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**Recreational diving services —  
Requirements for the training of  
recreational scuba divers —**

**Part 2:  
Level 2 — Autonomous diver**

**iTeh STANDARD PREVIEW**  
*Services relatifs à la plongée de loisirs — Exigences concernant la  
formation des plongeurs pratiquant la plongée de loisirs —  
Partie 2: Niveau 2 — Plongeur autonome*  
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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)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is Technical Committee ISO/TC 228, *Tourism and related services*.

This second edition of ISO 24801-2 cancels and replaces the first edition (ISO 24801-2:2007), which has been technically revised.

ISO 24801 consists of the following parts, under the general title *Recreational diving services — Requirements for the training of recreational scuba divers*:

- *Part 1: Level 1 — Supervised diver*
- *Part 2: Level 2 — Autonomous diver*
- *Part 3: Level 3 — Dive leader*

## Introduction

This part of ISO 24801 is one of a series of International Standards relating to recreational diving services, which have been prepared with the aim of establishing a set of specifications for safety practices and the provision of services.

These International Standards specify:

- necessary levels of experience and competency of scuba divers and scuba instructors;
- safety practices and requirements for recreational scuba diving service providers appropriate to the different diving levels.

The requirements specified are minimal; they do not preclude the provision of additional training or the evaluation of additional competencies by a service provider. These International Standards represent a tool for comparison of existing (or future) qualifications of scuba divers. They do not represent a course programme, nor do they imply that course programmes and scuba diver qualifications issued by different nations or training organizations are required to correspond to these levels.

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# Recreational diving services — Requirements for the training of recreational scuba divers —

## Part 2: Level 2 — Autonomous diver

### 1 Scope

This part of ISO 24801 specifies the competencies required of a scuba diver in order to obtain a scuba diver qualification from a training organization attesting that he/she has met or exceeded scuba diver level 2 (“Autonomous diver”), and specifies evaluation criteria for these competencies.

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

This part of ISO 24801 applies to training and evaluation in recreational scuba diving.

### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 24801-3, *Recreational diving services — Requirements for the training of recreational scuba divers — Part 3: Level 3 — Dive leader* ISO 24801-2:2014  
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ISO 24802-1, *Recreational diving services — Requirements for the training of scuba instructors — Part 1: Level 1*

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 scuba diving service providers*

EN 250:2000, *Respiratory equipment — Open-circuit self-contained compressed air diving apparatus — Requirements, testing, marking*

EN 12628:1999, *Diving accessories — Combined buoyancy and rescue devices — Functional and safety requirements, test methods*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 250:2000 and EN 12628:1999 and the following apply.

#### 3.1 training organization

entity providing training systems and issuing qualifications for recreational diving, and which is responsible for the implementation and quality management of training

Note 1 to entry: Entity can include scuba diving federations and scuba diver training agencies.

**3.2**

**scuba instructor**

individual qualified in accordance with ISO 24802-1 or ISO 24802-2

**3.3**

**dive leader**

individual qualified in accordance with ISO 24801-3

**3.4**

**breathing gas**

mixture of oxygen and nitrogen with no less than 20 % oxygen

**3.5**

**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

**3.6**

**open water**

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

**3.7**

**diving equipment**

equipment consisting of fins, mask, snorkel, regulator, alternative breathing gas system, cylinder, cylinder-support-system, buoyancy compensator, a quick release weight system (if appropriate), submersible pressure gauge (breathing gas pressure monitor), means to measure depth and time and to safely limit exposure to inert gas, diving suit (if appropriate)

Note 1 to entry: An alternative breathing gas system could range from a simple octopus system to a duplicate breathing system with a separate breathing gas supply.

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Note 2 to entry: Specific environments can require additional equipment (e.g. an underwater navigational aid, knife/cutting device, delayed surface marker buoy).

**3.8**

**direct supervision**

supervision of a group of divers by a scuba instructor or a dive leader who is in a position that allows rapid intervention on behalf of the divers

**4 Competencies of a recreational scuba diver at level 2 (“Autonomous diver”)**

Scuba divers at level 2 shall be trained such that when evaluated in accordance with [Clause 10](#) they are deemed to have sufficient knowledge, skill and experience to dive with other scuba divers of at least the same level in open water without supervision of a scuba instructor.

Scuba divers at level 2 are qualified to dive within the following parameters unless they have additional training or are accompanied by a dive leader:

- dive to a recommended maximum depth of 20 m with other scuba divers of the same level;
- make dives, which do not require in-water decompression stops;
- dive only when appropriate support (e.g. first aid kit, a dive leader, support vessel; as appropriate to the dive site and the divers’ experience) is available at the surface;
- dive under conditions that are equal or better than the conditions where they were trained.

