## 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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#### **Foreword**

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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:

- (standards.iteh.ai)
   ISO/R 47:1957, Aircraft toilet flushing and drawing connections
- ISO 450:1976, Aircraft Connection for Water of dinkable quality https://standards.itch.avcatalog/standards/sis/ab2bd2b3-3e98-4d18-9e19-0c0a13b76854/iso-17775-2006

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### 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.

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### 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 TANDARD PREVIEW

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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 can be standards/sist/ab2bd2b3-3e98-4d18-9e19-

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.

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#### 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.

$$Ra3,2/(Ra0,125/)$$
  $\begin{bmatrix} Ra1,6/(Ra0,062/) \end{bmatrix}$ 

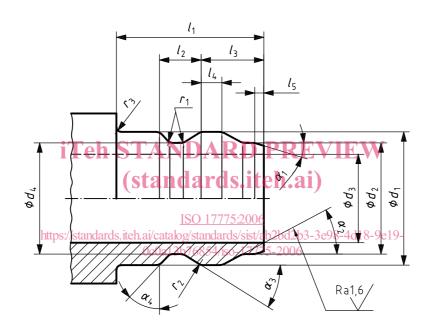


Figure 1 — Nipple configuration

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

System		Dimension								
		<i>r</i> <sub>1</sub>	$r_2$	$r_3$	α <sub>1</sub> (°)	α <sub>2</sub> (°)	<i>α</i> <sub>3</sub> (°)	α <sub>4</sub> (°)		
Potable water	max.	0,76 (0, <b>03</b> 0)	1,02 (0,040)	0,76 (0, <b>03</b> 0)	17 <b>PRFV</b> I	28	32	43		
	min.	0,51 (0,020)	0,76 (0,030)	1,27 <b>a</b> (0,050) <b>f</b>	eh.ai)	32	36	47		
Toilet flush	max.	0,76 (0,030)	1,02 (0,040)	0,76 (0,030) <sub>006</sub>	17	28	32	43		
	min.	https: 9.51 https://standard (0,020)	s.iteh.0i76 (0,030) 3b7	stand <sup>1</sup> 127/sist/a 68 (0,050)777	b2bd2 <b>þ3</b> -3e98 5-2006	-4d18 <b>32</b> e19-	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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