INTERNATIONAL STANDARD

ISO 17775

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Aircraft — Ground-service connections — Potable water, toilet-flush water and toilet drain

Aéronefs — Raccords de service au sol — Eau potable, rinçage et vidange des toilettes

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 17775 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 10, *Aerospace fluid systems and components*.

ISO 17775 revises ISO/R 47:1957 and ISO 450:1976, cancelled in 1983 and 1998, respectively:

— ISO/R 47:1957, *Aircraft toilet flushing and drawing connections*

— ISO 450:1976, *Aircraft — Connection for water of drinkable quality*

Introduction

The ground-service interfaces and the mating ground connectors used on most commercial aircraft, as well as on some military and private aircraft, are generally considered interchangeable since the designs used are all based on the same original design. This was originally provided by the Roylyn Company in the 1950s and then later used as the basis for other suppliers without the detail dimensions. As a result, there are minor variations in some current products that may have some adverse affects on their performance when mated with parts made by others. This International Standard provides the necessary detail dimensions to ensure that all interface dimensions will be compatible, especially as new suppliers enter the market around the world.

Aircraft — Ground-service connections — Potable water, toilet-flush water and toilet drain

1 Scope

This International Standard specifies the detail dimensions of the male connector interfaces, fitted to an aircraft, used for servicing of the potable water systems, the toilet-flush water systems, and the toilet drain systems currently in common use. This International Standard is applicable to all commercial aircraft with water and toilet systems and is recommended for military and private aircraft that use water and toilet systems.

This International Standard does not include requirements for the ground half (female) couplings or protective caps, but provides sufficient interface details for such items to be designed. It does not include any specified dimensions for the clearance required around the connector on the aircraft body itself for either any protective caps or ground half couplings, although general recommendations are made.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 129-1, *Technical drawings — Indication of dimensions and tolerances — Part 1: General principles*

ISO 1101, *Geometrical Product Specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

ISO 1302, *Geometrical Product Specifications (GPS) — Indication of surface texture in technical product documentation*

3 Dimensions

Dimensions of male fittings shall be as defined in Figure 1 and Table 1. All detail dimensions and tolerances are included to ensure commonality between all aircraft using this International Standard. Ground-service connections shall be designed to mate with this common interface.

NOTE Space needs to be provided to accommodate the ground-service connector. Space required for the nipple-cap configuration will normally be greater than that required for the ground fitting. Space needs to be available for the cap assembly to provide space for the ground fitting.

4 Material

4.1 Specific materials are not defined in this International Standard, but all units shall be compatible with the water and chemicals used in the water and toilet systems of the aircraft. This shall be based on a corrosion-resistant steel material, which shall also provide the required strength and hardness for the intended application. Tests shall be carried out to ensure compatibility of the materials used for the connector with the types of fluid used on the aircraft.

4.2 Surface and dimensional requirements specified in Figure 1 and Table 1 shall conform to ISO 129-1, ISO 1101 and ISO 1302.

4.3 All corners and fillets shall have a radius of 1,5 mm (0,059 in), unless otherwise specified.

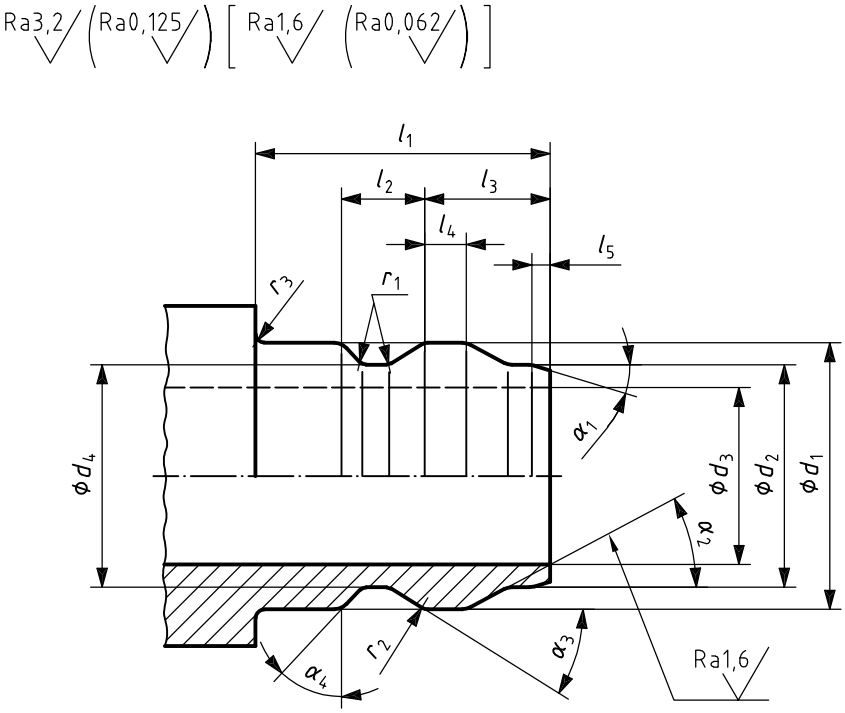

Figure 1 — Nipple configuration

Table 1 — Dimensions

Dimensions in millimetres (inches)

System		Dimension								
		d_1	d_2	d_3	d_4	l_1	l_2	l_3	l_4	l_5
Potable water	max.	23,52 (0,926)	19,61 (0,772)	15,60 (0,614)	19,507 (0,768)	—	7,493 (0,295)	11,252 (0,443)	3,68 (0,145)	1,778 (0,070)
	min.	23,42 (0,922)	19,51 (0,768)	15,44 (0,608)	18,339 (0,722)	24,765 (0,975)	6,985 (0,275)	10,744 (0,423)	3,43 (0,135)	1,27 (0,050)
Toilet flush	max.	29,87 (1,176)	25,96 (1,022)	21,62 (0,851)	25,959 (1,022)	—	7,493 (0,295)	11,252 (0,443)	3,68 (0,145)	1,778 (0,070)
	min.	29,77 (1,172)	25,86 (1,018)	21,41 (0,843)	25,857 (1,018)	24,765 (0,975)	6,985 (0,275)	10,744 (0,423)	3,43 (0,135)	1,27 (0,050)
Toilet drain	max.	111,38 (4,385)	106,807 (4,205)	101,727 (4,005)	108,102 (4,256)	—	6,096 (0,240)	14,529 (0,572)	5,33 (0,210)	2,54 (0,100)
	min.	111,25 (4,380)	106,68 (4,200)	98,806 (3,890)	107,975 (4,251)	30,226 (1,190)	5,588 (0,220)	14,021 (0,552)	5,23 (0,206)	2,032 (0,080)

System		Dimension						
		r_1	r_2	r_3	α_1 (°)	α_2 (°)	α_3 (°)	α_4 (°)
Potable water	max.	0,76 (0,030)	1,02 (0,040)	0,76 (0,030)	17	28	32	43
	min.	0,51 (0,020)	0,76 (0,030)	1,27 (0,050)	13	32	36	47
Toilet flush	max.	0,76 (0,030)	1,02 (0,040)	0,76 (0,030)	17	28	32	43
	min.	0,51 (0,020)	0,76 (0,030)	1,27 (0,050)	13	32	36	47
Toilet drain	max.	0,762 (0,030)	1,02 (0,040)	0,889 (0,035)	17	47	55	40
	min.	0,254 (0,010)	0,76 (0,030)	0,254 (0,010)	13	43	51	34

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