If diving conditions are significantly different from those previously experienced, a scuba diver at level 2 requires an appropriate orientation from a dive leader.



Where further instruction is required this may only be provided by a suitably qualified scuba instructor of level 2. If accompanied by a scuba instructor, a scuba diver at level 2 may gain progressive experience beyond these parameters and develop competency in managing more challenging diving conditions (e.g. increased depth and current, reduced visibility, extreme temperatures) designed to lead to higher qualifications.

## 5 Prerequisites for training

### 5.1 General

The service provider shall ensure that the client fulfils the following prerequisites to take part in the training course envisaged.

### 5.2 Minors

Documented parental or legal guardian consent shall be obtained when the applicant is a minor.

### 5.3 Health requirements

Documented evidence shall be obtained that the student has been medically screened as suitable for recreational diving by means of an appropriate questionnaire or medical examination (see [Annex A](#) for an example of a medical sheet). In any case of doubt, the training service provider shall refer students to proper medical resources. If the student is not examined by a physician the student shall be obliged to confirm by signature that he or she has understood written information given by the scuba instructor on diseases and physical conditions which can pose diving related risks.

Students shall be advised of the importance of appropriate regular medical examinations.

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## 6 Introductory information

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Information in accordance with ISO 24803 shall be made available to the students prior to, or during the first class meeting.

## 7 Required theoretical knowledge

### 7.1 Equipment

Students shall have an appropriate knowledge concerning the physical characteristics, operating principles, maintenance and use of the following equipment items:

- mask;
- fins;
- snorkel;
- diving suits;
- quick release weight systems;
- float, flag and marker buoy;
- cylinders;
- cylinder valves;
- regulators;

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- submersible pressure gauge (breathing gas pressure monitor);
- alternative breathing gas source;
- cylinder-support systems;
- buoyancy control devices;
- timing devices;
- under-water navigational aids;
- depth gauge/depth monitor;
- dive tables;
- dive computers;
- knife/cutting devices;
- lights;
- emergency signalling device (acoustical, optical);
- first aid and oxygen kit;
- personal diving log.

NOTE Where additional equipment is required, relevant training needs to be provided (e.g. an underwater navigational aid, knife/cutting device). In environments where surface marker buoys or delayed surface marker buoys are commonly used, divers need to be instructed in their use.

### 7.2 Physics of diving

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Students shall have an appropriate knowledge concerning the physical principles and their application to diving activities, equipment and hazards relating to:

- sound;
- light;
- buoyancy;
- pressure/gas laws;
- temperature.

### 7.3 Decompression management

Students shall have an appropriate knowledge of decompression management using dive tables, dive computers and/or dive planning software, including:

- how to determine dive profiles which do not require in-water decompression stops for single and repetitive dives;
- be able to determine required stage decompression.

### 7.4 Dive planning

Students shall have appropriate knowledge concerning dive planning issues:

- planning and preparation, with emphasis on the prevention of out-of-breathing-gas situations and emergencies;

- emergency procedures;
- accident management/prevention;
- communications, both under-water and on the surface;
- diver assistance (self/buddy);
- recommended diving practices (e.g. separation procedures, safety stops);
- procedures for diving from boats;
- proper use of personal diving log.

## 7.5 Medical problems related to diving

### 7.5.1 General

Students shall have an appropriate knowledge concerning the causes, symptoms, prevention, first-aid and treatment of diving medical problems.

### 7.5.2 Direct effects of pressure

#### 7.5.2.1 Increasing pressure (descent phase):

- gas compression (e.g. ears, sinuses, masks, lungs, suits, teeth).

#### 7.5.2.2 Decreasing pressure (ascent phase):

- gas expansion (e.g. ears, sinuses, lungs, stomach, intestines, teeth);
- forms of decompression illness (DCI) (e.g. decompression sickness, arterial gas embolism).

#### 7.5.2.3 Other pressure related conditions:

- decompression illness (DCI) (including on-gassing, post-dive effects);
- nitrogen narcosis;
- hypercapnia (excess carbon dioxide);
- oxygen toxicity;
- contaminated breathing gas.

### 7.5.3 Other hazards:

- physical stress (incl. fatigue and exhaustion);
- exposure/hypothermia/hyperthermia;
- in-water injuries;
- drowning;
- hyperventilation;
- airway control and related problems;
- medication, drugs, alcohol.