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**Storitve rekreativnega potapljanja - Zahteve za usposabljanje rekreativnih potapljačev - Dekompresijsko potapljanje do 60 m (ISO/DIS 24806:2022)**

Recreational diving services - Requirements for rebreather diver training - Decompression diving to 60 m (ISO/DIS 24806:2022)

Dienstleistungen des Freizeittauchens - Anforderungen an die Ausbildung von Kreislaufgerätetauchern - Dekompressionstauchen bis 60m (ISO/DIS 24806:2022)

Services relatifs à la plongée de loisirs - Exigences concernant la formation des plongeurs à l'utilisation des recycleurs - Plongée avec décompression jusqu'à 60 m (ISO/DIS 24806:2022)

**Ta slovenski standard je istoveten z: prEN ISO 24806**

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**ICS:**

03.080.99	Druge storitve	Other services
03.200.99	Drugi standardi v zvezi s prostim časom in turizmom	Other standards relating to leisure and tourism

**oSIST prEN ISO 24806:2022****en,fr,de**



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## Recreational diving services — Requirements for rebreather diver training — Decompression diving to 60 m

ICS: 03.080.30; 03.200.99; 03.100.30

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# Contents

Page

<b>Foreword</b>	<b>v</b>
<b>Introduction</b>	<b>vi</b>
<b>1 Scope</b>	<b>1</b>
<b>2 Normative references</b>	<b>1</b>
<b>3 Terms and definitions</b>	<b>1</b>
<b>4 Competencies</b>	<b>4</b>
<b>5 Prerequisites for training</b>	<b>4</b>
5.1 General	4
5.2 Minimum age	4
5.3 Diving experience	4
5.4 Health requirements	5
<b>6 Introductory information</b>	<b>5</b>
<b>7 Theoretical knowledge</b>	<b>5</b>
7.1 Knowledge review	5
7.2 Rebreather basics	5
7.3 Function of rebreather components	5
7.4 Breathing performance using a rebreather	6
7.5 Rebreather assembly and checks	6
7.6 Gas supply duration	7
7.7 CO <sub>2</sub> absorbent duration	7
7.8 Rebreather pre-water entry checks	7
7.9 Advanced decompression dive planning	8
7.10 Dive conduct	8
7.11 Identifying and reacting to potential issues	9
7.12 Hypercapnia, hypoxia, and hyperoxia	10
7.13 Buddy and team diving procedures	10
7.14 Rebreather maintenance	11
7.15 Maintaining knowledge and skills	11
<b>8 Practical skills</b>	<b>11</b>
8.1 Skills review	11
8.2 General	11
8.3 Pre-dive procedures	11
8.4 Dive conduct	12
8.5 Emergency situations	13
8.6 Response to rebreather malfunctions	13
8.7 Post dive procedures	14
<b>9 Instructors</b>	<b>14</b>
<b>10 Training equipment and materials</b>	<b>14</b>
10.1 Training equipment	14
10.2 Training materials	15
<b>11 Practical training parameters</b>	<b>15</b>
11.1 Training dives or in-water sessions	15
11.2 Instructor responsibilities	15
11.3 Rebreather dive leaders	16
11.4 Breathing gas limits	16
11.4.1 Closed-circuit rebreather	16
11.4.2 Semiclosed-circuit rebreather	16
<b>12 Evaluation</b>	<b>17</b>
12.1 Knowledge	17

## ISO/DIS 24806:2022(E)

12.2	Skill evaluation.....	17
12.3	Proof of qualification.....	17
<b>Annex A (informative) Gas density and gas mixtures.....</b>		<b>18</b>
<b>Annex B (normative) Student crossover training programmes.....</b>		<b>19</b>
<b>Bibliography.....</b>		<b>20</b>

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 228, *Tourism and related services*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

Rebreathers (i.e. breathing devices that recirculate some or all of the diver's exhaled breath and replenish any consumed oxygen to maintain a breathable mixture) are becoming much more widely available and popular among divers. The market for rebreather diving has been constantly growing in recent years and is now considered to be large enough that the need for standards for training organizations on minimum training requirements is evident. Rebreathers allow divers to dive longer and to greater depths. Such depths can go beyond 30 m and may therefore require mandatory decompression stops. If rebreathers are used improperly they can be hazardous; divers have had fatal accidents due to incorrect use of these devices. It is therefore important to specify training for diving with such devices.

Training organizations offering training that conforms with this document may exceed any of the requirements in terms of the volume or complexity of training but should at least ensure the students master all the skills and knowledge defined in this document.

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# Recreational diving services — Requirements for rebreather diver training — Decompression diving to 60 m

## 1 Scope

This document specifies requirements for rebreather diver training programmes which provide the competencies required to perform dives to 60 m with a rebreather using a breathing mixture containing helium requiring mandatory decompression stops.

