



# AEROSPACE STANDARD

**AS1339™****REV. K**

Issued 1976-03  
Reaffirmed 2007-07  
Revised 2025-05

Superseding AS1339J

Hose Assembly, Polytetrafluoroethylene, Metallic Reinforced,  
3000 psi, 400 °F, Lightweight, Hydraulic and Pneumatic

## RATIONALE

Added note to periodic testing allowing the use of production data for specific gravity tests.

### 1. SCOPE

This SAE Aerospace Standard (AS) defines the requirements for a lightweight polytetrafluoroethylene (PTFE) lined, metallic reinforced, hose assembly suitable for use in high temperature, 400 °F, high pressure, 3000 psi, aircraft hydraulic systems, also for use in pneumatic systems which allow some gaseous diffusion through the PTFE wall.

### 2. 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.

#### 2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

|         |                                                                                                                                         |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------|
| AMS2700 | Passivation of Corrosion Resistant Steels                                                                                               |
| AMS5556 | Steel, Corrosion- and Heat-Resistant, Seamless or Welded Hydraulic Tubing 18Cr - 11Ni - 0.70Cb (347) Solution Heat Treated              |
| AMS5557 | Steel, Corrosion- and Heat-Resistant, Seamless or Welded Hydraulic Tubing 18.5Cr - 10.5Ni - 0.40Ti (SAE 30321) Solution Heat Treated    |
| AMS5561 | Steel, Corrosion and Heat-Resistant, Welded and Drawn or Seamless and Drawn Tubing 9.0Mn - 20Cr - 6.5Ni - 0.28N High-Pressure Hydraulic |
| AMS5565 | Steel, Corrosion-Resistant, Welded Tubing 19Cr - 9.5Ni (304) Solution Heat Treated                                                      |

SAE Executive Standards Committee 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 © 2025 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, or used for text and data mining, AI training, or similar technologies, 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](mailto:CustomerService@sae.org)  
<http://www.sae.org>

**SAE WEB ADDRESS:**

Full document details: SAE AS1339K

For more information on this standard, visit  
<https://www.sae.org/standards/content/AS1339K/>

