

NOTICE  
OF CANCELLATION

INCH-POUND

MIL-V-16733D  
NOTICE 1  
10 June 1996

MILITARY SPECIFICATION  
VALVES, PRESSURE REGULATING, STEAM

MIL-V-16733D, dated 3 January 1989, is hereby canceled. Future acquisition of this material should refer to CID #A-A-50558.

(Copies of specifications, standards, drawings, and publications required by contractors in connection with the specific acquisition functions, should be obtained from the contracting activity or as directed by the contracting officer.)

Custodians:  
Navy - YD1

Preparing Activity:  
Navy - YD1

(Project 4820-0686)

Review Activities:  
DLA - CS

AMSC N/A

FSC 4820

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

| INCH-POUND |

MIL-V-16733D  
3 January 1989  
SUPERSEDING  
MIL-V-16733C(YD)  
8 August 1974

## MILITARY SPECIFICATION

## VALVES, PRESSURE REGULATING, STEAM

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

## 1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers steam pressure regulating valves that transform steam from a specified initial pressure to a specified final reduced discharge pressure or range of pressures. The specified inlet steam pressures range from 15 pounds per square inch gage (psig) to 1,500 psig.

1.2 Classification. The valves covered by this specification will be of the following types, classes, and sizes, as specified (see 6.2).

Type I - Direct operated, self-contained.  
Type II - Pilot operated, self-contained.  
Type III - Direct operated, through external feeler pipe.  
Type IV - Pilot operated, through external feeler pipe.  
Type IV - Pilot operated, through a hydraulic pneumatic, or electric system.

Class 125 - 125 psig WSP at 450 degrees (°) Fahrenheit (F).  
Class 150 - 150 psig WSP at 450°F.  
Class 250 - 250 psig WSP at 450°F.  
Class 300 - 300 psig WSP at 500°F.  
Class 400 - 400 psig WSP at 750°F.  
Class 600 - 600 psig WSP at 750°F.  
Class 900 - 900 psig WSP at 750°F.  
Class 1200 - 1200 psig WSP at 750°F.  
Class 1500 - 1500 psig WSP at 750°F.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commanding Officer (Code 156), Naval Construction Battalion Center, Port Hueneme, CA 93043-5000, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

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Sizes: 1/4, 3/8, 1/2, 3/4, 1, 1-1/2, 2, 2-1/2, 3, 4, 5,  
6, 8, 10 and 12 inches nominal pipe size: and also,  
14 and 16 inches outside diameter

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specification and standards. The following specification and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATION

MILITARY

MIL-V-3 - Valves, Fittings, and Flanges (Except for Systems Indicated herein), Packaging of.

STANDARDS

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.  
MIL-STD-129 - Marking for Shipment and Storage.  
MIL-STD-130 - Identification Marking of U.S. Military Property Drawings and Publications.

FEDERAL

FED-STD-H28 - Screw Thread Standards for Federal Services.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Naval Publications and Forms Center, (ATTN: NPODS), 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

2.2 Non-Government publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents which is current on the date of the solicitation (see 6.2).

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AMERICAN NATIONAL STANDARDS INSTITUTE, INC. (ANSI)

- ANSI B16.1 - Cast-Iron Pipe Flanges and Flanged Fittings.  
Class 25, 125, 250 and 800.
- ANSI B16.5 - Pipe Flanges and Flanged Fittings, Steel Nickel Alloy  
and Other Special Alloys.
- ANSI B31.1 - Power Piping.

(Application for copies should be addressed to the American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018.)

\* AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- ASTM A 27 - Steel Castings, Carbon, for General Application.
- ASTM A 126 - Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
- ASTM A 148 - Steel Castings, High-Strength, for Structural Purposes.
- ASTM A 216 - Steel Castings, Carbon Suitable for Fusion Welding for  
High Temperature Service.
- ASTM A 276 - Stainless and Heat-Resisting Steel Bars and Shapes.
- ASTM A 351 - Steel Castings, Austenitic for High-Temperature Service.
- ASTM A 395 - Ferritic Ductile Iron Pressure-Retaining Castings for Use  
at Elevated Temperatures.
- ASTM A 582 - Free-Machining Stainless and Heat-Resisting Steel Bars,  
Hot-Rolled or Cold-Finished.
- ASTM B 61 - Steam or Valve Bronze Castings.
- ASTM B 127 - Nickel-Copper Alloy Plate, Sheet, and Strip.
- ASTM D 3951 - Commercial Packaging Practice.

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

MANUFACTURER'S STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS  
INDUSTRY (MSS)

- MSS-SP-25 - Standard Marking System for Valves, Fittings,  
Flanges and Unions.

(Application for copies should be addressed to the Manufacturer's Standardization Society of the Valve and Fittings Industry, 127 Park Street, N.E., Vienna, VA 22180.)

3. REQUIREMENTS

3.1 Description. The pressure reducing valves shall automatically reduce the specified initial steam pressure to the specified final reduced pressure or pressure range, at all conditions of flow between the minimum and maximum flow specified, without hunting, cycling, fluttering, or chattering. The motion of operating parts shall be smooth, non-sticking, and free of perceptible backlash. The valves shall be fully adjustable over the specified operating range (see 3.11.4), without the replacement of springs or

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diaphragms. Unless otherwise specified (see 6.2), the valves shall be designed to permit replacement of readily removable parts without removal of the bodies from the line (see 3.10.3). All parts necessary for satisfactory operation of the valves shall be supplied.

3.1.1 Type I. Type I valves shall consist essentially of valve body and diaphragm, bellows, or piston-operated valve, loaded by means of a spring, weight and lever, air dome, or air tank. The valves shall be completely self-contained, direct-operated valves, controlled by the steam pressure within the reduced-pressure chamber of the valve body without the use of external piping.

3.1.2 Type II. Type II valves shall consist essentially of valve body, main valve with a spring-loaded diaphragm or piston-operator and a pilot valve with a spring-loaded diaphragm operator. The valves shall be completely self-contained, pilot-operated valves, controlled by means of an intermediate steam pressure supplied by the pilot valve, built integral with, or rigidly attached to the body of the main valve. The pilot valve shall be controlled by the pressure within the reduced-pressure chamber of the main valve.

3.1.3 Type III. Type III valves shall consist essentially of valve body and a diaphragm, or bellows operator, loaded by means of a spring, weight and lever, air dome, or air tank. The diaphragm or bellows chamber shall be provided with a tap for the connection of the feeler pipe, but the feeler pipe will not be required with the valve. The valves shall be direct operated, controlled by the reduced-steam pressure by means of the external feeler pipe connected at some point in the reduced-pressure line on the downstream side of the valve.

3.1.4 Type IV. Type IV valves shall consist essentially of a main valve with a spring-loaded diaphragm operator, a pilot valve with a spring or weight and lever-loaded diaphragm operator, and any necessary restricting or throttling valves. The diaphragm chambers of the main and pilot valves shall be provided with taps for the connection of feeler and control piping, but the feeler and control piping will not be required with the valve. The main valve shall be controlled by the intermediate-steam pressure supplied by the pilot valve. The pilot valve shall be controlled by the reduced-steam pressure supplied by means of an external feeler pipe connected at some point in the reduced-pressure line on the downstream side of the main valve.

3.1.5 Type V. Type V valves shall consist essentially of a main valve with a spring-loaded diaphragm operator, a pilot valve operated by hydraulic, pneumatic, or electrical means, and all accessory fittings required for a complete unit. The main valve shall be activated by a diaphragm and spring arrangement that will allow the valve to deliver the desired reduced pressure. The pilot valve shall cause activation of the diaphragm and spring.

3.2 First article. When specified (see 6.2), the contractor shall furnish a steam pressure regulating valve for first article inspection and approval (see 4.2.1 and 6.4).

