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Aerospace series - Rotorcraft immersion suits - Requirements, testing and marking

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

Aerospace series - Rotorcraft immersion suits - Requirements, testing and marking

Série aérospatiale - Combinaisons de protection
thermique en cas d'immersion de giravion - Exigences,
essais et marquage

Luft- und Raumfahrt - Eintauchanzüge für Drehflügler -
Anforderungen, Prüfung und Kennzeichnung

This European Standard was approved by CEN on 2 January 2023.

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European foreword

This document (EN 4863:2023) has been prepared by the Aerospace and Defence Industries Association of Europe — Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this document has received the approval of the National Associations and the Official Services of the member countries of ASD-STAN, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2023, and conflicting national standards shall be withdrawn at the latest by November 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Republic of North Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

EN 4863:2023 (E)**Introduction**

This document prescribes the minimum standards of design and performance for rotorcraft immersion suits, used to reduce cold shock on initial immersion and provide thermal protection following evacuation or escape from a rotorcraft.

The document aims to ensure that the equipment user is able to perform normal activities during flight and to carry out the necessary emergency procedures, whilst being provided with an appropriate level of protection under foreseeable conditions of use. It aims to ensure that the equipment presents a minimal hazard in relation to escape from the rotorcraft, and that the equipment has no detrimental effect on the health and safety of the user or on the performance of other equipment.

It is assumed for the purpose of this document that the immersion suit is donned prior to boarding the rotorcraft.

Rotorcraft immersion suits may be designed to be worn with an approved rotorcraft constant wear lifejacket or may be designed to incorporate the functionality of a lifejacket in which case the wearing of a separate lifejacket is not required.

This document is applicable to all rotorcraft. Rotorcraft include helicopters, tilt rotor/wing and gyroplanes. For the purpose of this document, the term helicopter is used generically hereinafter.

1 Scope

This document specifies requirements for immersion suits for use by helicopter crew members and passengers in the event of a ditching or water impact, to ensure minimum levels of performance. It applies to immersion suits for use by adults only.

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.

EN 4856, *Aerospace series — Rotorcraft — Emergency Breathing Systems (EBS) — Requirements, testing and marking*

EN 4862:2023, *Aerospace series — Rotorcraft constant wear lifejackets — Requirements, testing and marking*

EN 4886,¹ *Aerospace series — Rotorcraft life raft — Requirements, testing and marking*

EN 14225-1:2017, *Diving suits — Part 1: Wet suits — Requirements and test methods*

EN ISO 105-E02, *Textiles — Tests for colour fastness — Part E02: Colour fastness to sea water (ISO 105-E02)*

EN ISO 105-X12, *Textiles — Tests for colour fastness — Part X12: Colour fastness to rubbing (ISO 105-X12)*

EN ISO 811, *Textiles — Determination of resistance to water penetration — Hydrostatic pressure test (ISO 811)*

EN ISO 1421, *Rubber- or plastics-coated fabrics — Determination of tensile strength and elongation at break (ISO 1421)*

EN ISO 2411, *Rubber- or plastics-coated fabrics — Determination of coating adhesion (ISO 2411)*

EN ISO 4674-1, *Rubber- or plastics-coated fabrics — Determination of tear resistance — Part 1: Constant rate of tear methods (ISO 4674-1)*

EN ISO 7854, *Rubber- or plastics-coated fabrics — Determination of resistance to damage by flexing (ISO 7854)*

EN ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227)*

EN ISO 11092, *Textiles — Physiological effects — Measurement of thermal and water-vapour resistance under steady-state conditions (sweating guarded-hotplate test) (ISO 11092)*

EN ISO 12402-7, *Personal flotation devices — Part 7: Materials and components — Safety requirements and test methods (ISO 12402-7)*

EN ISO 12402-8, *Personal flotation devices — Part 8: Accessories — Safety requirements and test methods (ISO 12402-8)*

¹ Under preparation.

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EN ISO 12894, *Ergonomics of the thermal environment — Medical supervision of individuals exposed to extreme hot or cold environments (ISO 12894)*

EN ISO 13934-1, *Textiles — Tensile properties of fabrics — Part 1: Determination of maximum force and elongation at maximum force using the strip method (ISO 13934-1)*

EN ISO 13935-2, *Textiles — Seam tensile properties of fabrics and made-up textile articles — Part 2: Determination of maximum force to seam rupture using the grab method (ISO 13935-2)*

EN ISO 13937-4, *Textiles — Tear properties of fabrics — Part 4: Determination of tear force of tongue-shaped test specimens (Double tear test) (ISO 13937-4)*

EN ISO 14116:2015, *Protective clothing — Protection against flame — Limited flame spread materials, material assemblies and clothing (ISO 14116:2015)*

EN ISO 15025:2016, *Protective clothing — Protection against flame — Method of test for limited flame spread (ISO 15025:2016)*

ISO 105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

ISO 188, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

ISO 3801, *Textiles — Woven fabrics — Determination of mass per unit length and mass per unit area*

ASTM D1655, *Standard Specification for Aviation Turbine Fuels*

CIE 015, *Colorimetry*

DEF STAN 91-091, *Turbine Fuel, Kerosene Type, Jet A-1; NATO Code: F-35; Joint Service Designation: AVTUR*

EASA, *Certification Specifications and Acceptable Means of Compliance for Large Aeroplanes, CS-25, Book 1 — Appendix F*

EASA, ETSO-C85b, *Survivor Locator Lights*

IATA, *Guidance Material (Kerosene Type), NATO Code F-35*

IMO, Resolution A.658(16), *Use and Fitting of Retro-Reflective Materials on Life-Saving Appliances*

IMO, International Life-Saving Appliance (LSA) Code, adopted by Resolution MSC.48 (66), (as amended)

IMO, Resolution MSC.81(70), (adopted on 11 December 1998) *Revised recommendation on testing of life-saving appliances*

MIL-STD-3009, *Lighting, Aircraft, Night Vision Imaging System (NVIS) Compatible*

SAE ARP 5825, *Design Requirements and Test Procedures for Dual Mode Exterior Lights*

SAE AS 4492A, *Survivor Locator Lights*

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