INCH-POUND
MIL-PRF-12126F
20 February 1996
SUPERSEDING
MIL-V-12126E
2 February 1990

PERFORMANCE SPECIFICATION

VALVES, GATE: BRONZE, LEVER OPERATED, QUICK OPENING, 125 PSI AND 150 PSI

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

1. SCOPE

1.1 Scope. This specification covers lever-operated, quick-opening, bronze gate valves with a solid-wedge or double-wedge disk and threaded ends.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/BLUE, Warren, MI 48397-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document, or by letter.

AMSC N/A FSC 4820

1.2 Classification. The valves will be of the following classes, sizes, and wedge shape, as specified (see 6.2):

Class 1 - 125 pounds per square inch (psi) (862 kilopascals (kPa))
Class 2 - 150 psi (1034 kPa)

Sizes: 1-inch (25 millimeter (mm))
1.5-inch (38 mm)
2-inch (51 mm)

Wedge: Solid - A
Double - B

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

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

STANDARDS

FEDERAL

FED-STD-595 - Colors Used in Government Procurement.

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

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

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI/ASME B1.1	- Unified Inch Screw Threads (UN and UNR Thread Form)(DoD Adopted).
ANSI/ASQC Z1.4	- Sampling Procedures and Tables for Inspection by Attributes (DoD Adopted).

(Application for copies should be addressed to the American National Standards Institute, 11 West 42nd Street, New York, NY 10036.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A123	- Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products (DoD Adopted).
ASTM A197	- Cupola Malleable Iron (DoD Adopted).
ASTM B61	- Standard Specification for Steam or Valve Bronze Castings (DoD Adopted).
ASTM B62	- Standard Specification for Composition Bronze or Ounce Metal Castings(DoD Adopted).

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

SOCIETY OF AUTOMOTIVE ENGINEERS, INC. (SAE)

SAE J429	- Mechanical and Material Requirements for Externally Threaded Fasteners, Standard (DoD Adopted).
SAE AS478	- Identification Marking Methods (DoD Adopted).

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

GENERAL MOTORS ENGINEERING STANDARDS

GM9540P - Accelerated Corrosion Test.

(Application for copies should be addressed to Global Engineering, 15 Inverness Way, Englewood, CO 80112.)

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

3. REQUIREMENTS

3.1 Description. The valve shall be a quick-opening, lever-operated, gate valve with a solid-wedge or a double-wedge disk as specified in the contract (see 6.2). The disk shall be actuated through an arrangement that shall provide a fast and positive valve action. The valve body with cap and valve stem shall be fabricated of bronze, and the internal working parts shall be brass. The hand lever shall be malleable iron. The valve end connections shall be integral with the valve body and shall be threaded internally with American Standard taper pipe threads (see 3.4). The exterior of the valve ends shall be shaped to provide a wrench grip. The valve shall be constructed so that the stem packing may be renewed when the valve is closed and under pressure.

3.2 First article. When specified (see 6.2), a sample shall be subjected to first article inspection (see 6.3) in accordance with 4.2. First article inspection samples, properly marked with identifying information, shall be representative of the units to be furnished to the Government. All subsequent valves delivered to the Government shall conform to these samples in all of their pertinent physical and performance attributes.

3.3 Materials. Materials shall be as specified herein. Materials not specified shall be selected by the contractor and shall be subject to all provisions of this specification (see 3.3.2 and 3.5).

3.3.1 Material deterioration, prevention and control. The valves shall be fabricated from compatible materials, inherently corrosion resistant, or treated to provide protection against the various forms of corrosion and deterioration that may be encountered in any of the applicable operating and storage environments to which the valves may be exposed. Corrosion protection of materials other than ASTM B61 and B62 shall be equal to or exceed that provided by hot dip galvanized 1020 steel with coating thickness in accordance with ASTM A123 with zinc phosphate pretreatment (see 4.4.2.3).

3.3.1.1 Dissimilar metals. Dissimilar metals shall not be used in intimate contact with each other unless protected against galvanic corrosion.

3.3.1.2 Identification of materials and finishes. The contractor shall identify the specific material, material finish or treatment for use with the component and subcomponent, and shall make information available upon request to the contracting officer or designated representative.

3.3.2 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials 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. Used, rebuilt or remanufactured components, pieces and parts shall not be incorporated in the valves (see 6.5).

3.3.3 Bronze.

3.3.3.1 External parts. External parts and valve bodies, caps, and stems shall conform to ASTM B61 and shall meet all environmental and performance requirements of this document.

3.3.3.2 Internal parts. Internal working parts and valve disks shall be bronze conforming to ASTM B62 and shall meet all environmental and performance requirements of this document.

