

GRAVITY REFUELING NOZZLES AND PORTS
INTERFACE STANDARD FOR CIVIL AIRCRAFT

TABLE OF CONTENTS

- | | |
|------------|------------------------|
| 1. PURPOSE | 3. GENERAL STANDARDS |
| 2. SCOPE | 4. REFERENCE DOCUMENTS |

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.

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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.

TYPE OF SERVICE FUEL	STANDARDIZED LIMITATIONS	REFUELING PORT-FREE OPENING	
		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.

TYPE OF SERVICE FUEL	STANDARDIZED LIMITATIONS	REFUELING NOZZLE TIP DIMENSIONS	
		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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