Documents

Standard, visit Sharing Hub

|              |                                                                                                                                                                                          |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AMS5566      | Steel, Corrosion Resistant, Seamless or Welded Hydraulic Tubing 19Cr - 10Ni (304) High Pressure, Cold Drawn                                                                              |
| AMS5567      | Steel, Corrosion Resistant, Seamless or Welded Hydraulic Tubing 19Cr - 10Ni (304) Solution Heat Treated                                                                                  |
| AMS5570      | Steel, Corrosion- and Heat-Resistant, Seamless Tubing 18Cr - 11Ni - 0.40Ti (321) Solution Heat Treated                                                                                   |
| AMS5573      | Steel, Corrosion and Heat-Resistant, Seamless Tubing 17Cr - 12Ni - 2.5Mo (SAE 30316) Solution Heat Treated                                                                               |
| AMS5581      | Nickel Alloy, Corrosion- and Heat-Resistant, Seamless or Welded Tubing 62Ni - 21.5Cr - 9.0Mo - 3.7Cb (Nb) Annealed                                                                       |
| AMS5639      | Steel, Corrosion-Resistant, Bars, Wire, Forgings, Mechanical Tubing, Rings and Forging and Ring Stock 19Cr - 10Ni Solution Heat Treated                                                  |
| AMS5643      | Steel, Corrosion-Resistant, Bars, Wire, Forgings, Mechanical Tubing, and Rings 16Cr - 4.0Ni - 0.30Cb (Nb) - 4.0Cu Solution Heat Treated, Precipitation Hardenable                        |
| AMS5644      | Steel, Bars and Forgings, Corrosion Resistant, 17Cr - 7Ni - 1Al                                                                                                                          |
| AMS5645      | Steel, Corrosion and Heat Resistant, Bars, Wire, Forgings, Mechanical Tubing, Rings and Forging Stock 18Cr - 10Ni - 0.40Ti (321) Solution Heat Treated                                   |
| AMS5646      | Steel, Corrosion and Heat-Resistant, Bars, Wire, Forgings, Mechanical Tubing, Rings and Forging Stock 18Cr - 11Ni - 0.60Cb(Nb) (347) Solution Heat Treated                               |
| AMS5647      | Steel, Corrosion-Resistant, Bars, Wire, Forgings, Mechanical Tubing, Rings, and Forging Stock 19Cr - 9.5Ni Solution Heat Treated                                                         |
| AMS5648      | Steel, Corrosion- and Heat-Resistant, Bars, Wire, Forgings, Mechanical Tubing, Rings, and Stock for Forgings and Rings 17Cr - 12Ni - 2.5Mo (316) Solution Heat Treated                   |
| AMS5653      | Steel, Corrosion- and Heat-Resistant, Bars, Wire, Forgings, Mechanical Tubing, Rings, and Stock for Forging and Rings 17Cr - 12Ni - 2.5Mo (0.030 Max C) (316L), Solution Heat Treated    |
| AMS5659      | Steel, Corrosion Resistant, Bars, Wire, Forgings, Rings, and Extrusions 15Cr - 4.5Ni - 0.30Cb (Nb) - 3.5Cu Consumable Electrode Remelted Solution Heat Treated, Precipitation Hardenable |
| AMS5666      | Nickel Alloy, Corrosion- and Heat-Resistant, Bars, Forgings, Extrusions, Rings, and Stock for Forgings, Extrusions, and Rings 62Ni - 21.5Cr - 9.0Mo - 3.65Cb (Nb) Annealed               |
| AMS5688      | Steel, Corrosion-Resistant, Wire 18Cr - 9.0Ni (302) Spring Temper                                                                                                                        |
| AMS5689      | Steel, Corrosion- and Heat-Resistant, Wire 18Cr - 10.5Ni - 0.40Ti (321) Solution Heat Treated                                                                                            |
| AMS5690      | Steel, Corrosion and Heat Resistant, Wire 17Cr - 12Ni - 2.5Mo (316) Solution Heat Treated                                                                                                |
| AMS5697      | Steel, Corrosion-Resistant, Wire 19Cr - 9.5Ni (304) Solution Heat Treated                                                                                                                |
| AMS5743      | Steel, Corrosion and Heat-Resistant, Bars and Forgings 15.5Cr - 4.5Ni - 2.9Mo - 0.10N Consumable Electrode Remelted Solution Heat Treated, Sub-Zero Cooled, Equalized, and Over-Tempered |
| AMS-QQ-S-763 | Steel, Corrosion Resistant, Bars, Wire, Shapes, and Forgings                                                                                                                             |

|           |                                                                                                |
|-----------|------------------------------------------------------------------------------------------------|
| AIR4092   | Investigation of PTFE “Melt” Phenomenon for High Pressure Hoses                                |
| ARP908    | Torque Requirements, Installation and Qualification Test, Hose and Tube Fitting                |
| ARP1835   | Preparation for Delivery, General Requirements for Hose Assemblies                             |
| AS150     | Hose Assembly, Type Classifications of, Basic Performance and Fire Resistance                  |
| AS611     | Hose Assembly and Tubing, Polytetrafluoroethylene, Cleaning Methods for                        |
| AS1055    | Fire Testing of Flexible Hose, Tube Assemblies, Coils, Fittings, and Similar System Components |
| AS1072    | Sleeve, Hose Assembly, Fire Protection                                                         |
| AS2078    | Test Methods, Hose Assemblies, Polytetrafluoroethylene (PTFE)                                  |
| AS4375    | Fitting End, Flareless, Design Standard                                                        |
| AS4395    | Fitting End, Flared, Tube Connection, Design Standard                                          |
| AS8879    | Screw Threads - UNJ Profile, Inch Controlled Radius Root with Increased Minor Diameter         |
| AS33514   | Fitting End, Standard Dimensions for Flareless Tube Connection and Gasket Seal                 |
| AS85421   | Fittings, Tube, Fluid Systems, Separable, Beam Seal, 3000/4000 psi, General Specification For  |
| AS85421/1 | Fitting End, Standard Dimensions for Dynamic Beam Seal, Male                                   |

## 2.2 ASME Publications

Available from ASME, P.O. Box 2900, 22 Law Drive, Fairfield, NJ 07007-2900, Tel: 800-843-2763 (U.S./Canada), 001-800-843-2763 (Mexico), 973-882-1170 (outside North America), [www.asme.org](http://www.asme.org).