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\* 3.3 Standard commercial product. The valves shall, as a minimum, be in accordance with the requirements of this specification and shall be the manufacturer's standard commercial product. Additional or better features which are not specifically prohibited by this specification but which are a part of the manufacturer's standard commercial product, shall be included in the valves being furnished. A standard commercial product is a product which has been sold or is being currently offered for sale on the commercial market through advertisements or manufacturer's catalogs, or brochures, and represents the latest production model.

3.3.1 Repair parts and service. Replacement, or repair parts, and service for the standard commercial product provided under this specification shall be available from the manufacturer's regular, or through commercial, parts distribution or service organization.

3.4 Interchangeability. All units of the same classification furnished with similar options under a specific contract shall be identical to the extent necessary to insure interchangeability of component parts, assemblies, accessories, and spare parts.

\* 3.5 Materials. Materials used shall be free from defects which would adversely affect the performance or maintainability of individual components or of the overall assembly. Materials not specified herein shall be of the same quality used for the intended purpose in commercial practice. Unless otherwise specified herein, all equipment, material, and articles incorporated in the work covered by this specification are to be new and fabricated using materials produced from recovered materials to the maximum extent possible 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. Unless otherwise specified, none of the above shall be interpreted to mean that the use of used or rebuilt products are allowed under this specification.

3.6 Design. The unit shall be designed to permit easy accessibility for maintenance and service in the field. The design shall be such as to prevent conditions hazardous to personnel or deleterious to equipment.

3.7 Working steam pressures. The valves shall be designed constructed for operation at the maximum working steam pressure (WSP) and temperatures indicated by the following pressure classes:

Type I - Classes 125 and 250.

Type II, III and IV - Classes 125, 150, 250, 300, 400, and 600.

Type V - All classes.

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3.8 Sizes. The valves shall have the following nominal pipe sizes:

- Type I - 1/4 to 12 inches.
- Type II - 1/2 to 6 inches.
- Type III - 1/4 to 12 inches.
- Type IV - 1/4 to 12 inches.
- Type V - 1/2 to 12 inches and 14 and 16 inches outside diameter.

3.9 End connections. Valve end connections shall be screwed, screwed unions or flanged, or shall be welding-ends, as specified (see 6.2).

3.9.1 Screwed ends. Screwed ends shall have internal threads conforming to American National Pipe Threads in accordance with FED-STD-H28. Screwed ends shall not be used in sizes larger than 3 inches for pressures up to 400 psig, 2 inches for pressures from 401 to 600 psig, nor in sizes larger than 1-1/2 inches for pressures from 601 to 1500 psig.

3.9.1.1 Screwed unions. Screwed unions shall not be used for pressures above 250 psig, nor in sizes larger than 2 inches.

3.9.2 Flanged ends. Flanged ends shall conform to the dimensions for the nominal pipe sizes listed in ANSI B16.1 and B16.5 as applicable. Unless otherwise specified (see 6.2), face to face dimensions of flanged valves shall be in accordance with the manufacturer's standard practice.

3.9.3 Welding-end valves. The ends of welding-end valves shall be prepared for welding in accordance with the applicable sections of ANSI B16.5.

### 3.10 Construction.

3.10.1 Inner valves. Valves shall have single or double seats as specified (see 6.1.2 and 6.2), except that type II valves shall have single seats only. When specified (see 6.2), double-seated valves shall be so designed that the action of the inner valve can be easily reversed without the use of additional parts.

3.10.2 Valve bodies. Valve bodies shall be of materials conforming to the following ASTM specifications as specified (see 6.2):

Bronze	- B 61	Carbon steel	- A 216
Cast iron	- A 126	Stainless steel	- A 351 (CF8M)
Cast steel	- A 27 or A 148	Stainless steel	- A 395

The minimum thickness of steel body valves shall be in accordance with the requirements of ANSI B16.5.

