



BSI Standards Publication

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

National foreword

This British Standard is the UK implementation of EN 4863:2023.

The UK participation in its preparation was entrusted to Technical Committee ACE/1/-/3, Rotorcraft Ditching.

A list of organizations represented on this committee can be obtained on request to its committee manager.

The International Maritime Organisation code for life-saving appliances requires a lifejacket to lift the mouth clear of the water and to self-right an unconscious person. This requirement should be fully applied to all aviation survival equipment configurations which will comprise a lifejacket and may include an emergency breathing system and/or an immersion suit.

Where the survival equipment includes an immersion suit, the inherent buoyancy of the immersion suit can impede self-righting. This may necessitate the use of a larger lifejacket or buoyancy element, which can then adversely affect other aspects of survival, such as life raft boarding. This self-righting issue may occur with larger immersion suit sizes and more heavily insulated suits, specifically immersion suits in Categories 3 or 4 (as set out in this standard BS EN 4863:2022 and discussed in the new lifejacket standard BS EN 4862:2022 and the new emergency breathing system standard BS EN 4856:2022).

In a review of aircraft Certification Specifications conducted by EASA (EASA Notice of Proposed Amendment NPA 2016-01), the absence of a clear requirement for self-righting of lifejacket and immersion suit combinations or integrated immersion suits was found to be anomalous, and was part of the motivation for the development of this Standard. A UK Civil Aviation Authority (CAA) review of offshore helicopter operations, following a fatal helicopter accident in August 2013 (Civil Aviation Publication CAP 1145), recommended that all lifejacket and immersion suit combinations used in service should be capable of self-righting.

In this British Standard (BS EN 4863:2022), self-righting is required for all configurations employing Category 1 and 2 suits. For Category 3 immersion suit configurations, at least two thirds of test subjects must self-right during testing. For Category 4 immersion suit configurations, none of the test subjects are required to self-right during testing.

Testing of a range of lifejacket and immersion suit combinations performed during the development of BS EN 4862:2022 and BS EN 4863:2022, by an accredited test house in the UK, indicated that self-righting when using Category 1, 2 or 3 immersion suits is achievable.

Given the prevailing water temperatures associated with operations on the UK Continental Shelf, it is unlikely that Category 4 immersion suits will be used. However, Category 3 immersion suits may be used and, as recommended by the UK CAA (CAP 1145), it is the UK committee's opinion that all occupants should be provided with a survival equipment configuration that will self-right.

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