SLOVENSKI STANDARD
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Rešilni jopiči in osebni plavalni pripomočki - Dodatki

Lifejackets and personal buoyancy aids - Additional items

Rettungswesten und Schwimmhilfen - Zubehörteile

Gilets de sauvetage et équipement individuel d'aide a la flottaison - Accessoires

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Lifejackets and personal buoyancy aids - Additional items

Gilets de sauvetage et équipement individuel d'aide à la flottaison - Accessoires

Rettungswesten und Schwimmhilfen - Zubehörteile

This European Standard was approved by CEN on 1993-11-22. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart,36 B-1050 Brussels

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Foreword

This European Standard was prepared by CEN/TC 162 "Protective clothing including hand and arm protection and lifejackets" which secretariat is held by DIN.

This European Standard has been prepared under a Mandate given to CEN by the Commission of the European Communities (and the Secretariat of the European Free Trade Association), and supports essential requirements of EC Directive(s).

This European Standard provides standardization for additional items which may be required for lifejackets and buoyancy aids specified in four other European Standards, ENs 393, 395, 396 and 399.

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of an identical text or by endorsement, at the latest by May 1994, and conflicting national standards shall be withdrawn at the latest by May 1994.

In accordance with the CEN/CENELEC Internal Regulations, following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This document provides requirements, specifications and test methods for additional items which may in certain circumstances be required to be affixed to or added to lifejackets and buoyancy aids which comply with CEN standards.

These additional items are not optional extras in any sense; when the foreseeable conditions of use require, they are to be considered to be mandatory additions. They encompass items which may be required for the likely environmental hazards (e.g. lights to aid location during darkness), to provide for additional hazards of the working environment (e.g. twin-chamber buoyancy systems when there is a risk of damage to inflatable lifejackets), and the like. They may be added as appropriate to any of the devices designated as compliant with CEN standards, from the largest lifejacket to the lightest buoyancy aid.

Owners, users and manufacturers of buoyancy devices, and those framing legislation, should specify additional items compliant with these standards when the foreseeable conditions of use make them desirable. Manufacturers are also encouraged to fit them when possible to enhance the range of conditions for which devices are suited. Each of these additional items is likely in the right conditions to contribute significantly to the ability of the lifejacket or buoyancy aid to preserve life.

1 Scope

This standard specifies the requirements for characteristics, minimum safety requirements and test methods for additional items to increase the safety of persons engaged in activities in or near water, which can be integral parts of a lifejacket or buoyancy aid or separate additions to one.

The additional items specified can be incorporated as integral features of, or as separate additions to, lifejackets and buoyancy aids conforming with EN 393, 395, 396 and 399.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 364	Personal protective equipment against falls from a height -Test methods
EN 393	Lifejackets and personal buoyancy aids - Buoyancy aids 50 N
EN 395	Lifejackets and personal buoyancy aids - Lifejackets 100 N
EN 396	Lifejackets and personal buoyancy aids - Lifejackets 150 N
EN 399	Lifejackets and personal buoyancy aids - Lifejackets 275 N
prEN 1095	Deck safety harness and safety line for use on recreational craft
ISO 3303	Rubber- or plastics-coated fabrics - Determination of bursting strength
ISO 5082	Textiles - Woven fabrics - Determination of breaking strength - Grab method
ISO 9150	Protective clothing - Determination of behaviour of materials on impact of small splashes of molten metal

3 Definitions

3.1 emergency lights: Devices which emit light so as to increase the chances of the wearer being located during hours of darkness or in conditions of poor visibility.

3.2 whistles: Devices which, when blown by mouth, produce an audible sound which can aid in the location of the wearer during rescue.

3.3 multi-chamber buoyancy systems: Multi-chamber buoyancy systems divide the buoyancy provided by an inflatable lifejacket into two or more separate compartments, such that if mechanical damage occurs to one, others can still operate and provide buoyancy so as to aid the wearer when immersed.