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3.10.3 Valve trim. Valve trim shall in accordance with the manufacturer's standard practice, except as otherwise specified herein. For initial steam pressures above 50 psig, the valve trim shall be of corrosion-resistant metal, or of corrosion-resistant steel faced with cobalt-chromium-tungsten alloy. Valve stems shall be integral with or separable from the inner valve. Stems separable from the inner valve shall be of nickel-copper-alloy in accordance with ASTM B 127, or of 316 stainless steel in accordance with ASTM A 276, as specified (see 6.2). Unless otherwise specified (see 6.2), all steel valves shall have integral seats of cobalt-chromium-tungsten alloy or hardenable stainless steel, such as 410 or 420 stainless steel in accordance with ASTM A 276, or 416 stainless steel in accordance with ASTM A 582. Seats shall have a minimum hardness of 500 Brinnell. Metal combinations shall be resistance to seizure, galling, abrasion, and galvanic action. Unless otherwise specified (see 3.1 and 6.2), seats and cages shall be removable from the valve without removal of the valve from the piping system. Seats and cages shall be securely assembled with the valve body so as not to loosen under operating conditions and to avoid leakage between the seat or cage and the valve body. The motion of inner valves shall be constrained from developing lateral thrust sufficient to cause an increase in sliding resistance. Design shall be such that in the event of pressure failure of the operating medium, the valve shall go to the open or to the closed position as specified (see 6.2).

3.10.4 Seals. Valve stems extending from one pressure zone to another, in units not completely housed by the valve body, shall be sealed against leakage. Packing material shall not stick to or score the stems. Packing materials and grease used for sealing or lubrication shall not react chemically with the materials of the stuffing box or the valve stem. The stuffing box shall be designed to prevent the grease used for sealing from exuding, and to prevent the packing from protruding from the stuffing box. Packing shall be replaceable without disassembly beyond removal of the packing retainer. Packing pressure shall be readily adjustable.

3.10.5 Type V control pilots. Type V control shall be hydraulically, pneumatically, or electrically controlled, as specified (see 6.2). Control pilots for hydraulic or pneumatic systems shall be of the diaphragm, bellows, bourdon tube, or piston type. Materials shall have high resistance to corrosion and deterioration due to contact with the operating fluid specified. Design shall be such that diaphragm and bellows will not be subject to injurious twisting, wrinkling, or cutting. Pistons shall be of the double-cup or piston-ring type, or plain cylinders. The piston assembly shall fit the cylinder so that leakage from one side to the other will be minimal. Electrically operated control pilots shall be suitable for the electrical characteristics specified (see 6.2).

3.10.5.1 Instrument and control piping. Instrument and control piping shall be accordance with ANSI B31.1.



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3.10.6 Mechanical linkage. Mechanical linkage shall operate without excessive lost motion, buckling, or other distortion. Bearing surfaces of joints shall be designed for long-life, low-friction operation.

3.10.7 Operators. Unless a particular type is specified (see 6.2), operators shall be any one of the following:

3.10.7.1 Diaphragms. Diaphragms shall be corrosion-resistant steel, bronze, metal, or suitably reinforced natural or synthetic rubber, except that diaphragms in direct contact with steam and diaphragms for all pilot valves shall be of metal only. All rubber diaphragms shall be protected by a water seal which shall be built into the valve or provided by means of an exterior accumulator tank or condensate chamber.

3.10.7.2 Bellows. Bellows type operators shall be of a suitable corrosion-resistant metal. Bellows are permissible for valve sizes up to 1 1/2 inches with initial pressures up to 150 psi. Above 1 1/2 inches, bellows are permissible for use with initial inlet pressures up to 100 psi maximum. Above 4 inch valve size, the use of bellows is prohibited.

3.10.7.3 Pistons. Piston type operators shall be of a suitable corrosion-resistant metal. The pistons shall be effectively water packed by means of piston rings or multiple grooves. No metallic or fibrous packing shall be used.

