

Valve, Pressure Equalizing, Gaseous Products

RATIONALE

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1. SCOPE AND CLASSIFICATION:

1.1 Scope:

This specification covers low pressure equalizing, gaseous product valves for use in shipping containers.

1.2 Classification:

Unless otherwise specified, relief valves shall be of the following types and reseal pressures (see 6.2).

Type I - Vacuum Relief.

Reseal Pressure	1/2 psi (3.4 kPa)
Reseal Pressure	1 psi (6.9 kPa)
Reseal Pressure	2 psi (13.8 kPa)
Reseal Pressure	3 psi (20.7 kPa)

Type II - Pressure Relief.

Reseal Pressure	1/4 psi (1.7 kPa)
Reseal Pressure	1/2 psi (3.4 kPa)
Reseal Pressure	1 psi (6.9 kPa)
Reseal Pressure	2 psi (13.8 kPa)
Reseal Pressure	3 psi (20.7 kPa)
Reseal Pressure	5 psi (34.5 kPa)

Type III - Pressure and Vacuum Relief.

Reseal Pressures	1/2 psi (3.4 kPa) Pressure, 1/2 psi (3.4 kPa) Vacuum
Reseal Pressures	1 psi (6.9 kPa) Pressure, 1/2 psi (3.4 kPa) Vacuum
Reseal Pressures	1 psi (6.9 kPa) Pressure, 1 psi (6.9 kPa) Vacuum
Reseal Pressures	1 1/2 psi (10.4 kPa) Pressure, 1 1/2 psi (10.4 kPa) Vacuum
Reseal Pressures	2 psi (13.8 kPa) Pressure, 1 psi (6.9 kPa) Vacuum
Reseal Pressures	2 psi (13.8 kPa) Pressure, 2 psi (13.8 kPa) Vacuum
Reseal Pressures	3 psi (20.7 kPa) Pressure, 2 psi (13.8 kPa) Vacuum
Reseal Pressures	5 psi (34.5 kPa) Pressure, 2 psi (13.8 kPa) Vacuum

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2. APPLICABLE DOCUMENTS:

2.1 Government documents:

- 2.1.1. Specifications and standards: The following specifications and standards 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).

SPECIFICATIONS

Federal

ZZ-R-765 Rubber, Silicone

Military

MIL-T-31000 Technical Data Packages, General Specification for

STANDARDS

Federal

FED-STD-H28 Screw-Thread Standards for Federal Services
FED-STD-101 Test Procedures for Packaging Materials

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
MIL-STD-810 Environmental Test Methods and Engineering Guidelines
MIL-STD-831 Test Reports, Preparation of
MIL-STD-889 Dissimilar Metals
MIL-STD-970 Standards and Specifications, Order of Preference for the Selection of
MIL-STD-2073-1 DoD Materiel Procedures for Development and Application of Packaging Requirements
MIL-STD-45662 Calibration Systems Requirements

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

2.2 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 Y14.5M Dimensioning and Tolerancing for Engineering Drawing

(Application for copies of ANSI Y14.5M should be addressed to American National Standards Institute, 11 West 42nd Street, New York, NY 10036.)

ASTM

D 3951 Standard Practice for Commercial Packaging

(Application for copies should be addressed to ASTM, 1916 Race Street, Philadelphia, PA 19103-1137.)

(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence:

In the event of a conflict between the text of this document and the references cited herein (except for related associated detail specifications, specification sheets, or MS standards), 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 First article:

When specified (see 6.2), or if recovered or recycled materials are used (see 3.3), a sample shall be subjected to first article inspection (see 6.2) in accordance with 4.4.

3.2 Selection of specifications and standards:

Specifications and standards for necessary commodities and services not specified herein shall be selected in accordance with MIL-STD-970 except as specified in 3.2.1 and 3.2.2.

