage (psig) when the check poppet is open. Detailed valve description is provided in 803-8436621.

3.3 Service and ambient conditions. Service and ambient conditions shall be as follows:

a. Fluid: Outlet – air and seawater, inlet – air
b. Maximum working pressure (inlet and outlet): 4,500 psig
c. Working temperature: -100 to +160 °F
d. Salt spray: external exposure to atmosphere containing salt-laden moisture
e. Vibration: environmental vibration in accordance with Class 1 of MIL-STD-167-1 (see 3.6.8 and 4.4.20)
f. Shock: mechanical shock in accordance with Grade A, Class 1 of MIL-S-901 (see 3.6.8 and 4.4.19)
g. Underwater explosion shock (see 3.6.9 and 4.4.18)
h. Water-slug: water-slug conditions (see 3.6.10 and 4.4.17)

3.4 Materials. Materials shall be as specified in 803-8436621.

3.4.1 Recycled, recovered, or environmentally preferable material. Recycled, recovered, or environmentally preferable material should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.5 Construction requirements. Detailed construction and assembly requirements shall be as specified in 803-8436621.

3.5.1 End preparation. End preparation shall be as specified in table I.

TABLE I. End preparations.

Assembly (see 6.2)	Valve size (inches)	End preparation	Joint design
A	2	Socket weld	P-14 of MIL-STD-22
B	2½	Butt weld	P-74 of MIL-STD-22
C	2	Union end	Designed to mate with union tailpieces in accordance with 803-1385884

3.5.2 Boundary parts. The proof and burst pressures for pressure boundary parts shall be as specified in table II.

TABLE II. Proof and burst pressures.

Nominal rating (psig)	Proof pressure (psig)	Burst pressure (minimum) (psig)
4,500	6,750	13,500

3.5.3 Body construction. Valve bodies for Assemblies A and B shall be machined from a one-piece casting. Valve bodies for Assembly C shall be machined from a one-piece casting or forging. Inlet and outlet ports shall be in-line.

3.5.3.1 Surface cast valves. The surface of cast valve bodies and guides shall be free from cracks, tears, laps, shrinkage, inclusions, gas holes, and other harmful or injurious defects. Any shrinkage, dross, porosity, inclusions, or chaplets in the interior of cast valve bodies and guides shall be within allowable levels for nonferrous castings per S9074-AR-GIB-010/278.

3.6 Performance requirements.

3.6.1 Check feature flow capacity. Required capacity in this specification is in terms of blow down time for a 25 cubic foot (ft) pressurized reservoir. When installed as specified in 4.4.11, the vent-check valve shall dump pressure from 1,500 psig to 500 psig in times not exceeding those specified in table III.

TABLE III. Capacity requirements.

Assembly	Maximum allowable blow down time (seconds)
A	6.3
B	5.1
C	5.0

3.6.2 Cracking/reseating pressures. The check poppet shall begin opening before the pressure differential (inlet to outlet) across the valve exceeds 20 pounds per square inch (psi), and shall be fully closed at or before 7 psi pressure differential on decreasing inlet pressure (see 4.4.9).

3.6.3 Vent capacity. The vent feature shall vent pressure in an upstream volume from 100 to 25 psig in a time not greater than 2.7 seconds per 100 cubic inches of upstream volume (see 4.4.12).

3.6.4 Check poppet tightness. With a closing pressure differential (outlet to inlet) of anywhere between zero and 4,500 psig, there shall be no visible leakage past the check poppet (see 4.4.8).

3.6.5 Vent valve tightness. With the check valve open, leakage through the vent port, at upstream pressures anywhere between zero and 4,500 psig, shall not be greater than 0.05 pound mass per second [(lbm/sec) (39.6 standard cubic feet per minute (scfm)] (see 4.4.7).

3.6.6 Check poppet stability. Valves shall operate without chatter or instability at all flow rates above 400 cubic feet per minute (ft /min). Packing on the check poppet stem, or other means to improve stability which could adversely affect the functional reliability of the valve, shall not be used (see 4.4.15).

3.6.7 External leakage. There shall be no external leakage except that allowed from the vent port (see 3.6.5) when tested as specified (see 4.4.10).

3.6.8 Mechanical shock and vibration. Valves shall meet the mechanical shock requirements of Grade A, Class I, of MIL-S-901 and the environmental vibration requirements of Type I of MIL-STD-167-1 (see 4.4.19 and 4.4.20).