3.10.8 Loading means. Unless a particular means is specified (see 6.2), loading shall be by any one of the following:

3.10.8.1 Springs. Springs shall be fabricated of phosphorus bronze or corrosion-resistant steel. All springs, except springs in main valves of pilot operated valves (types II, IV, and V), shall be provided with a positive means of adjusting and setting the spring tension. Ends shall be closed, squared, and ground.

3.10.8.2 Weights and levers. Weight and lever mechanisms shall be simple in design and shall be provided with a positive means of locking the weight in position. Knife edges, where used, shall be of hardened steel.

3.10.8.3 Air domes and tanks. Air domes shall be bolted or welded to the diaphragm chamber and shall be provided with the necessary air valve. Air tanks shall be provided with the necessary copper tubing, compression fittings, air valves, and pressure gages. Air valves shall be suitable for connection to an ordinary tire pump. (A continuous supply of compressed air is not required.)

3.11 Operational requirements. The initial or inlet pressure (maximum/minimum), the total temperature or degrees superheat, the delivery or outlet pressure (maximum/minimum), the maximum flow required through regulator, and the character of the load (constant or intermittent) shall be as specified (see 6.2).

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3.11.1 Accuracy of regulation. The controlled pressure shall not vary by more than the values indicated in table I. These values shall be based on the steam flow varying not more than  $\pm 10$  percent of the rated capacity, and the initial pressure varying not more than  $\pm 20$  percent of the specified initial pressure, except that for single-seated direct-operated valves, the initial pressure shall vary not more than  $\pm 10$  percent. Unless otherwise specified (see 6.2), accuracy of regulation for small flow valves shall conform to table I. Valves listed are for slow load or pressure changes. When abrupt changes occur, momentary deviations may be greater but shall result in immediate return to the limits indicated in table I.

TABLE I. Accuracy of regulation.

Types I and III	
Range of controlled (pressure psig)	Maximum deviation (plus or minus)
2-20	20 percent
21-50	10 percent
51-1500	5 percent
Types II, IV and V	
2-20	1/2 psig
21-50	1 psig
51-1500	2 percent

3.11.2 Capacity. The capacity of the valve shall be sufficient to insure proper functioning of the valve at all pressure ranges and conditions specified (see 3.11 and 6.2).

3.11.3 Leakage. Leakage through single-seated valves shall not exceed 0.01 percent of the maximum valve capacity. Leakage through double-seated valves shall not exceed 0.5 percent of the specified maximum valve capacity.

3.11.4 Operating range. Unless otherwise specified (see 6.2), valves shall be adjustable over an operating range of not less than 10 percent of the specified reduced pressure.

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3.12 Treatment and painting. Unless otherwise specified (see 6.2), the valves shall be treated and painted in accordance with the manufacturer's standard practice. All surfaces of the valves other than corrosion-resisting steel shall be protected against corrosion and present a neat appearance.

3.13 Marking. Valves shall be marked in accordance with MSS SP-25.

3.13.1 Military marking. When specified (see 6.2), an identification tag shall be securely attached to each valve. The identification tag shall conform to the requirements of MIL-STD-130 and shall be marked with information required by MIL-STD-130 or with those portions thereof specified by the procuring agency (see 6.2).

3.14 Workmanship. The quality of workmanship shall be such as to produce equipment that is in accordance with the requirements of this specification and are so constructed to insure proper functioning of all parts of the unit.

3.14.1 Bolted connections. Bolt holes shall be accurately punched or drilled and shall have the burrs removed. Washers or lockwashers shall be provided in accordance with good commercial practice, and all bolts, nuts, and screws shall be tight.

3.14.2 Welding. Welding procedures shall be in accordance with a nationally recognized welding code. The surface of parts to be welded shall be free from rust, scale, paint, grease, or other foreign matter. Welds shall be of sufficient size and shape to develop the full strength of the parts connected by the welds. Welds shall transmit stress without permanent deformation or failure when the parts connected by the weld are subjected to proof and service loadings.