ASME B46.1 Surface Texture

## 2.3 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, [www.astm.org](http://www.astm.org).

|           |                                                                                                        |
|-----------|--------------------------------------------------------------------------------------------------------|
| ASTM A262 | Standard Recommended Practices for Detecting Susceptibility to Intergranular Attack in Stainless Steel |
| ASTM A313 | Standard Specification for Stainless Steel Spring Wire                                                 |
| ASTM A580 | Specification for Stainless and Heat Resisting Steel Wire                                              |

## 2.4 ISO Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

|          |                                                                     |
|----------|---------------------------------------------------------------------|
| ISO 3161 | Aerospace - UNJ threads - General requirements and limit dimensions |
|----------|---------------------------------------------------------------------|

## 2.5 NAS Publications

Available from Aerospace Industries Association, 1000 Wilson Boulevard, Suite 1700, Arlington, VA 22209-3928, Tel: 703-358-1000, [www.aia-aerospace.org](http://www.aia-aerospace.org).

NAS847 Caps and Plugs, Protective, Dust and Moisture Seal

NAS1760 Fitting End, Flareless Acorn, Standard Dimensions for

## 2.6 PRI Publications

Available from Performance Review Institute, 161 Thorn Hill Road, Warrendale, PA 15086-7527, Tel: 724-772-1616, <https://www.p-r-i.org/>.

AC7112 Nadcap Audit Criteria for Fluid Systems Component Manufacturers

OP2007 Appendix G3 QPL Program Operating Procedure: Appendix G3

PD1100 Nadcap Program Requirements

PD2000 PRI-QPL Program Requirements

## 2.7 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

MIL-HDBK-831 Preparation of Test Reports

MIL-PRF-680 Degreasing Solvent

MIL-PRF-5606 Hydraulic Fluid, Petroleum Based; Aircraft; Missile and Ordnance

MIL-PRF-7808 Lubricating Oil, Aircraft Turbine Engine, Synthetic Base

MIL-PRF-83282 Hydraulic Fluid, Fire Resistant Synthetic Hydrocarbon Base, Aircraft

MIL-PRF-87257 Hydraulic Fluid, Fire Resistant; Low Temperature, Synthetic Hydrocarbon Base, Aircraft and Missile

MIL-STD-100 Standard Practice for Engineering Drawings

MIL-STD-130 Identification Marking of U.S. Military Property

## 2.8 Hose Assembly Parts Standards

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org). The hose assembly standards applicable to this procurement standard include:

AS115 Hose Assembly, PTFE, CRES Reinforced, 3000 psi, 400 °F, Straight to Straight, Flareless, Lightweight

AS116 Hose Assembly, PTFE, CRES Reinforced, 3000 psi, 400 °F, Straight to 45°, Flareless, Lightweight

AS117 Hose Assembly, PTFE, CRES Reinforced, 3000 psi, 400 °F, Straight to 90°, Flareless, Lightweight

AS118 Hose Assembly, PTFE, CRES Reinforced, 3000 psi, 400 °F, 45° to 45°, Flareless, Lightweight

