

Duct Assembly, Ground, Conditioned Air,
Metallic Reinforced, Low Pressure, 350 °F

RATIONALE

AS7365 has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE:

This Aerospace Standard (AS) defines the requirements for a metallic reinforced, duct assembly suitable for use in low pressure, 350 °F ground heaters.

1.1 Classification:

The duct assemblies shall be of the following sizes and length as specified (see 6.2).

- a. Size A shall be 12 inches nominal diameter, 15 feet nominal length.
- b. Size B shall be 6 inches nominal diameter, 15 feet nominal length.

2. REFERENCES:

2.1 Applicable Documents:

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and 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.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2013 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
http://www.sae.org

SAE WEB ADDRESS:

Full document details: SAE AS7365

SAE values your input. To provide feedback
on this Technical Report, please visit
<http://www.sae.org/technical/standards/AS7365>

Documents

Document Sharing Hub

- 2.1.1 SAE Publications: Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS-QQ-W-428	Wire, Steel, Carbon (High Carbon, Round, for Mechanical Springs, General Purpose)
AS7365/1	Pin, Female Coupling
AS7365/2	Coupling, Female, 12 Inch Air Duct
AS7365/3	Coupling, Male, 12 Inch Air Duct
AS7365/4	Coupling, Female, 6 Inch Air Duct
AS7365/5	Coupling, Male, 6 Inch Air Duct
AS7365/6	Band, Female Coupling, 12 Inch Air Duct
AS7365/7	Band, Male Coupling, 12 Inch Air Duct
AS7365/8	Band, Female Coupling, 6 Inch Air Duct
AS7365/9	Band, Male Coupling, 6 Inch Air Duct

- 2.1.2 ASTM Publications: Available from ASTM, 100 Barr Harbor, West Conshocken, PA 19428-2959.

ASTM D 430	Rubber Deterioration - Dynamic Fatigue, Standard Test Method for
ASTM D 471	Standard Test Method for Rubber Property - Effect of Liquids
ASTM D 3951	Packaging, Commercial
ASTM D 6193	Standard Practice for Stitches and Seams

- 2.1.3 ASME Publications: Available from ASME, 22 Law Drive, Box 2900, Fairfield, NJ 07007-2900.

Fluid Meters Sixth Edition

- 2.1.4 Official Classification Committee Publications: Available from the Official Classification Committee, 1 Park Avenue at 33rd Street, New York, NY 10016.

Uniform Freight Classification Rules

- 2.1.5 U.S. Government Publications: Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

FED-STD-191	Textile Test Methods
FED-STD-595	Colors
MIL-HDBK-831	Test Reports, Preparation of
MIL-STD-130	Identification Marking of U.S. Military Property
MIL-STD-810	Environment Test Methods

3. TECHNICAL REQUIREMENTS:

3.1 First Article:

This document makes provisions for first article testing.

3.2 Materials:

Materials shall conform to the requirements specified herein. Materials, which are not specifically described herein, shall be of the quality appropriate for the purpose intended.

- 3.2.1 Protective Treatment: Materials that are subject to corrosion in salt-laden air or other atmospheric conditions shall be protected against such corrosion in a manner that will in no way prevent compliance with the performance requirements of this specification. The protective coating shall not crack, chip, or scale with age or extremes of climatic and environmental conditions.
- 3.2.2 Fire Resistance: All materials used in the construction of duct assemblies shall be fire resistant.
- 3.2.3 Hazardous Substances: The use of hazardous substances, toxic chemicals, or Ozone Depleting Chemicals (ODCs) shall be avoided, whenever feasible.
- 3.2.4 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.

