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Aerospace — Linear hydraulic utility actuator — General specifications

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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).

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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*.

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

Linear hydraulic utility actuators are designed to move structural elements of a flight vehicle from one position to another to allow the functioning of various flight vehicle systems, such as landing gear, cargo doors, in-flight refuelling probes, etc.

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. All dimensions used in this document are in SI units with the non-SI 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 — Linear hydraulic utility actuator — General specifications

1 Scope

This document establishes the general requirements for a linear hydraulic utility actuator, herein referred to as a "utility actuator", for use in flight vehicle hydraulic systems at pressures up to 35 000 kPa (5 000 psi).

These requirements include:

— design requirements;

— test requirements.

This document is intended to be used in conjunction with the detail specification that is particular to each application.

NOTE Although Brake pistons and Landing Gear Bogie (Truck) Pitch Trimmers are utility actuators, they are outside the scope of this document. This is because these devices are considered to be specialist actuator devices due to their specific duty cycles requiring a separate set of tailored requirements.

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 2093, *Electroplated coatings of tin — Specification and test methods*

ISO 2669, *Environmental tests for aircraft equipment — Steady-state acceleration*

ISO 2671, *Environmental tests for aircraft equipment — Part 3.4 : Acoustic vibration*

ISO 3323, *Aircraft — Hydraulic components — Marking to indicate fluid for which component is approved*

ISO 7137, *Aircraft — Environmental conditions and test procedures for airborne equipment*

ISO 8078, *Aerospace process — Anodic treatment of aluminium alloys — Sulfuric acid process, undyed coating*

ISO 8079, *Aerospace process — Anodic treatment of aluminium alloys — Sulfuric acid process, dyed coating*

ISO 8625-1, *Aerospace — Fluid systems — Vocabulary — Part 1: General terms and definitions related to pressure*

ISO 8625-2, *Aerospace — Fluid systems — Vocabulary — Part 2: General terms and definitions relating to flow*

ISO 8625-3, *Aerospace — Fluid systems — Vocabulary — Part 3: General terms and definitions relating to temperature*

ISO 11218, *Aerospace — Cleanliness classification for hydraulic fluids*

SAE AS4088, *Aerospace Rod Scraper Gland Design Standard*

SAE AS4716, *Gland Design, O-Ring and Other Elastomeric Seals*

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