3.4 safety harnesses and lines: Devices which allow the wearer to be securely attached to a strong point on a vessel or on shore, so as to prevent him from falling into the water, or, if he does fall into the water, to prevent him from being separated from the vessel or shore.

3.5 body lines: Lengths of cord which can be tied or otherwise fixed to other lifejackets or buoyancy aids, liferafts, or other objects, so as to keep the wearer in the vicinity of that person or object with a view to making location and thus rescue easier.

3.6 sprayhoods: Covers brought or placed in front of the airways of the wearer in order to reduce or eliminate the splashing of water from waves or the like onto the airways, and thereby promote the survival of the wearer in rough water conditions.

3.7 protective covers: Covers which are normally in place over the functional elements of a lifejacket or buoyancy aid, for example the inflatable chamber of an inflatable lifejacket, in order to protect them from physical damage, and may also be used to prevent items within the cover from snagging on external objects. Covers may be used to provide additional protection for any part of the lifejacket or buoyancy aid which may become damaged.

3.8 industrial resistances: The additional physical properties required of lifejackets and buoyancy aids in order for them to be suitable for use in foreseeable conditions of use in which they may be subject to exposure to significant abrasion, molten metal splash, flame and fire, etc., over and above that catered for in the basic CEN standards for such devices.

4. Specifications and test methods

4.1 General requirements

When items complying with this standard are attached to or included with items conforming to EN 393, 395, 396 or 399, and are attached to or included with them according to the instructions, if any, given with the additional item and that of the lifejacket or buoyancy aid, then both the additional item and the lifejacket or buoyancy aid shall remain compliant with their respective European Standards.

4.2 Emergency lights

4.2.1 General

Two types of emergency light shall be permissible under this standard, designated as Type A (described in words as an "all round light") and Type B (described in words as a "lens dome light").

The source of energy shall be compact and sealed in such a way that the contents (batteries etc.) cannot be removed without destroying the container; although it is permissible for the battery to be vented provided that this is done in such a way that the performance is unimpaired by immersion. The entire assembly shall be light in weight, and small and robust in construction. One test specimen shall be dropped from a height of (2 ± 0,01) m onto a rigidly mounted steel plate or smooth concrete surface, after which it shall still emit light to the requirements of 4.2.3 (without temperature conditioning). The light shall also be capable of being affixed to a lifejacket so that it is above the surface of the water when in normal use. The light shall not have any adverse effect on the performance of the lifejacket to which it may be attached, nor on its wearer.

4.2.2 Temperature

The energy source, light, and any connection between them shall withstand ten cycles of exposure in air to (8,0 $^{+0,1}_{0}$) h at (- 30 ± 1) °C, (8,0 $^{+0,1}_{0}$) h at 18 °C to 20 °C, and (8,0 $^{+0,1}_{0}$) h at (65 ± 1) °C in that order (the light not being on), without any damage or functional impairment, as assessed visually and by the test at 4.2.3. For the purposes of ascertaining compliance with this standard, 12 specimens shall be tested by this conditioning followed by the tests at 4.2.3, all 12 of which shall meet these requirements.

4.2.3 Photometry

The light shall provide a steady light of minimum luminous intensity of 0,75 candela. This minimum luminous intensity shall either:

a) for Type A lights, be provided over an arc of at least 180 ° in any vertical plane, and over an arc of 360 ° in the horizontal plane. In this case, lens systems and reflectors shall not be permitted, neither shall the use of coloured bulbs or filters;

or:

b) for Type B lights, be provided over two arcs, in a plane parallel to the horizontal plane, each of not less than 150°. Additionally, the point diametrically opposite the point of maximum intensity in this plane shall be situated in an uninterrupted arc of not less than 10° in the vertical plane, in which the minimum luminous intensity shall be 0,75 candela. Where a lens is used, the centre line of this arc shall be at an angle of not more than 30° above the horizontal. There shall also be a minimum luminous intensity of 0,5 candela throughout at least a 15° cone about the vertical axis.