3.6.9 Underwater explosion shock. When installed in a test fixture which represents the most vulnerable shipboard installation and subjected to two shots of 125 pounds of HBX-1 underwater explosions as described in 4.4.18, the valves shall maintain the integrity of the pressure boundary and retain the performance requirements described in 3.6.2, 3.6.5, and 3.6.7 (see 4.4.18).

3.6.10 Water-slug. Valves shall withstand the transient shock pressure conditions that can result when the piping upstream of the valve is completely flooded with water and then subjected to 4,500 psig air by way of a quick opening valve. The valve shall meet the requirements of the water-slug test as specified (see 4.4.17).

3.6.11 Needle assembly tightness. The needle assembly shall be capable of holding 6,750 psig of water pressure without leaking. The valve shall meet the requirements of the needle assembly test as specified (see 4.4.6).

3.6.12 Durability. Valves shall withstand a minimum of 5,000 cycles without signs of damage, wear, or degradation of operability. The valve shall meet the requirements of disassembly and examination (see 4.4.3) after testing as specified (see 4.4.5, 4.4.13, 4.4.14, and 4.4.16 through 4.4.19).

3.7 Marking.

3.7.1 Body markings. A flow arrow shall be cast or forged integral with the valve body as specified in 803-8436621.

3.7.2 Identification plates. Each valve shall have a permanently attached identification plate as specified in 803-8436621.

3.7.3 Manufacturer's traceability numbers. In accordance with 0948-LP-045-7010, a unique traceability number shall be marked on all parts designated as "Level I" on 803-8436621 (see 6.2). All parts identified as "Level I" on 803-8436621 shall be marked and directly traceable to certification data attesting to the chemical composition and mechanical properties for each piece (i.e., heat number, heat-treat number/or lot number, as applicable, in accordance with material specification). The following information shall be provided on all permanently marked material:

a. Type of material (in accordance with the material specification).

b. Traceability number.

c. Manufacturer's name, trademark, or symbol.

3.7.4 Radiography marking. Radiographed components shall be legibly and permanently marked "RT".

4. VERIFICATION

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

a. Qualification inspection (see 4.2).

b. Conformance inspection (see 4.3)

4.2 Qualification inspection. Qualification inspection shall consist of the examination and tests listed in table IV. Qualification tests shall be conducted at a laboratory acceptable to the Naval Sea Systems Command (NAVSEA).

TABLE IV. Qualification and conformance inspections.

Examination or test	Qualification	Conformance	Requirement	Verification/Test method
Dimensions and visual	X		3.5	4.4.2
Disassembly and examination	X		3.6.12	4.4.3
Nondestructive test	X	X	3.5.3.1	4.4.4
Proof test	X	X	3.5.2	4.4.5
Needle assembly test	X	X	3.6.11	4.4.6
Poppet vent assembly test	X	X	3.6.5	4.4.7
Poppet seat test	X	X	3.6.4	4.4.8
Low-pressure function test	X	X	3.6.2	4.4.9
External leakage test	X	X	3.6.7	4.4.10
Check feature flow capacity test	X		3.6.1	4.4.11
Vent feature flow capacity test	X		3.6.3	4.4.12
Operational test	X	X	3.2 and 3.6.12	4.4.13
Low-temperature operational test	X		3.3	4.4.14
Low-flow stability test	X		3.6.6	4.4.15
Valve poppet vent test	X		3.2	4.4.16
Water-slug test	X		3.6.10	4.4.17
Underwater explosion shock test	X		3.6.9	4.4.18
High-impact shock test	X		3.6.8	4.4.19
Vibration test	X		3.6.8	4.4.20
Burst test	X		3.5.2	4.4.21
Spring compression examination	X		3.6.12	4.4.22
Material examination	X	X	3.5	4.4.23

4.3 Conformance inspection.

4.3.1 Components. Visual inspection shall be performed in accordance with MIL-STD-1308 on the following valve components:

a. Body
b. Cap
c. Nut
d. Deflector
e. Needle Seat
f. Cap
g. Needle
h. Guide
i. Poppet
j. Housing

4.3.2 Production valves. Each production valve shall be examined for conformance inspection as specified in table IV.

4.4 Test methods.

4.4.1 Safety. Some of the tests outlined in this section require the use of very high-pressures and low temperatures. Personnel performing such tests shall take adequate preventative measures to prevent personal injury.

4.4.2 Dimensions and visual. The sample valve shall be disassembled and visually and dimensionally examined to determine conformance with the requirements of this specification and the valve drawings. On reassembly a new poppet insert shall be installed, selected randomly from those provided with the test valve. Any difficulty in assembly or disassembly shall be noted.

