



Institut luxembourgeois de la normalisation  
de l'accréditation, de la sécurité et qualité  
des produits et services

## ILNAS-EN 13319:2000

### **Diving accessories - Depth gauges and combined depth and time measuring devices - Functional and safety requirements, test methods**

Tauch-Zubehör - Tiefenmesser und  
kombinierte Tiefen- und Zeitmeßgeräte -  
Funktionelle und sicherheitstechnische  
Anforderungen, Prüfverfahren

Accessoires de plongée - Profondimètres  
et instruments combinant la mesure de  
la profondeur et du temps - Exigences  
fonctionnelles et de sécurité, méthodes

03/2000



## National Foreword

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EUROPEAN STANDARD ILNAS-EN 13319:2000 **EN 13319**  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

March 2000

ICS 97.220.40

English version

**Diving accessories - Depth gauges and combined depth and  
time measuring devices - Functional and safety requirements,  
test methods**

Accessoires de plongée - Profondimètres et instruments  
combinant la mesure de la profondeur et du temps -  
Exigences fonctionnelles et de sécurité, méthodes d'essai

Tauch-Zubehör - Tiefenmesser und kombinierte Tiefen-  
und Zeitmeßgeräte - Funktionelle und  
sicherheitstechnische Anforderungen, Prüfverfahren

This European Standard was approved by CEN on 20 January 2000.

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.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 136 "Sports, playground and other recreational equipment", the secretariat of which is held by DIN.

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 September 2000, and conflicting national standards shall be withdrawn at the latest by September 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## 1 Scope

This standard specifies functional and safety requirements for depth gauges, depth gauge features of other instruments, and both depth and time measurement features of other instruments.

This standard is not applicable to any information displayed to the user besides depth and time. Any information on decompression obligations displayed by equipment covered by this standard is explicitly excluded from its scope.

This standard is applicable to instruments measuring water depth by the environmental pressure as used by divers. Requirements for time measurement are only applicable if instruments are automatically counting the dive time.

## 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.

ISO 1413  
Horology – Shock-resistant watches

## 3 Definitions

For the purposes of this standard, the following definition applies:

**3.1 dive time:** Time spent under overpressure, measured between the limits given in 4.2.1 and 4.2.2.

## 4 Requirements

### 4.1 Depth measurement

#### 4.1.1 Gauge factor for the transformation from pressure to depth

The gauge factor shall be such that an increase of pressure of 1 bar would cause an increase in the depth displayed of 10 m.

NOTE: This rule assumes a water density of 1,0197 kg/l, i.e., in fresh water of 1,00 kg/l the geometric depth is 102 % of the display while in sea water of a density of 1,03 kg/l the geometric depth is 99 % of the display. Since the physiological relevant figure is the environmental pressure only, the geometric depth is of much inferior relevance for the diver.

#### 4.1.2 Accuracy of depth measurement

The display of the depth within the depth range specified by the manufacturer shall correspond to the values given in table 1 after testing in accordance with 5.1 and 5.3.8.

If the maximum depth specified by the manufacturer is deeper than 60 m, the values of table 1 have to be extended to this specified depth in increments of 15 m and in test pressure increments of 150 kPa with constant error margins of  $\left( \begin{smallmatrix} + \\ - \end{smallmatrix} \begin{smallmatrix} 10 \\ 15 \end{smallmatrix} \right)$  kPa.