This document specifies evaluation criteria for these competencies.

This document specifies the requirements under which training is provided, in addition to the general requirements for recreational diving service provision in accordance with ISO 24803.

## 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.

ISO 24802-2, *Recreational diving services — Requirements for the training of scuba instructors — Part 2: Level 2*

ISO 24803, *Recreational diving services — Requirements for recreational diving providers*

ISO/FDIS 24805, *Recreational diving services — Requirements for rebreather diver training — Decompression diving to 45 m*

## 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>
- IEC Electropedia: available at <https://www.electropedia.org/>

### 3.1

#### rebreather

apparatus that has a supply of gas carried by the diver, allowing the diver to breathe under water which enables the diver to inspire gas from a facepiece connected to a counterlung and to pass exhaled gas through a carbon dioxide absorption material before it is re-breathed from the counterlung and inspired partial pressure of the gases within the apparatus remain within acceptable physiological limits so that gas is thus recirculated within the apparatus

Note 1 to entry: A rebreather can also be called a self-contained rebreathing apparatus.

Note 2 to entry: A facepiece can be a mouthpiece assembly, a half mask, a full-face mask or a helmet.

[SOURCE: EN 14143:2013, 3.1, modified — Note 1 to entry modified and Note 2 to entry added. This content has been reproduced with the permission of CEN. Copyright remains with CEN.]

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## 3.2

**rebreather type**

primary rebreather design

EXAMPLE Closed-circuit rebreather (CCR), manually controlled closed-circuit rebreather (mCCR), electronically controlled closed-circuit rebreather (eCCR), semiclosed-circuit rebreather (SCR), manually controlled SCR (mSCR), electronically controlled SCR (eSCR), hybrid closed-circuit rebreather (hCCR)

## 3.3

**rebreather unit**

type of *rebreather* (3.1) having consistent controls, displays and configuration over several *rebreather models* (3.4) where the operation is essentially the same from rebreather model to rebreather model

## 3.4

**rebreather model**

specific individual design of *rebreather* (3.1) made by a manufacturer

## 3.5

**breathing gas**

gas present in the *breathing loop* (3.14) inspired by the diver

## 3.6

**supply gas**

gas present in a cylinder which may be added to the *breathing loop* (3.14)

## 3.7

**bailout gas**

gas present in a cylinder that may be breathed directly by the diver

## 3.8

**nitrox**

breathable mixture of nitrogen and oxygen with more than 21 % oxygen content, which may contain trace gases at levels no higher than those found in normal air

[SOURCE: ISO 11107:2009, 3.5]

## 3.9

**trimix**

gas comprising a specified mixture of oxygen, helium and nitrogen, capable of supporting human life under appropriate diving or hyperbaric conditions

Note 1 to entry: This includes manufactured gas mixtures made up from combinations of pure oxygen, pure helium and pure nitrogen, with or without compressed air.

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## 3.10

**heliox**

gas comprising a specified mixture of oxygen and helium, capable of supporting human life under appropriate diving or hyperbaric conditions

## 3.11

**PO<sub>2</sub>**

partial pressure of oxygen in a gas mixture

Note 1 to entry: This usually refers specifically to the breathing-gas mixture inhaled by a diver.

**3.12****set-point**

PO<sub>2</sub> setpoint

PO<sub>2</sub> value that is used by a control system to determine when a solenoid valve injects oxygen into the *breathing loop* (3.14)

**3.13****respiratory minute volume****RMV**

product of the tidal volume and breathing frequency measured in litres per minute

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**3.14****breathing loop**

portion of a *rebreather* (3.1) through which gas circulates, usually consisting of a mouthpiece, breathing hose(s), counterlung(s), non-return valves and a CO<sub>2</sub> absorbent canister

**3.15****scrubber**

canister in the *breathing loop* (3.14) containing CO<sub>2</sub> absorbent

**3.16****confined water**

swimming pool with a depth appropriate to the activity or body of water, offering similar conditions with regard to visibility, depth, water movement and access

[SOURCE: ISO 24801-2:2014, 3.5]

**3.17****open water**

body of water significantly larger than a swimming pool, offering conditions typical of a natural body of water

[SOURCE: ISO 24801-2:2014, 3.6]

**3.18****limited open water**

*open water* (3.17) no deeper than 20 metres with no appreciable water movement, and visibility that is sufficient to allow effective student supervision and skill development

**3.19****service provider**

entity (individual or organization), including any individual acting on behalf such an entity, which offers one or more of the following services:

- introductory diving activities;
- snorkelling excursions;
- provision of training and education;
- organized and guided diving for qualified divers;
- rental of diving equipment.

[SOURCE: ISO 24803:2017-03, 3.1]

**3.20****safety stop**

non-mandatory *decompression stop* (3.21) near the surface prior to surfacing