AS119 Hose Assembly, PTFE, CRES Reinforced, 3000 psi, 400 °F, 45 to 90°, Flareless, Lightweight

|        |                                                                                                                           |
|--------|---------------------------------------------------------------------------------------------------------------------------|
| AS120  | Hose Assembly, PTFE, CRES Reinforced, 3000 psi, 400 °F, 90° to 90°, Flareless, Lightweight                                |
| AS153  | Hose Assembly, PTFE, CRES Reinforced, 3000 psi, 400 °F, Straight to Straight, Flared, Lightweight                         |
| AS154  | Hose Assembly, PTFE, CRES Reinforced, 3000 psi, 400 °F, Straight to 45°, Flared, Lightweight                              |
| AS155  | Hose Assembly, PTFE, CRES Reinforced, 3000 psi, 400 °F, Straight to 90°, Flared, Lightweight                              |
| AS156  | Hose Assembly, PTFE, CRES Reinforced, 3000 psi, 400 °F, 45° to 45°, Flared, Lightweight                                   |
| AS157  | Hose Assembly, PTFE, CRES Reinforced, 3000 psi, 400 °F, 45° to 90°, Flared, Lightweight                                   |
| AS158  | Hose Assembly, PTFE, CRES Reinforced, 3000 psi, 400 °F, 90° to 90°, Flared, Lightweight                                   |
| AS1909 | Hose Assembly, Polytetrafluoroethylene, CRES Reinforced, 400 °F, 3000 psi, Lightweight, Beam Seal, Straight to Straight   |
| AS1910 | Hose Assembly, Polytetrafluoroethylene, CRES Reinforced, 400 °F, 3000 psi, Lightweight, Beam Seal, Straight to 45 Degrees |
| AS1911 | Hose Assembly, Polytetrafluoroethylene, CRES Reinforced, 400 °F, 3000 psi, Lightweight, Beam Seal, Straight to 90°        |
| AS1912 | Hose Assembly, Polytetrafluoroethylene, CRES Reinforced, 400 °F, 3000 psi, Lightweight, Beam Seal, 45 to 45 Degrees       |
| AS1913 | Hose Assembly, Polytetrafluoroethylene, CRES Reinforced, 400 °F, 3000 psi, Lightweight, Beam Seal, 45 to 90 Degrees       |
| AS1914 | Hose Assembly, Polytetrafluoroethylene, CRES Reinforced, 400 °F, 3000 psi, Lightweight, Beam Seal, 90 to 90 Degrees       |

### 3. TECHNICAL REQUIREMENTS

#### 3.1 Qualification

Hose assemblies supplied in accordance with this document shall be representative of products which have been subjected to and which have successfully passed the qualification tests in this standard.

##### 3.1.1 Manufacturer Qualification

A manufacturer producing a product in conformance to this procurement specification shall be accredited in accordance with the requirements of OP2007 Appendix G3, PD1100, and AC7112 and shall be listed in a Performance Review Institute (PRI) Qualified Manufacturers List (QML). The QML is available at [www.eAuditNet.com](http://www.eAuditNet.com).

##### 3.1.2 Product Qualification

All products shall conform to the requirements of this procurement specification and shall be approved in accordance with the requirements of PD2000 and OP2007 Appendix G3 for listing in the Performance Review Institute (PRI) Qualified Parts List (QPL). When this procurement specification is specified on design activity-controlled drawings, the approved sources of supply shall be defined by the design activity. Refer to [www.eAuditNet.com](http://www.eAuditNet.com) for current QPL online.

### 3.2 Material

The hose assembly materials shall be uniform in quality, free from defects, consistent with good manufacturing practice, shall conform to applicable specifications and the requirements specified herein, and suitable for the purpose intended.

#### 3.2.1 Metals

Metals used in the hose and fittings shall be corrosion resistant and shall conform to the following specification:

a. Bars and Forgings:

1. AMS-QQ-S-763 Class 304 - Cond. A or Cond. B (AMS5639)
2. AMS-QQ-S-763 Class 304L - Cond. A (AMS5647)
3. AMS-QQ-S-763 Class 316 - Cond. A (AMS5648)
4. AMS-QQ-S-763 Class 316L - Cond. A (AMS5653)
5. AMS-QQ-S-763 Class 321 - Cond. A (AMS5645)
6. AMS-QQ-S-763 Class 347 - Cond. A (AMS5646)
7. AMS5643 17-4PH
8. AMS5644 17-7PH
9. AMS5659 15-5PH
10. AMS5743 AM-355
11. AMS5666 Nickel Alloy Type 625

b. Tubing:

