

Test procedure for OLF's helicopter transportation suit.

Determining the function in wind and wave conditions of the immersion suit's ability to protect against water penetration and overflowing.

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The test results are measured against the acceptance criteria in OLF's immersion suit specifications. Any water leakage, measured as weight increase of the clothing worn underneath the suit, shall be added to the test subject's immersion suit before the hypothermia test is carried out.

Test group

The test group, consisting of six people who are to undergo the test in wind and wave conditions, shall have a morphological variation as set out in EN ISO 15027-3. Both sexes are to be represented by at least two people. The test subjects shall be independent of the suit supplier and testing institution.

Clothing worn underneath suit

The following is a standard for the clothes the test subjects are to wear underneath the suit:

- Cotton T-shirt
- Cotton underpants/panties
- Cotton shirt with long arms
- Cotton trousers (except jeans)
- Woollen socks
- A woollen jumper.

The clothing worn underneath shall be dry before the test starts and shall be collectively weighed: The weight is to be within +/- 20 gramme.

Donning the suit

Each test subject shall demonstrate that he/she is able to put the suit on over the clothes worn underneath without help. Each individual shall be able to put the immersion suit on in 1 minute (gloves, spray hood and emergency beacon shall not be put on).

Test procedure

At the start of the wind and wave test all the suit's primary closing mechanisms shall be closed. The hood shall be on, but gloves and any spray hood and/or inflatable floatation chamber/life jacket shall not be mobilised.

Immediately before jumping in the water, the test subjects should attempt to release any air in the suit. This is to be done without help from anyone.

The test subjects shall jump in the water from a minimum height of three metres and shall take a position in the assigned pool area with the highest wind exposure and choppiest waves. The test subjects shall by their own swimming movements keep this position in the pool area throughout the test.

Pool conditions:

- Minimum wave height = 1.0 metre
- Frequency – maximum distance from wave crest to wave crest is six metres
- Minimum wind force = 12 m/sec.
- Maximum water temperature = 20°C
- Minimum overflowing is 100 l/min of fresh water placed in the wind current.

Five minutes after the test subjects have jumped into the water the final mobilisation of the suit shall be carried out, by putting on gloves and mobilising any spray hood and life jacket/inflatable floatation chambers.

During the two-hour test in the water the test subjects shall each half hour give a subjective evaluation of the status (on a scale from 1 – 5 where 5 is the highest score) with regard to:

- Water penetration into the suit
- Thermal state
- Swallowing/breathing in water
- Sea sickness
- Fatigue
- Willingness to continue with the test.

The test subjects shall continue to be exposed to wind and waves when giving their subjective evaluation.

During the testing the test subjects are to refill air/gas in the life jacket/inflatable floatation chambers, if relevant. No refilling of air in the life jacket is to take place during the last 30 minutes of the test.

At the end of the test, after a maximum of two hours in the water, the freeboard (distance between the airway and water surface) shall be measured while the test subjects are in an unchanged floating position in the water under conditions where the water movement does not influence the accuracy of the measuring.

The test subjects are then allowed out of the pool and can take off their suit and clothing worn underneath.

The clothing worn underneath the suit shall be visually inspected to localise any areas of leakage in the suit. Any leakage found during this visual inspection shall have photographic documentation. The clothing worn underneath shall then be collected and weighed anew to determine any weight increase caused by water penetration. During this phase one should not expose the clothing worn underneath to any water/dampness other than that which has been accumulated during the test in the pool.

The average value of the measured water penetration into the suit for the six test subjects shall be calculated. The calculated average water quantity shall be entered into the suits of the test subjects in the subsequent thermal test.

Acceptance criteria

The acceptance criteria are stipulated in OLF's requirement specifications for immersion suits.

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