



AEROSPACE STANDARD

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Superseding AS1297A

Reducers, Pneumatic Pressure, Missile

RATIONALE

This document has been determined to contain basic design guidelines and quality assurance provisions which are not dynamic in nature. If used for new design, the design authority shall review and tailor the document to current practices.

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1. GENERAL:

1.1 Scope:

The complete specification for a pneumatic pressure reducer for high pressure pneumatic systems used in missiles comprises: (1) this standard, which includes many of the general performance requirements, (2) a detailed procurement specification describing envelope and operating conditions, and (3) the "Pneumatic Components, Aeronautical - General Specification For - MIL-P-8564" which covers general requirements common to all components for use in high pressure pneumatic systems.

1.2 Definition:

A pressure reducer, within the meaning of this standard, is a device which is supplied with gas at a high pressure and delivers gas at a controlled lower pressure.

2. APPLICABLE DOCUMENTS:

2.1 Specifications, Standards, and Publications:

The following specifications, drawings, and publications of the issue in effect on the date of invitation to bid, form a part of this standard to the extent specified herein.

2.1.1 Specifications:

Federal:

- BB-N-411 - Nitrogen, Technical
- BB-H-001168 - Helium, Technical
- PPP-B-636 - Boxes, Fiberboard
- QQ-S-571 - Solder, Lead Alloy, Tin Lead Alloy, and Tin Alloy, Flux Cored Ribbon and Wire, and Solid Form
- TT-C-490 - Iron Phosphate

Military:

- MIL-G-4343 - Grease, Pneumatic
- MIL-C-5501 - Caps and Plugs, Protective Dust and Moisture Seal
- MIL-P-5517 - Plastic Parts in Aircraft Hydraulic Equipment; General Tests for
- MIL-C-5541 - Anodize Coating (Aluminum)
- MIL-N-6011 - Nitrogen, Liquid and Gas
- MIL-I-8500 - Interchangeability and Replaceability of Component Parts for Aircraft and Missiles
- MIL-P-8564 - Pneumatic System Components, Aeronautical, General Specification For
- MIL-A-8625 - Anodic Coating (Aluminum)
- MIL-Q-9858 - Quality Program Requirements
- MIL-C-26074 - Coating, Electroless Nickel, Requirements for
- MIL-S-38130 - Safety Engineering of Systems and Associated Subsystems and Equipment, General Requirements for
- MIL-C-45662 - Calibration System Requirements

2.1.2 Standards:

Military:

- MIL-STD-9 - Threads
- MIL-STD-105 - Sampling Procedures and Table for Inspection by Attributes
- MIL-STD-109 - Quality Assurance Definitions
- MIL-STD-129 - Marking for Shipment and Storage
- MIL-STD-143 - Specifications and Standards, Order of Precedence for the Selection of
- MIL-STD-171 - Finishing of Metal and Wood Surfaces
- MIL-STD-210 - Climatic Extremes for Military Equipment
- MIL-STD-414 - Sampling Procedures and Tables for Inspection by Variables for Percent Defective
- MIL-STD-794 - Parts and Equipment, Procedure for Packaging and Packing of
- MIL-STD-810 - Environmental Test Methods for Aerospace and Ground Equipment

3. REQUIREMENTS:

3.1 General:

The requirements listed in Section 3 of Specification MIL-P-8564 (ASG) for Type I components are applicable to this specification. The detail specification shall contain the requirements presently associated with Type I components, unless system operating conditions indicate that higher temperature design criteria should apply.

3.2 Structural Characteristics:

All portions of the pressure reducers shall possess sufficient strength, rigidity, and the other necessary physical characteristics to survive the environmental conditions specified herein, and shall survive these conditions in a manner that will not impair the ability of the pressure reducer to perform its function nor will personnel be endangered.

3.2.1 Materials: The use of AMS 5620, 5621, 5630, 5631, and 5632 or equivalent heat-treatable, corrosion-resistant steels is prohibited, unless otherwise stated in detail specification.

3.2.2 Yield Strength: All portions of the pressure reducer shall be designed for sufficient strength to withstand the yield loads and accompanying environmental phenomena without experiencing excessive elastic or plastic deformations, i.e., deformations which result in component interference or permanent sets greater than 0.2 percent strain, unless such deformations are demonstrated to be nondetrimental to the successful performance of the pressure reducer.

3.2.3 Ultimate Strength: All portions of the pressure reducer shall be designed to withstand the structural ultimate loads and accompanying environmental phenomena without failure. Failure is defined as structural collapse, rupture, or other inability to sustain ultimate loads. Component undergoing preproduction test must function properly during and after exposure to the component operational ultimate load. The component is not required to function during or after exposure to structural ultimate levels.

3.3 Design and Construction:

The pressure reducer shall conform in every respect to the applicable detail specification and related drawings. The performance requirements to be included in the detail specifications are indicated by the tests and limits indicated in Section 4.

3.3.1 Long-Term Storage: The pressure reducer shall be capable of operating as specified after storage for a period of 5 years, or longer if indicated by the detail specification, at a combination of ambient temperature, and humidity defined in the detail specification.

The detail specification shall include statements regarding the number of hours of exposure to temperatures near the minimum and maximum ambient conditions anticipated during the total storage period.