INTERNATIONAL STANDARD

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Aerospace — Polytetrafluoroethylene (PTFE) hose assemblies — Test methods

Aéronautique et espace — Tuyauteries flexibles en polytétrafluoréthylène (PTFE) — Méthodes d'essai

Reference number
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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8829 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*.

Annex A of this International Standard is for information only.

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Introduction

This International Standard is intended to standardize the test methods for qualification of polytetrafluoroethylene (PTFE) hose and hose assemblies used in aircraft fluid systems. The tests are intended to simulate the most strenuous demands encountered in aircraft. Compliance with these test methods is necessary for hose and hose assemblies which are used in systems where a malfunction could affect the safety of flight.

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Aerospace — Polytetrafluoroethylene (PTFE) hose assemblies — Test methods

1 Scope

This International Standard specifies test methods for flexible polytetrafluoroethylene (PTFE) hose and hose assemblies used in aircraft fluid systems in the pressure and temperature ranges covered by pressure classes B, D and E, and temperature types I, II and III as specified in ISO 6771.

This International Standard applies to the hose and the hose coupling. The tests and assembly requirements for the connecting end fittings are covered in the procurement specification.

It is applicable when reference is made to it in a procurement specification or other definition document.

NOTE — Fluids used for the tests are listed in annex A.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/TR 2685 : 1984, *Aircraft — Environmental conditions and test procedures for airborne equipment — Resistance to fire in designated fire zones.*

ISO 6771 : 1987, *Aerospace — Fluid systems and components — Pressure and temperature classifications.*

ISO 6772 : 1988, *Aerospace — Fluid systems — Impulse testing of hydraulic hose, tubing and fitting assemblies.*

ISO 6773 : 1982, *Aerospace fluid systems — Thermal shock testing of piping and fittings.*

ISO 7258 : 1984, *Polytetrafluoroethylene (PTFE) tubing for aerospace applications — Methods for the determination of the density and relative density.*

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 room temperature: Temperature in the test laboratory between 15 °C and 32 °C.

3.2 fire sleeve: Flame- and heat-retardant element, normally tubular, slipped over the hose assembly and fastened to the hose fitting.

3.3 fire-cuff: Flame- and fire-retardant element, normally (silicone) rubber, moulded over the hose and hose fittings.

4 Tests on PTFE inner tubes

4.1 Density and relative density

4.1.1 Principle

This test is intended to control the crystallinity of PTFE inner tubes.

4.1.2 Test methods

The relative density of the PTFE tubing shall be measured in accordance with ISO 7258, method A or method B. The density of the PTFE tubing shall be measured in accordance with ISO 7258, method C.

4.2 Tensile tests

4.2.1 Principle

This test is intended to determine the mechanical properties of the PTFE tubing.

4.2.2 Preconditioning

Test specimens shall be conditioned for at least 2 h at room temperature.