3.14.3 Machine work. Tolerances and gages for metal fits shall conform to any limitations specified herein and otherwise to commercial practice standards. Finished contact and bearing surfaces shall be true and exact.

#### 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 (examinations and tests) 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 ensure supplies and services conform to prescribed requirements.

\* 4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality

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program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

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

- a. First article inspection (see 4.2.1).
- b. Quality conformance inspection (see 4.2.2).

\* 4.2.1 First article inspection. The first article inspection shall be performed on one steam pressure regulating valve when a first article is required (see 3.2 and 6.2). This inspection shall include the examination of 4.5 and the tests of 4.6. The first article may be either a first production item or a standard production item from the supplier's current inventory provided the item meets the requirements of the specification and is representative of the design, construction, and manufacturing technique applicable to the remaining items to be furnished under the contract.

4.2.2 Quality conformance inspection. The quality conformance inspection shall include the examination of 4.5, the tests of 4.6, and the packaging inspection of 4.7. This inspection shall be performed on the samples selected in accordance with 4.3.

4.3 Inspection lot. All units of the same type, class, and size offered to the Government at one time shall be considered a lot for the purposes of inspection. The sample unit shall be one complete steam pressure regulating valve.

4.4 Examination. Each valve shall be examined for compliance with the requirements specified in section 3 of this specification. Any redesign or modification of the contractor's standard product to comply with specified requirements, or any necessary redesign or modification following failure to meet specified requirements shall receive particular attention for adequacy and suitability. This element of inspection shall encompass all visual examinations and dimensional measurements. Noncompliance with any specified requirements or presence of one or more defects preventing or lessening maximum efficiency shall constitute cause for rejection.

4.5 Hydrostatic test. All units shall be tested hydrostatically in accordance with B16.5 for steel-bodied valves, and at double the maximum working steam pressure for bronze-bodied valves and iron-bodied valves. Leakage, sweating, or visible deformation at any point shall be cause for rejection.

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\* 4.6 Packaging inspection. The preservation, packing, and marking of the item shall be inspected to verify conformance to the requirements of section 5.

## 5. PACKAGING

5.1 Preservation. Preservation shall be level A or C as specified (see 6.2).

5.1.1 Level A. The valves shall be preserved in accordance with the level A requirements of MIL-V-3.

5.1.2 Level C. The valves shall be preserved in accordance with level C requirements of MIL-V-3.

5.1.3 Commercial. Valves, fittings, and flanges shall be preserved in accordance with ASTM D 3951.

5.2 Packing. Packing shall be level A, B, or C as specified (see 6.2).

5.2.1 Level A. The valves shall be packed in accordance with level A requirements of MIL-V-3.

5.2.2 Level B. The valves shall be packed in accordance with level B requirements of MIL-V-3.

5.2.3 Level C. The valves shall be packed in accordance with level C requirements of MIL-V-3.

5.2.3.1 Commercial packing shall be in accordance with ASTM D 3951.

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

## 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 steam pressure regulating valves covered by this specification are intended for transforming steam from a specified initial pressure to a specified final reduced discharge pressure or range of pressures in steam systems.

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6.1.1 Valve bodies. The material used for valve bodies (see 6.2) shall be as specified in 3.10.2. Bronze, cast iron, or cast steel may be specified for valves up to and including 2-inch valves. Bronze should not be specified for valve bodies for sizes larger than 2 inches, nor for pressures greater than 300 PSIG, nor for temperatures higher than 500°F. Cast iron or cast steel should be specified for sizes 2-1/2 inches and over. Cast iron should not be specified for pressures greater than 250 psig nor for temperatures higher than 450°F.

6.1.2 Single and double seats. Single-seated valves should be used when a dead-end shutoff of the steam is required. When a thermostatically controlled valve is installed after and near the reducing valve, in a manner to cut-off the passage of steam the single-seated valve should be used. Double-seated valves should be used where the low (reduced) pressure lines will condense enough steam to offset normal leakage through the valve. Under conditions of widely varying initial pressure, double-seated valves usually give closer control of reduced pressure.

