International Standard

ISO 18487-1

Aerospace series — Titanium tube for 35 MPa operating pressure —

Part 1: Inch series

Série aérospatiale — Tubes en titane — Pression de service : 35 MPa —

Partie 1: Série en inches

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: 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.

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 document 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).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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

This second edition cancels and replaces the first edition (ISO 18487-1:2017), of which it constitutes a minor revision.

The changes are as follows:

— the normative reference to ISO 4287, which is withdrawn, has been replaced by ISO 21920-2;

— the normative reference to ISO 8575:2016, which is withdrawn, has been replaced by ISO 8575:2024.

A list of all the parts in the ISO 18487 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

This document is intended to harmonize the technical requirements for titanium tubes used in aerospace with design operating pressure of 35 MPa.

It is noted that, while ISO standards should normally refer only to SI units, large segments of the aerospace industry refer to other measurement systems as a matter of common working practice. The mention of "inch series" in the title of this document reflects this. It recognizes the fact that the nominal sizes referred to in the document, which are in common use in the aerospace industry, were originally defined in terms of fractional inches.

Although the tube sizes were originally defined, and are frequently referred to, in terms of non-SI units, all dimensions used in this document are in SI units with inch units given in addition for the convenience of those users more familiar with these.

It is further noted that the standard ISO decimal symbol "," (comma) is not used as common working practice for inch dimensions. A decimal point is used in the inch dimensions in this document as in many other aerospace standards.

NOTE The use of non-SI units and the decimal point in this document does not constitute general acceptance of measurement systems other than SI within International Standards.

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Aerospace series — Titanium tube for 35 MPa operating pressure —

Part 1: Inch series

1 Scope

This document is applicable to seamless tubing of circular cross-section made from titanium alloy and intended for use primarily in systems with system operating pressure of 35 MPa (5 080 psi) (Pressure Class J), but usage is not limited to such applications.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 21920-2, *Geometrical product specifications (GPS) — Surface texture: Profile — Part 2: Terms, definitions and surface texture parameters*

ISO 6772, *Aerospace — Fluid systems — Impulse testing of hydraulic hose, tubing and fitting assemblies*

ISO 8492, *Metallic materials — Tube — Flattening test*

ISO 8575:2024, *Aerospace series — Fluid systems — Hydraulic system tubing*

ISO 10583, *Aerospace fluid systems — Test methods for tube/fitting assemblies*

ISO 12573, *Aircraft — Tubing tolerances — Inch series*

EN 2003-010, *Aerospace series — Titanium and titanium alloys — Test methods — Part 010: Sampling for determination of hydrogen content*

EN 3718, *Aerospace series — Test method for metallic materials — Ultrasonic inspection of tubes*

AS 4076, *Contractile strain ratio testing of titanium hydraulic tubing*

AMS 2634, *Ultrasonic inspection, thin wall metal tubing superseding*

ASTM E112, *Standard test methods for determining average grain size*

ASTM E1409, *Standard test method for determination of oxygen and nitrogen in titanium and titanium alloys by inert gas fusion*

ASTM E1941, *Standard test method for determination of carbon in refractory and reactive metals and their alloys by combustion analysis*

ASTM E1447, *Standard test method for determination of hydrogen in titanium and titanium alloys by the inert gas fusion thermal conductivity/infrared detection method*

ASTM E2371, *Standard test method for analysis of titanium and titanium alloys by direct current plasma and inductively coupled plasma atomic emission spectrometry (Performance-based test methodology)*

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