4.4.3 Disassembly and examination after test. The valve shall be disassembled and visually and dimensionally examined for damage, wear, and operation of parts.

4.4.4 Nondestructive test. Nondestructive tests shall be conducted in accordance with S9074-AR-GIB-010/278 and T9074-AS-GIB-010/271. Failure of the valve or component to meet the acceptance criteria of S9074-AR-GIB-010/278 shall be cause for rejection.

4.4.4.1 Cast valve bodies. Cast valve bodies shall be radiographed in accordance with S9074-AR-GIB-010/278. Complete coverage of the casting is required. Failure of the valve body to meet the acceptance criteria for nonferrous castings in S9074-AR-GIB-010/278 shall be cause for rejection. Radiographed components shall be marked in accordance with 3.7.4.

4.4.5 Proof test. With the outlet port capped off, 6,750 psig of water shall be applied to the inlet port for a minimum of 5 minutes. There shall be no external leakage, permanent distortion, or structural failure. Needle valve may be closed to perform test. At completion, the pressure shall be vented before examining the valve as specified in 4.4.3.

4.4.6 Needle assembly test. Test fittings shall be installed on inlet and outlet of valve body. Water pressure shall be applied to the test fitting and water shall be allowed to flow through needle seat before closing the needle assembly to remove any contamination. The needle assembly shall be closed and the pressure shall be increased to 6,750 psig and held for 5 minutes. No leakage shall be allowed.

4.4.7 Poppet vent assembly test. Test fittings shall be installed on inlet and outlet of valve body. Pressure (nitrogen or air) shall be applied to test fitting and pressurized to 50 psig for 3 minutes. Leakage from the needle assembly port located in the housing shall be monitored/measured. Leakage shall not exceed 0.05 lbm/sec (39.6 scfm). The test shall be repeated at 4,500 psig for 3 minutes and leakage shall not exceed 0.05 lbm/sec (39.6 scfm).

4.4.8 Poppet seat test. The valve shall be filled with water. Water shall flow through valve until all air has been completely bled from valve before valve is checked for leakage. Water pressure shall be applied to the outlet port and leakage shall be checked at the inlet port at 5 psig, 25 psig, 100 psig, 600 psig, 900 psig, and 4,500 psig. Pressure shall be held at each increment for 3 minutes to allow the unit to stabilize before checking for leakage. The inlet port shall be observed for leakage for 5 minutes at each increment. No leakage shall be allowed. At completion, the valve shall be examined as specified in 4.4.3.

4.4.9 Low-pressure function test. Air pressure shall be applied to the inlet port of the valve, with a flow meter connected to the outlet port and open to atmosphere. Pressure on the inlet shall be changed slowly from 0 psig to 50 psig. Cracking pressure of the main poppet shall be verified to be 20 psig maximum. The valve seat shall be considered cracked when air flow measured at the outlet exceeds 0.1 cubic feet per hour (cfh). Pressure on the inlet shall be changed slowly from 50 psig to 5 psig. The reseat pressure of the main poppet shall be verified to be 7 psig minimum. The valve seat shall be considered reseated when air flow measured at the outlet falls below 0.1 cfh. Pressure on the inlet shall be held for 3 minutes to allow unit to stabilize. Air flow at the vent and leakage at the outlet shall be checked. No leakage shall be allowed.

4.4.10 External leakage test. With the outlet port capped off, 4,500 psig of air shall be applied to the valve inlet. Leakage shall be checked using bubble fluid or by submerging the valve in water.

4.4.11 Check feature flow capacity test. The valve shall be connected to a 25 ft reservoir. A 2-inch ball valve shall be installed between the reservoir and the vent-check valve. The piping used shall have an internal diameter of 1¾ inches. The length of piping in the flow capacity test setup shall be as follows: 8 inches between the reservoir outlet and the ball valve inlet, 24 inches between the ball valve outlet and the vent-check valve inlet, and 24 inches at the vent-check valve outlet. Initial reservoir pressure shall be between 1,650 and 1,850 psig and initial reservoir temperature shall be between 70 and 90 °F. Flow shall be initiated through the test valve, and reservoir pressure versus time shall be plotted with a continuous pressure recorder. The time required for pressure to drop from 1,500 psig to 500 psig shall not exceed that specified in table III.

4.4.12 Vent feature flow capacity test. With the check poppet blocked closed, and the outlet port capped off to prevent leakage, a blow down test shall be conducted to verify capacity of the vent feature. Vent capacity shall be as specified in 3.6.3.