3.3 Duct Assemblies:

Duct assemblies covered by this standard shall be designed for use with portable heating equipment and shall be constructed of strong pliable fabric properly treated with a nonpermeable material for continuous use in extreme weather conditions. Quick-disconnect type coupling halves shall be installed on both ends of the duct with a male type coupling (see 3.4.3.1) on one end and a female type coupling (see 3.4.3.2) on the opposite end. A continuous metal stiffener, helical form, (see 3.4.4) extending the entire length of the duct shall be secured to the duct fabric and bonded to the couplings at each end for safe discharge of static electricity. A scuff strip, helically wound over the metal stiffener, shall be attached to the duct as an integral part of the assembly to protect the outside surface against abrasion. A storage device, with a hook on one end and a catch on the opposite end shall be securely attached to the end couplings and protrude inwardly to serve as a guide for retracting the duct and for holding the duct assembly in a retracted handling and storing position.

3.4 Design and Construction:

- 3.4.1 Duct: The duct shall be designed for continuous use in inclement weather conditions and shall withstand internal pressures ranging from +2 inches Hg (gage) to -1 inch Hg, relative to surrounding atmosphere, while in a fully extended position without rupture or damage to the duct. The construction shall be such that the duct shall be capable of retracting to 10% of the normal length and when used in conjunction with heating equipment, in extreme low temperature conditions, the duct shall be capable of connecting to the heater or other ducts by personnel wearing heavy arctic gloves. The duct shall withstand a tensile pull of 250 pounds without rupture or evidence of damage when tested in accordance with 4.6.8. The internal surface and the built-in storage device shall be so constructed that air friction losses shall not exceed the values as specified in 4.6.2 when tested at the atmospheric pressure and temperatures specified in 4.3.1.5.

- 3.4.2 **Fabric:** The fabric used in construction of the duct shall be strong pliable strips, coated with a nonpermeable material, and of sufficient width to produce a pitch of not more than two-thirds of the duct diameter when helically wound upon itself with overlapping edges between which shall be laid the helical stiffener. The overlapping edges shall be of sufficient width to retain the stiffener and to provide a satisfactory base for attaching the scuff strip. The fabric shall not be severely affected by prolonged exposure to adverse weather conditions and shall withstand all the applicable tests specified herein.
- 3.4.3 **Couplings:** Each section of duct shall have male type coupling on one end and a female type coupling on the opposite end, securely attached as an integral part of the duct assembly. The duct fabric shall be attached to the outside diameter of the couplings and secured with protector bands conforming to AS7365/6 and AS7365/7 for the size A duct and AS7365/8 and AS7365/9 for the size B duct. The distance from the end of the duct fabric and protector band to the extreme end of the male coupling shall be no less than 1.125 inches.
- 3.4.3.1 **Male Type Coupling:** The dimension, configuration and material requirements for the male type couplings shall be in accordance with AS7365/3 for the size A duct and AS7365/5 for the size B duct.
- 3.4.3.2 **Female Type Coupling:** The dimensions, configuration and material requirements for the female type couplings shall be in accordance with AS7365/2 for the size A duct and AS7365/4 for the size B duct. The female couplings shall have three pins, conforming to AS7365/1, riveted at three equally spaced intervals around the circumference and protruding inwardly for receiving the connecting slots on the male couplings.
- 3.4.4 **Helical Stiffener:** Unless otherwise specified, the stiffener shall be made of wire conforming to AMS-QQ-W-428, type 1, helically wound to a diameter equal to the specified duct size. The stiffener wire shall be of sufficient size and resilience to prevent transverse collapsing, excessive area reduction in the duct during sharp bends and shall return the duct to a circular shape after flattening the duct to 50% of the diameter. The helical pitch shall be sufficiently greater than the seam pitch on the duct to exert the required axial tension to extend the duct to its full length, when placed on a flat horizontal surface, and to maintain the duct in a fully extended position. However, the rigidity of the stiffener shall not interfere excessively with the retraction of the duct to its storage position. The stiffener shall have closed ends, square with the duct center line and securely bonded to the couplings at both ends to insure safe discharge of static electricity.
- 3.4.5 **Scuff Strip:** The scuff strip shall be made of tough pliable material, helically wound around the outside diameter of the duct over the helical stiffener to protect the duct against abrasion and securely attached to withstand the test described in 4.6.9. The scuff strip shall not prevent or interfere excessively with retracting the duct to the storage position.