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- 3.2.1 Commercial parts: Commercial parts having suitable properties may be used where, on the date of invitation for bids, there are no suitable standard parts. In any case, commercial utility parts, such as screws, bolts, nuts, and cotter pins, having suitable properties may be used provided:
- a. They can be replaced by the standard parts (MS or AN without alteration).
 - b. The corresponding standard part numbers are referenced in the parts list and, if practicable, on the contractor's drawings.
- 3.2.2 AN and MS standard parts: With the exception specified in 3.2.1, AN and MS standard parts shall be used where they suit the purpose. They shall be identified on the drawings by their part numbers.
- 3.2.3 Part numbering of interchangeable parts: All parts having the same manufacturer's part number shall be functionally and dimensionally interchangeable. The item identification and part number requirements of MIL-T-31000 (see 6.2) shall govern manufacturer's part numbers and changes thereto.
- 3.3 Materials:
- All materials shall be as specified herein. Materials not specified shall be of the best quality used for the purpose in commercial practice. The materials shall be free from all defects or imperfections that might affect the serviceability of the finished product. Recovered or recycled materials may be used provided the end product is capable of passing the first article tests.
- 3.3.1 Metals: Metals shall be of the corrosion-resistant type or suitably treated to resist corrosion or atmospheric conditions likely to be met in storage or normal service. MIL-STD-889 shall be utilized to determine compatibility of metals from which the valves are fabricated.
- 3.3.2 Protective treatment: When materials used in the construction of the valves are subject to deterioration when exposed to climatic and environmental conditions likely to occur during service usage, they shall be protected against such deterioration in a manner that will in no way prevent compliance with the performance requirements of this specification. The use of any protective coating that will crack, chip, or scale with age or extremes of climatic and environmental conditions shall be avoided. Protective treatments used shall be non-hazardous and environmentally safe.
- 3.3.3 Non-Metals: When utilized, non-metallic parts such as packings, interior gaskets, and valve seats shall be of the oil-resistant type.
- 3.3.4 Exterior Gaskets: Exterior gaskets for sealing valves to the container shall be made of silicone rubber conforming to ZZ-R-765 class 2 or 3, grade 60. No additional sealing material shall be required.

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3.4 Construction:

- 3.4.1 Gasket seat: Unless otherwise specified, valves employing exterior gaskets shall be provided with a groove to retain and seat such gaskets. The depth of the groove shall not be less than 50 percent nor more than 70 percent of the original gasket thickness.
- 3.4.2 Castings: When used, castings shall be of high quality, clean, sound, and free of blow-holes, porosity, cracks, and other defects which may adversely affect the valve performance.
- 3.4.3 Valve body: Unless specifically approved by the procuring agency, non-metallic materials shall not be used in the construction of the valve body.
- 3.4.4 Mounting devices: Unless otherwise specified, each valve shall be provided with a nut, washer, and gasket or other suitable device for installation purposes.

3.5 Design:

- 3.5.1 Maintenance: The design of the valve shall be such that installation and removal from containers may be accomplished with common hand tools.
- 3.5.2 Special features: Special features, such as manual relief devices to permit equalization of pressure prior to opening the container or filters to limit the entrance of sand or dust, may be used provided they do not interfere with the other requirements of this specification.
- 3.5.3 Lubrication: The design of the valve shall be such that lubrication shall not be required for operation during the service life.
- 3.5.4 Screw threads: All screw threads shall be in accordance with FED-STD-H28, class 2.
- 3.5.5 Locking of parts: All internal and external threaded parts shall be locked.
- 3.5.6 Pipe threads: Pipe threads shall be in accordance with FED-STD-H28.
- 3.5.7 Dimensions: Dimensions and tolerances shall be in accordance with ANSI Y14.5M. Where dimensions and tolerances may affect interchangeability, consistent operation, or performance of the valve, they shall be limited accordingly.
- 3.5.8 Weight and size: Weight and size of the valve shall be as small as possible consistent with the requirements specified herein and with sound engineering practices.