4.4.13 Operational test. The vent-check valve shall be flow cycled 5,000 times. The following conditions shall be produced: during the flow portion of each cycle, pressure at the valve inlet shall be at least 1,300 psig and pressure at the valve outlet shall not exceed 1,000 psig; during the check portion of each cycle, pressure at the valve outlet shall exceed the pressure at the valve inlet by at least 600 psig. After 2,500 cycles and again after completion of 5,000 cycles, the valve shall be tested as specified in 4.4.7 through 4.4.9 and examined as specified in 4.4.3.

4.4.14 Low-temperature operational test. The vent-check valve shall be cycled 1,000 times as specified in 4.4.13, except that the valve shall be maintained at a temperature not exceeding -50 °F during the test. To measure the temperature of the vent-check valve, a thermocouple shall be placed on the valve body. At the completion of this test, the valve shall be tested as specified in 4.4.7 through 4.4.9 and examined as specified in 4.4.3.

4.4.15 Low-flow stability test. The valve shall be operated for a minimum of 2 minutes at the flow rate specified in 3.6.6. Flow shall then be increased to approximately 50 percent of required valve capacity in 100 scfm increments. Flow shall be held for a minimum of 15 seconds at each increment. There shall be no instability or cycling during this test.

4.4.16 Valve poppet vent test. The poppet of the vent-check valve shall be tested to verify its integrity under conditions of rapid depressurization. The valve poppet may either be removed from the valve and placed in a test chamber, or may be blocked in the open position in the valve for this test. The poppet shall be pressurized to 4,500 psig for not less than 5 minutes. The pressure around the poppet shall then be released to zero psig over a period of 3 seconds or less. This sequence shall be repeated 12 times. At the completion of 12 cycles, the valve shall be examined and tested as specified in 4.4.7 through 4.4.9 and 4.4.3. There shall be no damage or degradation to the seating insert.

4.4.17 Water-slug test. The vent-check valve shall be subjected to tests that simulate the condition that can exist aboard ship when the header upstream of the vent-check valve is flooded with water at the time the emergency blow system is actuated. The system for this test shall comprise a 4,500 psig air reservoir of not less than 25-ft capacity, a 2-inch quick-opening full-ported ball valve close-coupled to the reservoir, 8 feet of straight 2-inch pipe, a 2- by 1½-inch reducer, 12 feet of straight 1½-inch pipe, and the vent-check valve. The 20 feet of piping separating the ball valve from the vent-check valve shall be laid out and sloped in such a manner that it can be completely flooded, without any entrapped air, prior to each water-slug cycle. Isolatable vents shall be incorporated, as necessary, to assure the elimination of all entrapped air. The vent-check valve shall be subjected to 40 water-slug shots. Each shot shall consist of an initial reservoir pressure of not less than 4,500 psig, opening the ball valve in 20 milliseconds or less, and leaving the ball valve open at least 2 seconds. The system upstream of the vent-check valve shall be completely flooded and purged of any entrapped air prior to each shot. At the completion of the 40 shots, the vent-check valve shall be removed and tested as specified in 4.4.7 through 4.4.10 and examined as specified in 4.4.3. There shall be no damage or degradation to performance.

4.4.18 Underwater explosion shock test. The vent-check valve shall be subjected to and successfully pass the underwater explosion shock test outlined herein. Extension of test qualification criteria for underwater explosion shock testing is equivalent to that established in MIL-S-901 for mechanical shock test extensions. The vent-check valve shall be structurally supported in a manner representing the most vulnerable shipboard installation. Shipboard inlet and outlet piping runs shall be simulated in the test installation. The test shall consist of two shots of 125 pounds of HBX-1, with the vent-check valve on a horizontal radius from the centerline of the test vehicle and the charge of an extension of that radius at a standoff of 15 feet from the valve outlet port for the first shot and 13.5 feet for the second shot. This test shall be conducted at a Government facility designated by NAVSEA. After each shot, the vent-check valve shall be visually inspected, without dismantling, for leakage or distortion of the pressure-containing envelope, cycled twice to demonstrate operability, and then tested to submergence pressure at the outlet. Threaded parts shall be checked for tightness and retightened, if necessary. The amount of retightening required, and the calculated loosening thus indicated, shall be noted. Following the second shot, the vent-check valve shall be inspected and tested as specified for the first shot. It shall then be moved and tested as specified in 4.4.7 through 4.4.10 and examined as specified in 4.4.3. There shall be no damage or degradation to performance.

4.4.19 High-impact shock test. The valve shall be subjected to and meet the high-impact mechanical shock tests for Grade A, Class 1 of MIL-S-901. At the completion of this test, the valve shall be tested in accordance with 4.4.7 through 4.4.10 and examined in accordance with 4.4.3 and MIL-STD-798.