3.3.4 Handle levers. Hand levers shall be made from malleable iron conforming to ASTM A197.

3.3.5 Bolts. Bolts shall be made from steel conforming to SAE J429.

3.4 Threads. All threads shall conform to ANSI/ASME B1.1.

3.5 Performance. The valve disk shall not jam and the internal working parts shall not be damaged by rapid and forceful operation of the lever. The valve body shall withstand the hydrostatic test pressure specified in table I without any evidence of leakage or seepage on the valve surface. When open, the valve shall provide unrestricted free-flow passage equal to that of the nominal pipe size of the valve. When closed, the valve shall withstand the full working pressure specified in table I applied from either end of the valve and shall show no evidence of leakage or seepage through or around the disk or seat (see 4.4.2).

3.5.1 Pressure ratings. The valves shall be designed for the pressure ratings shown in table I.

TABLE I. Pressure ratings.

Class	Working pressure psi (kPa)	Hydrostatic test pressure at 150 °F (66 °C) psi (kPa)
1	125 (862)	250 (1724)
2	150 (1034)	300 (2068)

3.6 Valve caps. The valve shall be provided with a removable cap for access to operating linkage and valve disks. When the valve cap is of the threaded type, it shall be shaped to provide a wrench grip. Bolted-type caps shall have not less than four bolts of the capscrew type to secure the caps to the valve body.

3.7 Functional labeling. The valve shall be provided with double-ended arrows showing the direction of operation and labeled at each end to indicate the functional result (i.e. "OPEN", "CLOSE") (see 3.9).

3.8 Treatment and painting. Parts normally painted shall use optional processes to treat and paint external surface which shall meet all performance and environmental requirements of this specification. Unless otherwise specified (see 6.2) top coat color shall be in accordance with FED-STD-595, color No. 34079.

3.9 Identification marking. Valves shall be identified in accordance with SAE AS478.

3.10 Workmanship. The valves shall be free from defects such as corrosion, cracks, and other defects that could impair operation or serviceability.

4. VERIFICATION

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

a. First article inspection (see 4.2).
b. Conformance inspection (see 4.3).

4.2 First article inspection.

4.2.1 Examination. The valve shall be examined as specified in 4.4.1. Presence of one or more defects shall be cause for rejection.

4.2.2 Tests. The valve shall be tested as specified in 4.4.2. Failure of any test shall be cause for rejection.

4.3 Conformance inspection.

4.3.1 Lot. All valves of the same class and size offered for inspection at one time shall constitute a lot.

4.3.2 Sampling. Sampling for examination and tests shall conform to ANSI/ASQC Z1.4.

4.3.3 Examination. Samples selected as specified in 4.3.2 shall be examined as specified in 4.4.1. Presence of one or more defects shall be cause for rejection.

4.3.4 Tests. Samples selected as specified in 4.3.2 shall be tested as specified in 4.4.2, except that the test pressure for all tests shall be held for a period of 1 minute. Failure of any test shall be cause for rejection.

4.4 Inspection procedure.

4.4.1 Examination. The valve shall be examined as specified in table II.

TABLE II. Examination schedule.

Category	Defect	Method of examination
Major:		
101	Valve stem packing cannot be renewed when valve is closed and under pressure (see 3.1).	Visual
102	Wrench grip not provided on end connections (see 3.1).	Visual
103	Materials not as specified (see 3.3).	Visual
104	Materials not resistant to corrosion and deterioration, or treated to resist corrosion and deterioration for the applicable storage and operating environments (see 3.3.1).	SIE 1/
105	Dissimilar metals are not effectively insulated from each other (see 3.3.1.1).	Visual
106	Contractor does not have documentation available for indentification of material, material finishes, or treatment (see 3.3.1.2).	Visual
107	Used, rebuilt or remanufactured components, pieces, or parts incorporated in the valves (see 3.3.2).	Visual
108	Threads not as specified (see 3.4).	SIE

TABLE II. Examination schedule - Continued.

Category	Defect	Method of examination
109	Valve disk jammed or internal working parts damaged under rapid and forceful operation of the lever (see 3.5).	Visual
110	Flow passage not equal to that of the nominal pipe size (see 3.5).	SIE
111	Valve pressure ratings not as specified (see 3.5.1).	SIE
112	Valve caps not as specified (see 3.6).	SIE
113	Functional labeling not as specified (see 3.7).	Visual
114	Treatment and painting not as specified (see 3.8).	Visual
115	Color not as specified (see 3.8).	Visual
116	Identification marking missing, incomplete, incorrect, or illegible (see 3.9).	Visual
117	Workmanship not as specified (see 3.10).	Visual/SIE

1/ SIE = Standard Inspection Equipment.

4.4.2 Tests.

4.4.2.1 Hydrostatic test, body. The valve body shall be subjected to the applicable hydrostatic test pressure and temperature specified in table I. Water shall be used as the test fluid. With one end of the valve closed and the gate in open position, pressure shall be applied from the other end. The test pressure shall be held for not less than 15 minutes. The valve body shall be examined for leakage or seepage. Any evidence of leakage or seepage shall constitute failure of this test (see 3.5 and 4.2.2).