These performance requirements are to be measured on the completion of temperature cycling as described at 4.2.2. In four of the specimens tested, activation shall be preceded by exposure to an air temperature of (- 30 ± 1) °C for $(8{,}0\ ^{+0{,}1}_{0})$ h, and the test activation shall be carried out in seawater at a temperature of (- 1 ± 0,5) °C. In these cases, achievement of at least the required minimum luminous intensity shall have occurred within a maximum of 5 min of activation. In four more of the specimens tested, activation shall be performed in seawater at (30 ± 1) °C, and half the required minimum luminous intensity shall be achieved within 30 s of activation and the required minimum luminons intensity shall be achieved in 10 min. In the remaining four of the specimens tested, activation shall be performed in fresh water at 18 °C to 20 °C, and the required minimum luminous intensity shall be achieved within 30 s of activation. Following activation, each light shall emit the required minimum luminous intensity for a minimum of 8 h continuously. When measuring the luminous intensity, the photocell used shall subtend an angle of not more than 0,5° at the light source. The distance of measurement shall be such that the law of the inverse of the square of the distance is applicable.

4.2.4 Marking

Part of the complete assembly shall be marked clearly and indelibly with the following items, expressed in at least the language of the member state of destination:

a) the manufacturer's identification;

b) the EN standard number and the type designation (A or B);

c) the date of manufacture and the expected date of replacement of the energy source;

d) any instructions regarding the storage, use and disposal of the battery;

e) if the battery contains any hazardous materials, such as lithium compounds, appropriate identification of the hazard.

4.3 Whistles

Whistles shall be robust in construction, free from all burrs, and not rely on any moving part for the production of sound. Three specimens shall be tested by being blown as hard as possible by a subject of between 20 years and 30 years of age and free from all known impairments to pulmonary function, in an outside and open area during calm clear weather. The sound generated shall be shown at least at an instant to have exceeded 100 dB(A) measured at a distance of (5 ± 0,1) m directly in front of the whistle, at a predominant frequency of (2 ± 0,1) kHz. The whistle shall also be shown to be capable of producing sound in air immediately following immersion in fresh water. Whistles shall be attached to cord or line of a length sufficient to permit their use, which shall in turn be attached securely to the lifejacket or buoyancy aid. They shall be stowed in a pocket on the device in such a way that the performance of the lifejacket is not affected, but so that they can be removed for use with either hand of the wearer, and can be stowed by the wearer. Whistles complying with this standard shall be marked with the number of the EN standard to which they conform.

4.4 Multi-chamber buoyancy systems

4.4.1 Types

These shall be of one of three types:

a) the buoyancy system can consist of two or more independently operating chambers which can be separated from each other. In this case, each operating chamber shall when tested separately meet at least the requirements of EN 395, as regards material strength, inflation characteristics, performance standards, etc.;

b) the buoyancy system can consist of two or more independently operating chambers which cannot be separated from each other, and any one of which is capable of filling the entire lifejacket in the absence of inflation from others (most employ a 'diaphragm' technique to achieve this). In this case, each operating chamber shall, when tested with the others uninflated, meet at least the requirements of EN 395. Each chamber shall be capable of providing a minimum of 100% of the buoyancy required under the applicable lifejacket standard. Each lifejacket shall be tested by first inflating one chamber fully to a pressure of (0,05 ± 0,01) kPa and then left for (30 $^{+2}_{0}$) min at a temperature of 15 °C to 25 °C. Each operating head shall then be fired in turn, allowing a (30 $^{+1}_{0}$) min period between each, until al the chambers have been fully inflated, and the first has been inflated using two means (oral and gas). No rupture or visible damage shall result. In the event that both chambers can be inflated orally, this test shall be repeated in full with the other chamber being inflated prior to firing each operating head;

c) the buoyancy system can consist of two or more independently operating chambers which cannot be separated from each other, and each of which provides a different and individual buoyancy, and all of which shall be capable of simultaneous inflation. In this case, each operating chamber shall meet at least the requirements of EN 395. However, inflating all the available buoyancy chambers will result in a much higher total buoyancy than inflating any single one.