4.4.20 Vibration test. The valve shall be vibration tested in accordance with Class 1 of MIL-STD-167-1. Following completion of vibration testing, the valve shall be tested as specified in 4.4.10.

4.4.21 Burst test. Water shall be applied at 13,500 psig to the pressure containing envelope for not less than 5 minutes. Failure of the valve to safely contain pressure and remain structurally intact shall be cause for rejection.

4.4.22 Spring compression examination. The main poppet spring shall be visually inspected following completion of operational tests to verify that no compressional reduction of spring length has occurred.

4.4.23 Material examination. Raw material used to manufacture components designated as “Level I” on 803-8436621 shall be tested in accordance with 0948-LP-045-7010 to verify that actual chemical and mechanical properties of the material comply with the applicable material specification listed on 803-8436621.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point’s packaging activities within the Military Service or Defense Agency, or within the military service’s system commands. Packaging data retrieval is available from the managing Military Department’s or Defense Agency’s automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

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

6.1 Intended use. The vent-check valves specified herein are intended for installation in submarine main ballast tank (MBT) high-pressure air blow lines.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number, and date of this specification.

b. Valve assembly type (see table I).

c. Parts designated for traceability number marking (see 3.7.3).

d. Packaging (see 5.1).

e. Test and inspection reports including all required data (see table IV).

f. Additional spare parts and seals (see 6.3).

g. Specific control of processed materials and certification thereof (see 6.6).

6.3 Provisioning. Provisional Technical Documentation (PTD), spare parts, and repair parts should be furnished as specified in the contract (see 6.2). 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 verification and documentation provisions as the parts used in the manufacture of the equipment. Packaging for such parts should also be specified.

6.4 Qualification. With respect to products requiring qualification, awards will be made only for products which are, at the time of award of contract, qualified for inclusion in Qualified Products List QPL No. 23953 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 orders for the products covered by this specification. Information pertaining to qualification of products may be obtained from Commander, Naval Sea Systems Command, ATTN: SEA 05S, 1333 Isaac Hull Avenue, SE, Stop 5160, Washington Navy Yard DC 20376-5160 or emailed to CommandStandards@navy.mil. An online listing of products qualified to this specification may be found in the Qualified Products Database (QPD) at https://assist.dla.mil.

6.4.1 Provisions governing qualification. Copies of SD-6, “Provisions Governing Qualification” may be obtained using the ASSIST Online database at https://assist.dla.mil.

6.5 Drawings. Drawings which illustrate or describe pressure boundary components as defined in 3.7.3 should be stamped or labeled, “Material Identification Control,” in or near the title block.

6.6 Objective quality evidence (OQE). Certification should be identified through a unique traceability number, heat-lot number, or heat-treat number, as applicable, which must also be marked on the material (see 3.7.3). This traceability number marked on the material should provide direct traceability to the material's chemical composition and mechanical properties certification data (see 6.2).

6.6.1 Mechanical properties certification. OQE providing certification of two mechanical properties of the material used in the fabrication of all vent-check valves should be provided. When the mechanical properties of the material used in the fabrication of a valve are altered by metal working processes or heat treatment, sample material from each lot of material, as defined in the material specification, should be subjected to tensile tests in the final heat treated condition for the valve. As a minimum, tensile tests should determine ultimate strength, percent reduction in area, percent elongation, and hardness. The tensile tests should be conducted on test samples machined from the heat treated material or from a piece of parent stock which had been heat treated in the same batch in the lot processed at the same time. Acceptance criteria for the mechanical properties should be in accordance with the material specification or as approved by the design review agency. In no case should ductility of less than 10-percent elongation in 2 inches be allowed.

6.6.2 Chemical composition certification. OQE providing certification of the chemical test results for each heat of material and the specific heat treatment (including temperature and holding time) to which each sating was subjected should be provided. This certification should list both chemical test results and specification requirements.

6.7 Patent notice. Where the government has limited rights in the data shown on the drawings as determined by the contractual provisions regarding rights in technical data, the drawings may be marked with a legend. If used, the “Limited Rights Legend” of FAR should be used.

6.8 Sub-contracted material and parts. The packaging 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.

6.9 Subject term (key word) listing.

Check poppet

EMBT blow

High-pressure air blow

Spring-loaded check valves

Water-slug

6.10 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

Review activity:
DLA - CC

Preparing activity:
Navy – SH
(Project 4820-2012-002)

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.dla.mil.