4.4.2.2 Hydrostatic test, disk. The valve disk shall be subjected to the applicable working pressure specified in table I with the pressure applied at one end of the valve with the disk closed. Water shall be used as the test fluid. The pressure shall then be relieved, the valve shall be opened and closed, and the same pressure shall be applied at the other end. The test pressure shall be held for not less than 15 minutes. The valve shall be examined for leakage or seepage through or around the disk or seat. Any evidence of such leakage or seepage shall constitute failure of this test (see 3.5 and 4.2.2).

4.4.2.3 Corrosion protection. Corrosion protection shall meet the requirements of the Acceletated Corrosion Test GM 9540P, Method B, until one of the items fail with defects such as extensive corrosion at scribe or significant penetration of base metal (see 3.3.1).

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. 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 which may be helpful, but is not mandatory.)

6.1 Intended use. The valves covered by this specification are for general purpose use with water, oil, and liquid gas.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification.
b. Class, size, and part identifying number of valve required (see 1.2 and 6.7).
c. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2.1 and 2.3).
d. Whether solid-wedge or double-wedge disk valve is required (see 3.1).
e. When first article is required (see 3.2).
f. Color required if other than as specified (see 3.8).
g. Packaging requirements (see 5.1).

6.3 First article. When a first article inspection is required, the item(s) should be a preproduction model. The first article should consist of one or more units. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of the first article test results and disposition of the first articles. Invitation for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

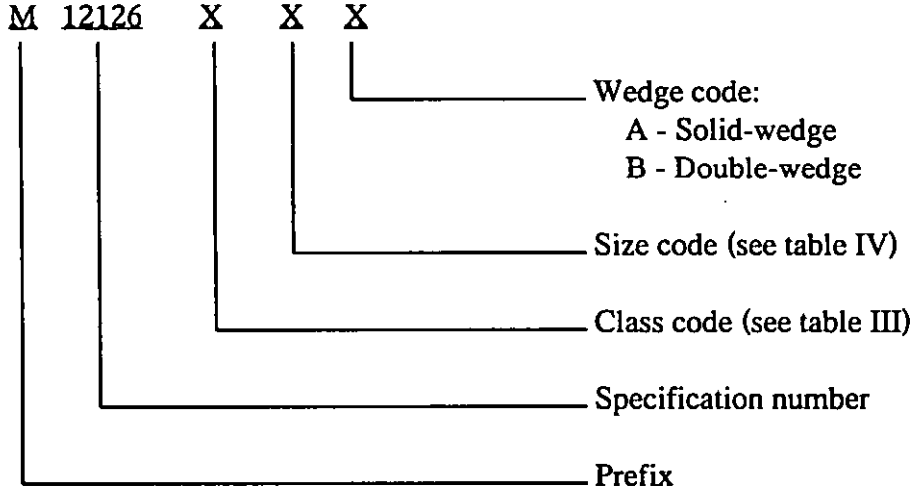
6.4 Subject term (key word) listing.

Double-wedge
Liquid gas
Oil
Solid-wedge
Threaded ends
Water

6.5 Recovered materials. Recovered materials are those materials which have been collected from solid waste and reprocessed to become a source of raw materials, as distinguished from virgin raw materials (see 3.3.2).

6.6 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.

6.7 Part or identifying number (PIN). The part or identifying number (PIN) of valves covered by this specification are designated in the following form (see 6.2):



Example: M12126A2B is the part number for a lever operated bronze gate valve, (A) class 1 (125 psi), (2) size 1.5-inch, (B) double wedge conforming to MIL-PRF-12126.

TABLE III. Class code.

Code	Class	Description
A	1	125 psi
B	2	150 psi

TABLE IV. Size code.

Code	Size	Description
1	1	1-inch
2	1.5	1.5-inch
3	2	2-inch

Custodians:
Army - AT
Navy - SH

Review Activities:
Army - CE
Navy - YD1
DLA - CS

Preparing Activity:
Army - AT

(Project 4820-0691)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

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

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

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER	2. DOCUMENT DATE (YYMMDD)
	MIL-PRF-12126F	960220

3. DOCUMENT TITLE
Valves, Gate: Bronze, Lever Operated, Quick Opening, 125 PSI And 150 PSI

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

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)	b. ORGANIZATION	
[redacted]	[redacted]	
c. ADDRESS (Include Zip Code) [redacted]	d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (If applicable)	7. DATE SUBMITTED (YYMMDD)

8. PREPARING ACTIVITY

a. NAME	b. TELEPHONE (Include Area Code) (1) Commercial (810) 574-8745	(2) AUTOVON 786-8745
c. ADDRESS (Include Zip Code) Commander U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/BLUE, Warren, MI 48397-5000	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	