



SLOVENSKI STANDARD

oSIST prEN 4886:2022

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Aeronavtika - Reševalni splav za rotoplane - Zahteve, preskušanje in označevanje

Aerospace series - Rotorcraft life raft - Requirements, testing and marking

Luft- und Raumfahrt - Drehflüglerrettungsinsel - Anforderungen, Prüfung und Kennzeichnung

Série aérospatiale - Radeaux de sauvetage de giravion - Exigences, essais et marquage

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Aerospace series - Rotorcraft life raft - Requirements, testing and marking

Série aérospatiale - Radeaux de sauvetage de giravion -
Exigences, essais et marquage

Luft- und Raumfahrt - Drehflüglerrettungsinsel -
Anforderungen, Prüfung und Kennzeichnung

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COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (prEN 4886:2022) 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 document is currently submitted to the CEN Enquiry.

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.

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Introduction

This document prescribes the minimum standards of design and performance for rotorcraft life rafts, carried on rotorcraft operating in a hostile sea area or over very rough sea conditions. Life rafts are designed to provide protection following ditching or water impact, after escape from the rotorcraft and while awaiting rescue.

The document aims to ensure that the equipment user is able 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 has no detrimental effect on the health and safety of the user or on the performance of other equipment.

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.

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1 Scope

This document specifies minimum requirements for life rafts carried on helicopters operating in a hostile sea area or over very rough sea conditions. Life rafts covered by this document are for use by helicopter crew members and passengers in the event of a ditching or water impact.

They are intended either for integration into the helicopter, or stowed in the cabin before being manhandled out of the helicopter. This document does not cover air-drop life rafts.

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, *Rotorcraft — Emergency Breathing Systems (EBS) — Requirements, testing and marking*

EN 4862:—,¹ *Rotorcraft — Rotorcraft constant wear lifejackets — Requirements, testing and marking*

EN 4863:—,² *Aerospace series — Rotorcraft immersion suits — Requirements, testing and marking*

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

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

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

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

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

AATCC Test Method 183:2014, *Test Method for Transmittance or Blocking of Erythemally Weighted Ultraviolet Radiation through Fabrics*

ASTM D1434-82, *Standard test method for determining gas permeability characteristics of plastic film and sheeting*

ASTM D1655, *Standard specification for aviation turbine fuels*

ASTM D4060, *Standard test method for abrasion resistance of organic coatings by the Taber Abraser*

CIE publication No. 15, *Colourimetry*

DEF STAN 91-91, *Turbine fuel, aviation kerosene type, JET A-1; NATO Code: F-35; JSD: AVTUR*

EASA, *Certification Specifications for Large Aeroplanes, CS-25, Book 1 — Appendix F*

EUROCAE, ED-14G, *Environmental conditions and test procedures for airborne equipment; Section 11, Fluids susceptibility*

FTMS (Federal Standard) 191A, *Textile test methods*

¹ Under preparation. Current stage is: ASD-STAN prEN 4862:2022.

² Under preparation. Current stage is: ASD-STAN prEN 4863:2022.

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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

MIL-STD-3009, Lighting, aircraft, night vision imaging system (NVIS) compatible

SAE, ARP5825, Design requirements and test procedures for dual mode exterior lights

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/ui>
- IEC Electropedia: available at <https://www.electropedia.org>

3.1

life raft

flexible water craft which, when inflated, floats stably in the water and provides protection to the user in the event of a ditching or water impact

3.2

reversible life raft

life raft that, when inflated, is fully functional when either-side-up

3.3

rotorcraft

heavier-than-air aircraft that depends principally for its support in flight on the lift generated by one or more rotors

3.4

helicopter

rotorcraft that, for its horizontal motion, depends principally on its engine-driven rotors

3.5

ditching

controlled emergency landing on water, deliberately executed in accordance with Rotorcraft Flight Manual procedures, with the intent of abandoning the rotorcraft as soon as practical

3.6

water impact

helicopter contact with water that is unintentional or exceeds the ditching capability of the helicopter for water entry

3.7

hostile sea area

open sea area north of 45 N and south of 45 S

Note 1 to entry: For a full definition of 'hostile environment' see Air Operations Rule definition in Commission Regulation (EU) No 965/2012 amended by 2016/1199, Annex (1)(a).

3.8**very rough sea**

sea areas with a significant wave height (H_S) of 4 to 6 m and wind speeds of 51,9 to 87,0 km/h

3.9**significant wave height** **H_S**

average value of the height (vertical distance between trough and crest) of the highest third of the waves present

3.10**deployment**

sequence of events resulting in inflation of the life raft

3.11**actuation**

action which makes a device start to work, in this case initiating inflation of the life raft

3.12**primary inflation system**

means to inflate a combination of the primary buoyancy chamber, boarding facility if inflatable and canopy if inflatable, which inflate from the main gas cylinder following actuation of a single device

3.13**primary buoyancy chamber**

one of the inflatable compartments necessary to meet the minimum buoyancy requirements of this document

3.14**minimum operating pressure**

pressure required to meet the minimum buoyancy requirements of this document

3.15**cracking pressure**

minimum pressure differential needed between the inlet and outlet of a valve at which the first indication of flow occurs

3.16**boarding facility**

device attached to the life raft designed to assist users to enter the life raft

3.17**canopy**

device which protects the occupants of a life raft from the external environment

3.18**stabilising system**

means of improving stability achieved by the use of a water pocket(s) or water scoop(s)

Note 1 to entry: Other means may be used that provide equivalent performance.

prEN 4886:2022 (E)**3.19****aspirator**

device that uses the Venturi effect to draw ambient air into the life raft buoyancy chambers during inflation