## 6.2 Ordering data.

6.2.1 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
- c. Type, class size required (see 1.2).
- d. When valves requiring removal from the line for replacement of parts are acceptable (see 3.1 and 3.10.3).
- e. When a first article is required for inspection and approval (see 3.2 and 4.2.1 and 6.4).
- f. Type of end connection required (see 3.9).
- g. Face to face dimensions of flanged valves if other than manufacturer's standard practice (see 3.9.2).
- h. Whether single or double-seated (see 3.10.1 and 6.1.2).
- i. When double-seated valves designed to reverse inner valve action without use of additional parts is not required (see 3.10.1).
- j. Material to be used for valve bodies (see 3.10.2 and 6.1.1).
- k. Valve trim, if other than specified, is required (see 3.10.3).
- l. Whether valve shall close or open in the event of pressure failure of the operating medium (see 3.10.3).
- m. Type of control pilot for tape V valve. Specify when use involves: (1) air: available pressure, (2) hydraulics: both pressure, and medium, (3) electricity: electrical characteristics (see 3.10.5).
- n. Type of operator and loading means; specific operator or loading means required (see 3.10.7 and 3.10.8).

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- o. Operating requirements (see 3.11):
  - (1) The initial (inlet) pressure - maximum/minimum.
  - (2) The total temperature or degrees superheat.
  - (3) The delivery (outlet) pressure - maximum/minimum.
  - (4) The maximum flow required through the regulator.
  - (5) The character of the load (constant or intermittent).
- p. When accuracy of regulation for small flow valves shall be different (see 3.11.1).
- q. Capacity, if other than recommended by the manufacturer (see 3.11.2).
- r. Operating range, if other than specified (see 3.11.4).
- s. Finish, if other than specified, is required (see 3.12).
- t. Military marking if required (see 3.13.1).
- u. Level of preservation and level of packing required (see 5.1 and 5.2).
- v. Marking required (see 5.3).

6.3 Data requirements. When this specification is used in an acquisition and data are required to be delivered, the data requirements shall be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved Contract Data Requirements List (CDRL), incorporated into the contract. When the provisions of DOD FAR Supplement, Part 27, Sub-Part 27.475-1 (DD Form 1423) are invoked and the DD Form 1423 is not used, the data shall be delivered by the contractor in accordance with the contract or purchase order requirements.

\* 6.4 First article. When a first article inspection is required, the item will be tested and should be a first production item or it may be a standard production item from the contractor's current inventory as specified in 4.2.1. The first article should consist of one unit. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examination, test, and approval of the first article.

6.5 Subject term (key word) listing.

Bronze  
Copper  
High Pressure  
Iron  
Military Specification  
Nickel  
Pressure  
Pressure Regulating  
Regulating  
Stainless Steel  
Steam  
Steel Valve

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6.6 Part or Identifying Number (PIN). The PIN to be used for valves acquired to this specification are created as follows:

	<u>M</u>	<u>16733</u>	<u>XXX</u>	<u>XXXX</u>
Prefix to indicate military specification				
Specification number				
Type numbers (see 1.2)				
Class numbers (see 1.2)				

6.7 Changes from previous issue. The margins of this specification are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

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Preparing activity:  
Navy - YD

Review activity:  
DLA - CS

(Project 4820-N023)



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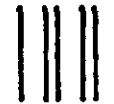
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STANDARDIZATION AND IMPROVEMENT PROPOSAL  
(See Instructions - Reverse Side)

1. DOCUMENT NUMBER MIL-V-16733D		2. DOCUMENT TITLE VALVES, PRESSURE REGULATING, STEAM	
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (Mark one) <input type="checkbox"/> VENDOR <input type="checkbox"/> USER <input type="checkbox"/> MANUFACTURER <input type="checkbox"/> OTHER (Specify): _____	
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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	
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