1. AMS5565 Welded Stainless Steel Tubing, 304
2. AMS5566 Seamless or Welded Stainless Steel Tubing, 304
3. AMS5567 Type 1 or Type 2 Stainless Steel Tubing, 304
4. AMS5573 Seamless Stainless-Steel Tubing, 316
5. AMS5557 Type 1 or Type 2 Stainless Steel Tubing, 321
6. AMS5570 Seamless Stainless Steel Tubing, 321
7. AMS5556 Type 1 or Type 2 Stainless Steel Tubing, 347
8. AMS5561 Welded Stainless Steel Tubing, 21-6-9
9. AMS5581 Type 1 or Type 2 Nickel Alloy Tubing, 625

## c. Wire:

1. ASTM A580/A313 Comp. 302 (AMS5688)
2. ASTM A580/A313 Comp. 304 (AMS5697)
3. ASTM A580/A313 Comp. 316 (AMS5690)
4. ASTM A580/A313 Comp. 321 (AMS5689)

## 3.3 Design and Construction

The hose assembly shall consist of a seamless PTFE inner tube, corrosion-resistant steel-wire reinforcement, and corrosion-resistant steel or nickel alloy end fittings as required to meet the construction and performance requirements of this specification and as required for its intended use.

## 3.3.1 Inner Tube

The inner tube shall be of a seamless construction of virgin PTFE resin of uniform gage. It shall have a smooth bore and shall be free from pitting or projections on the inner surface. Additives may be included in the compound from which the tube is extruded.

## 3.3.2 Reinforcement

The reinforcement shall consist of corrosion-resistant steel wires conforming to the applicable specifications listed in 3.2.1. The wires shall be so arranged over the inner tube as to provide sufficient strength to ensure conformance with the requirements specified herein. Broken reinforcing wires shall be cause for rejection. Crossed-over reinforcing wires shall not be cause for rejection of the hose assembly.

## 3.3.3 Fittings

All fittings shall be permanently attached and proven to meet the requirements herein. Standard hose assemblies shall have flared fittings to mate with AS4395, flareless fittings according to NAS1760 to mate with AS33514 or AS4375, or beam seal fittings per AS85421. Fitting hex portions shall fit standard wrench openings.

## 3.3.3.1 Straight Fittings

Straight fittings shall be of one-piece construction. Weld or braze joints must not be located in the fluid paths, except welded and redrawn corrosion-resistant steel tubing in accordance with 3.2.1 may be used.

## 3.3.3.2 Other Fittings

Other fittings, including elbow fittings, shall be of one-piece construction to the maximum extent possible. However, those made with other than one-piece construction can use welded and redrawn corrosion-resistant steel tubing in accordance with 3.2.1 and shall employ a butt weld joint method.

## 3.3.3.3 End Fitting Collars (Sockets)

All end fitting collars (sockets) crimped or swaged, fabricated from Type 304 stainless steel are required to be capable of passing an embrittlement test as specified in ASTM A262 Practice E, prior to assembly to the nipple or swaging operation. Sockets fabricated from stabilized austenitic steel (304L, 321, or 347) are acceptable without being subjected to the embrittlement test.