3.20**life line**

line around the external periphery of the primary buoyancy chambers which can be reached and grasped by a person in the water

3.21**grab line**

line around the internal periphery of the primary buoyancy chambers, for use by the occupants while manoeuvring and when seated within the life raft

3.22**retaining line**

cord that is attached between the life raft and the helicopter, designed to release the life raft without damage should the helicopter sink

3.23**short retaining line**

retaining line provided to position the life raft during occupant transfer from the helicopter into the life raft, thereby easing boarding

3.24**long retaining line**

retaining line provided to allow the life raft to drift away from the helicopter but remain attached to it at a safe distance, thus facilitating survivor(s) location by rescuers

3.25**inflation line**

long retaining line that is used to inflate a life raft (Category B)

3.26**sea anchor**

device which when deployed is used to create drag and reduce leeway/drift

3.27**rescue line**

throw line used to haul a person in the water to the life raft/boarding facility, attached to the life raft at one end and to a quoit at the other end

3.28**quoit**

inherently buoyant ring designed to be thrown to a person in the water, to assist the person in reaching the life raft

Note 1 to entry: The quoit is attached to a rescue line.

3.29**survivor locator light**

device which emits light intended to aid in the location of the user in an emergency

3.30**radar reflector**

means to reflect radar waves to improve the visibility of the life raft on radar screens and hence increase the likelihood of detection

3.31**visual signalling device**

device designed to help in the location of the life raft and occupants, which provides a visible sign

Note 1 to entry: For example, a high intensity strobe light, orange smoke signal or hand-held flare.

3.32**emergency locator transmitter****ELT**

equipment which broadcasts distinctive signals on designated emergency frequencies

3.33**survival ELT**

ELT that is tethered to a life raft and manually deployed by a life raft occupant, activated either manually or automatically (e.g. by water activation)

3.34**personal locator device****PLD**

device carried on the body that is able to transmit a signal to enable electronic detection and location of a person in the water

Note 1 to entry: In the maritime environment a PLD may be known as an Autonomous Maritime Rescue Device (AMRD).

3.35**survival equipment kit**

equipment that is attached to a life raft to aid and sustain occupants whilst awaiting rescue

Note 1 to entry: For example, bailing bucket, first aid kit, sea sickness tablets and other life-saving equipment including means to sustain life, as listed in Commission Regulation (EU) 965/2012, CAT.IDE.H.305.

3.36**lifejacket**

garment or device which, when correctly worn and used in water will provide the user with buoyancy positioned to provide protection from drowning and increase the likelihood of survival and rescue

3.37**helicopter constant wear lifejacket**

lifejacket worn on the body throughout a helicopter flight, provided to protect the user in the event of a ditching or water impact

3.38**immersion suit**

garment designed to protect the user's body from the cooling effects of immersion in water

Note 1 to entry: Cooling effects include cold shock and hypothermia.

Note 2 to entry: An immersion suit may be integrated or worn with a separate constant wear lifejacket.

prEN 4886:2022 (E)**3.39****integrated immersion suit**

immersion suit that incorporates the functionality of a lifejacket

3.40**buoyancy element**

inflatable chamber incorporated into an integrated immersion suit that, when inflated, provides the suit with the functionality of a lifejacket

3.41**helicopter immersion suit**

immersion suit worn on the body throughout a helicopter flight, provided to protect the user in the event of a ditching or water impact

3.42**immersion suit system**

helicopter immersion suit (with or without thermal insulation) and its components and accessories including either a constant wear lifejacket or buoyancy element and/or emergency breathing system, as applicable

3.43**sprayhood**

cover fitted to a lifejacket or integrated immersion suit that can be brought in front of the face, incorporating an area of transparent material, used to protect the airways from water and wave splash and intended to increase the likelihood of survival in rough water conditions

3.44**declared absolute life**

maximum period of time that the life raft may remain in service from the date of manufacture

4 Description**4.1 Design features**

The main features of a life raft designed to this document, herein referred to as a life raft, are:

- buoyancy chambers;
- floor;
- canopy and the means to support the canopy;
- boarding facility;
- inflation system(s).

The following items of attached equipment are mandatory features of a life raft:

- life line(s);
- grab line(s);
- long and short retaining lines;
- sea anchor;

- stabilizing system;
- rescue line and quoit;
- internal and external survivor locator lights;
- buoyant knife/belt cutter;
- radar reflector;
- visual signalling device;
- survival ELT;
- survival equipment kit;
- valise or container (Category B life rafts only).

Optional accessories include but are not limited to:

- means of life raft containment.

4.2 Performance levels

4.2.1 Category A

Category A life rafts are designed to be integrated with the helicopter structure and are provided with an interface that allows remote deployment and activation.

4.2.2 Category B

Category B life rafts are designed to be manhandled out of the helicopter, manually deployed and activated by the helicopter occupants.

5 Requirements

5.1 Design

5.1.1 Occupancy ratings

5.1.1.1 An average occupant weight of 98 kg³ shall be used when determining the capacity of the life raft, taking into account the weight of the occupant's clothing and personal equipment.

5.1.1.2 The normal rated capacity of the life raft shall be taken as the number of occupants that can be accommodated when each occupant is provided with a minimum width of back support of 460 mm, a minimum height of back support of 200 mm and a minimum floor area of 0,33 m².

5.1.1.3 The minimum overload rating for the life raft shall be rounded up to the nearest whole number of occupants to the normal rated capacity times 1,5 with a minimum floor area of 0,22 m² for each occupant.

5.1.1.4 Testing shall be carried out in accordance with 6.1.

³ Value from CAA FOD 27/2005 for a male helicopter occupant.