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AEROSPACE STANDARD

AS 1852

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# GRAVITY REFUELING NOZZLES AND PORTS INTERFACE STANDARD FOR CIVIL AIRCRAFT

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1. PURPOSE: This Aerospace Standard (AS) establishes the essential interface dimensions for airframe refueling ports and ground refueling nozzles, intended for use on civil aircraft with gravity fuel servicing provisions.

   Primary intent of standardized interface limits detailed in this document is the prevention of misfueling reciprocating engined aircraft with turbine fuel when exclusive use of aviation gasoline is required.

2. SCOPE: This Aerospace Standard (AS) defines maximum free opening dimensions for airframe refueling ports on civil aircraft that require the exclusive use of aviation gasolines, and minimum free opening dimensions for airframe refueling ports on civil aircraft that operate with turbine fuels as a primary fuel type.

   In addition, this document defines the minimum refueling nozzle tip dimensions for turbine fuels ground service equipment, and the maximum refueling nozzle tip diameter dimension for aviation gasolines ground service equipment.

3. GENERAL STANDARDS:

3.1 Airframe Refueling Ports: The following airframe refueling port dimensions represent standard limits. Use of ports with other dimensions that fall within prescribed limits are considered in compliance with guidelines of this document.

| | | REFUELING PORT-FREE OPENING | |
|---|---|---|---|
| TYPE OF SERVICE FUEL | STANDARDIZED LIMITATIONS | METRIC UNITS (mm) | ENGLISH UNITS (inches) |
| Aviation Gasolines | Maximum Opening Diameter | 60 | 2.36 |
| Aviation Turbine Fuels | Minimum Opening Diameter | 75 | 2.95 |

3.2 Ground Refueling Nozzles: The following ground refueling nozzle dimensions represent standard limits. Use of nozzles with dimensions that fall within prescribed limits are considered in compliance with guidelines of this document.

| | | REFUELING NOZZLE TIP DIMENSIONS | |
|---|---|---|---|
| TYPE OF SERVICE FUEL | STANDARDIZED LIMITATIONS | METRIC UNITS (mm) | ENGLISH UNITS (inches) |
| Aviation Gasolines | Maximum Nozzle Tip Diameter | 49 | 1.93 |
| Aviation Turbine Fuels | Minimum Nozzle Tip Length | 67 | 2.64 |
| | Maximum Nozzle Tip Width* | 29 | 1.13 |

*Turbine fuel nozzles must adopt an elongated or elliptical tip cross section with maximum and minimum axes within dimensional limits noted above (See Figure 1).

4. REFERENCE DOCUMENTS:

4.1 SAE Publications:

4.1.1 Aerospace Material Selection Handbook

4.2 U.S. Government Publications:

4.2.1 Military Specifications:

MIL-C-38373 - Cap, Fluid Tank Filler
MIL-N-52110 - Nozzle, Fuel and Oil Servicing
MIL-N-87963 - Nozzle, Fuel, Aircraft, Overwing, Type ND3
MIL-N-7284 - Nozzle, Oil Servicing, Pistol Grip, Non-Drip, Type A.9

4.2.2 Military Standards:

MIL-STD-1757 - Lightning Qualification Test Techniques for Aerospace Vehicles and Hardware
MS 27379 - Adapter, Fluid Tank Filler

4.2.3 FAA Documents:

FAR Parts 1, 21, 23, 25 and 27
AC20-53A - Protection of Airplane Fuel Systems Against Fuel Vapor Ignition Due to Lightning
AC20-122 - Anti-Misfueling Devices: Their Availability and Use

4.3 ASTM Documents:

ASTM D910 - Specification for Aviation Gasolines
ASTM D1655 - Specification for Aviation Turbine Fuels



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