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Aircraft ground equipment — De-icers — Functional requirements

Matériel au sol pour aéronefs — Dégivreuses — Exigences fonctionnelles

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 9, *Air cargo and ground equipment*.

This second edition cancels and replaces the first edition (ISO 11077:1993),which has been technically revised.

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Introduction

This International Standard specifies the functional and personnel safety requirements to be taken into account by manufacturers for the design of aircraft de-icing and anti-icing vehicles (de-icers).

The requirements of this International Standard were determined based on generally recognized assumptions as to

a) the normally intended use of aircraft ground support equipment on the ramp of international civil airports in order to handle, service, or maintain civil transport aircraft, or

b) the environmental (surface, slope, weather, lighting, operating rules, staff qualification, etc.) conditions prevailing on the ramp area of the majority of international civil airports. In addition to customary environment conditions in this context, it is to be assumed that de-icers will be operated on snowy, icy, muddy, or slushed ramp surfaces and under freezing precipitation conditions.

It is assumed that the manufacturers of de-icers define in the relevant documentation the specifically intended conditions of use and environment for their equipment, and the purchasers systematically review their own specific conditions of use and environment in order to determine whether those stated are adequate or negotiate with the manufacturer appropriate modifications to ensure they are.

NOTE Negotiation between manufacturer and purchaser/user is considered essential to establish or verify the adequate conditions of use and design parameters.

The requirements of this International Standard are expressed in the applicable SI units, with approximate inch-pound unit conversion between brackets for convenience in those countries using that system. Where it is deemed necessary to use exact values, the SI unit ones are to be used.

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Aircraft ground equipment — De-icers — Functional requirements

1 Scope

This International Standard specifies the general functional, performance, and safety requirements for a self-propelled vehicle equipped with a boom type aerial device and aircraft de-icing/anti-icing fluid (ADF) spraying systems, hereinafter designated as "de-icer".

This International Standard does not specify a comprehensive set of technical design criteria for aircraft de-icing/anti-icing vehicles, but only those relating to the main functional, safety, and performance requirements.

This International Standard is not applicable to stationary equipment, e.g. gantries, cranes, used to perform de-icing/anti-icing operations on aircraft.

Throughout this International Standard, the minimum essential criteria are identified by use of the key word "shall". Recommended criteria are identified by use of the key word "should" and, while not mandatory, are considered to be of primary importance in providing safe, economical, and usable aircraft de-icers. Deviation from recommended criteria should only occur after careful consideration and thorough service evaluation have shown alternate methods to provide an equivalent level of safety.

2 Normative references

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

ISO 6966-1, *Aircraft ground equipment — Basic requirements — Part 1: General design requirements*

ISO 6966-2, *Aircraft ground equipment — Basic requirements — Part 2: Safety requirements*

ISO 7000, *Graphical symbols for use on equipment — Registered symbols*

ISO 10254, *Air cargo and ground equipment — Vocabulary*

ISO 11075, *Aircraft — De-icing/anti-icing fluids — ISO type I*

ISO 11076, *Aircraft — De-icing/anti-icing methods on the ground*

ISO 11078, *Aircraft — De-icing/anti-icing fluids — ISO types II, III and IV*

ISO 11532, *Aircraft ground equipment — Graphical symbols*

ISO 13849-1, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

EN 1915-2, *Aircraft ground support equipment — General requirements — Part 2: Stability and strength requirements, calculations and test methods*

EN 12312-6, *Aircraft ground support equipment — Specific requirements — Part 6: De-icers and de-icing/anti-icing equipment*

DIN 51130:2010, *Testing of floor coverings — Determination of the anti-slip property — Workrooms and fields of activities with slip danger, walking method — Ramp test*

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NOTE DIN 51130 can be obtained from Deutsches Institut für Normen, Burggrafenstrasse 6, D-10787 Berlin, Germany.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10254 and the following apply.

3.1
de-icer
self-propelled mobile unit, used to perform de-icing or anti-icing operations by means of fluids spraying on aircraft on the ground

Note 1 to entry: It is fitted with an operator cabin or basket mounted on a boom in order to raise the operator at the height of aircraft surfaces to be sprayed.

3.2
driver
person located in the cabin (driving station) of a de-icer's chassis and driving the vehicle around the aircraft

3.3
operator
person(s) located in the boom mounted operator's cabin or basket, operating its movements relative to the de-icer's chassis as well as the fluid spraying system(s)

3.4
cabin (operator's)
completely enclosed work station at the end of the de-icer's boom, where the operator is located to perform de-icing/anti-icing operations on the aircraft

3.5
basket (operator's)
non-enclosed work station at the end of the boom where the operator stands alternatively to a cabin

3.6
boom
structural element supporting the operator's cabin or basket at a height

Note 1 to entry: Not to be mistaken for "spraying boom", an element extending from the operator's station to support spraying hoses and brings the nozzles as close as possible to the aircraft being de-iced, which does not support persons.

4 Requirements

4.1 General

4.1.1 The de-icer's design and construction shall meet the applicable requirements of ISO 6966-1 and ISO 6966-2, and the requirements stated hereafter. Where these requirements are in excess of those in the general aircraft ground equipment standards, they shall take precedence.

NOTE For operation in Europe, the EU Machinery Directive essential safety requirements legally apply. They can be met by complying with the requirements of the following European Standards (see Clause 2 and Bibliography):

— EN 1915-1, *Aircraft ground support equipment — General requirements — Part 1: Basic safety requirements*

— EN 1915-2, *Aircraft ground support equipment — General requirements — Part 2: Stability and strength requirements, calculations and test methods*

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