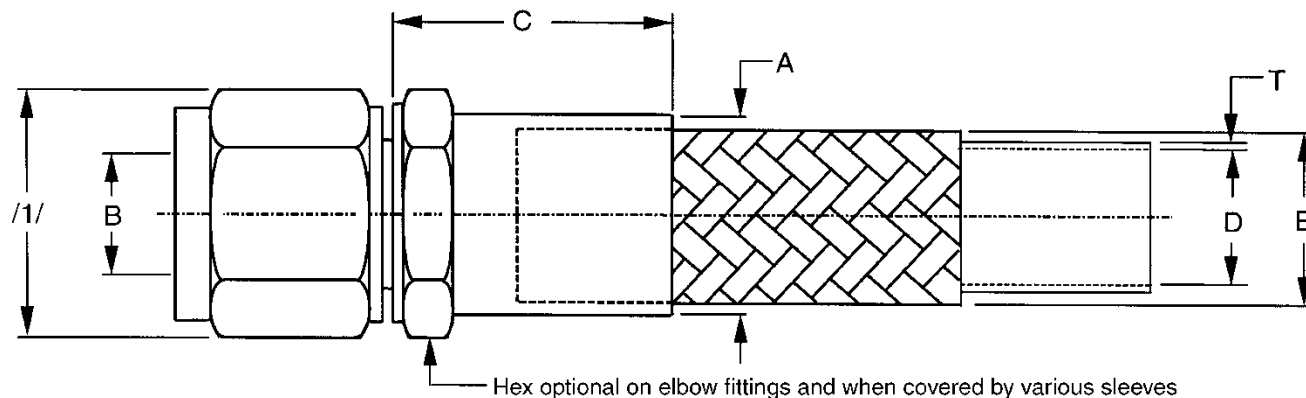
### 3.3.3.4 Fitting Finish

#### 3.3.3.4.1 Corrosion-Resistant Steel Parts

Unless otherwise specified, corrosion-resistant steel parts shall be passivated in accordance with AMS2700.

### 3.4 Dimensions

The hose assembly dimensions, except for length, shall be as specified in Figure 1 and Table 1.



/1/ Cross corners of nut and socket hex may exceed "A" dimension per Table 1.

**Figure 1 - Hose and fitting dimensions**

**Table 1 - Hose and fitting dimensions as shown in Figure 1 (inches)**

| Hose Size | Rigid Tube OD (Ref) | Fitting OD A <sup>(1)</sup> Max | Fitting ID B <sup>(2)</sup> Min | Socket Length C Max | Hose ID D Min | Hose OD E Min | Hose OD E Max | Unbraided Inner Tube Wall T Min | Unbraided Inner Tube Wall T Max | Spherical Ball Size for Determining Min Hose Assy. ID <sup>(2)</sup> in Straight Fittings | Spherical Ball Size for Determining Min Hose Assy. ID <sup>(2)</sup> in Elbow Fittings |
|-----------|---------------------|---------------------------------|---------------------------------|---------------------|---------------|---------------|---------------|---------------------------------|---------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 04        | 0.250               | 0.690                           | 0.135                           | 0.98                | 0.212         | 0.360         | 0.390         | 0.035                           | 0.046                           | 0.122                                                                                     | 0.115                                                                                  |
| 06        | 0.375               | 0.800                           | 0.240                           | 1.09                | 0.298         | 0.455         | 0.490         | 0.035                           | 0.046                           | 0.216                                                                                     | 0.204                                                                                  |
| 08        | 0.500               | 0.970                           | 0.340                           | 1.33                | 0.391         | 0.585         | 0.615         | 0.040                           | 0.051                           | 0.306                                                                                     | 0.289                                                                                  |
| 10        | 0.625               | 1.100                           | 0.410                           | 1.36                | 0.485         | 0.690         | 0.730         | 0.045                           | 0.056                           | 0.369                                                                                     | 0.349                                                                                  |
| 12        | 0.750               | 1.380                           | 0.510                           | 1.52                | 0.602         | 0.950         | 0.990         | 0.045                           | 0.056                           | 0.459                                                                                     | 0.434                                                                                  |
| 16        | 1.000               | 1.660                           | 0.760                           | 1.78                | 0.852         | 1.230         | 1.270         | 0.045                           | 0.065                           | 0.684                                                                                     | 0.646                                                                                  |

<sup>(1)</sup> Cross corners of nut and socket hex may exceed "A" dimension. Fitting OD Max may be 10% larger for fitting captured integral abrasion sleeve with fluid barrier assemblies.

<sup>(2)</sup> Minimum Specified inside diameter shall be verified by passing a spherical ball through the hose assembly.

#### 3.4.1 Hose Weight

Hose consisting of inner tube and reinforcement as outlined in 3.3.1 through 3.3.2 shall not exceed the maximum hose weights specified in Table 2.