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Recreational diving services — Safety related minimum requirements for the training of recreational scuba divers —

Part 3: Level 3 — Dive leader

Services relatifs à la plongée de loisirs — Exigences minimales liées à la sécurité concernant la formation des plongeurs en scaphandre autonome pratiquant la plongée de loisirs —

Partie 3: Niveau 3 — Guide de palanquée

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 24801-3 was prepared by the European Committee for Standardization (as EN 14153-3:2003) and was adopted, under a special “fast-track procedure”, by Technical Committee ISO/TC 228, *Tourism and related services*, in parallel with its approval by the ISO member bodies.

ISO 24801 consists of the following parts, under the general title *Recreational diving services — Safety related minimum 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

The International Standards relating to recreational diving services have been prepared by ISO/TC 228/WG 1 “Diving services”, with the aim of establishing a series of specifications for safety practices and the provision of services.

Therefore 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 assessment by a service provider of additional competencies. These International Standards represent a tool for comparison of existing (or future) qualifications of scuba divers. In no way do they represent a course programme nor do they imply that course programs and scuba diver certifications issued by different nations or training organizations must necessarily correspond to these levels.

Recreational diving services — Safety related minimum requirements for the training of recreational scuba divers —

Part 3:
Level 3 — Dive leader

1 Scope

This part of ISO 24801 specifies the competencies that a scuba diver has to have achieved in order for a training organization to award the scuba diver certification indicating that he has met or exceeded scuba diver level 3 — "Dive leader" and specifies assessment of these competencies.

It also specifies conditions under which training has to be provided, in addition to the general requirements for recreational diving service provision specified in ISO 24803.

This part of ISO 24801 applies only to contractual training and certification in recreational scuba diving.

2 Normative references

The following referenced documents are indispensable for the application 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 1:2007, *Recreational diving services — Safety related minimum requirements for the training of scuba instructors — Part 1: Level 1*

ISO 24802-2:2007, *Recreational diving services — Safety related minimum requirements for the training of scuba instructors — Part 2: Level 2*

ISO 24803:2007, *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 recreational scuba diving training systems and certification, and which is responsible for the implementation and quality management of scuba diver training

NOTE Entity may include scuba diving federations and scuba diver training agencies.

3.2
certification
confirmation that a student has completed scuba diver training which fulfils all requirements in accordance with this part of ISO 24801, as issued by training organizations

3.3
scuba instructor
individual qualified in accordance with ISO 24802-2

3.4
breathing gas
appropriate 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 that offers 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 encountered in the region

3.7
diving equipment
equipment consisting of the following items:

— fins,

— mask,

— snorkel,

— demand regulator (also referred to as a regulator),

— alternative breathing gas system,

NOTE This could range from a simple octopus system to a duplicate breathing system with a separate breathing gas supply.

— cylinder,

— cylinder-support-system and including (if appropriate) a quick release weight 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 Specific environments may require additional equipment (e.g. an underwater navigational aid, knife/cutting device).

3.8
dive management
all actions and measures necessary to ensure safe conduct of recreational scuba diving activities, including:

— briefing,

— planning,

— conduct and control,

— emergency procedures,

— de-briefing

4 Competencies of a recreational scuba diver at level 3 — "Dive leader"

Scuba divers at level 3 — "Dive leader" shall be trained such that when assessed in accordance with Clause 11 they are deemed to have sufficient knowledge, skill and experience to plan, organize and conduct their dives and lead other recreational scuba divers in open water.

Scuba divers at level 3 — "Dive leader" are qualified to

— conduct any specialised recreational scuba diving activities for which they have received appropriate training,

— plan and execute emergency procedures appropriate for the diving environment and activities.

Scuba divers at level 3 — "Dive leader" may help to control students and improve safety but may not assess or teach any skills or knowledge to students.

NOTE If diving and environmental conditions are significantly different from those previously experienced, a scuba diver at level 3 — "Dive leader" requires an appropriate orientation with regard to local environmental conditions. In order to lead scuba divers on dives which have more demanding operational parameters a scuba diver at level 3 — "Dive leader" shall have appropriate specialised training and experience. Examples of such dives include:

— night dives,

— limited visibility dives,

— dives in underwater currents (e.g. drift dives),

— deep dives,

— wreck dives,

— dry suit dives.

Where further scuba diving instruction is required, in order to meet the above mentioned competencies, this can only be provided by a suitably qualified scuba instructor.

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.

NOTE In some countries and training organizations a medical examination is mandatory.

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

5.4 Minimum diving experience

Students shall have met all requirements for a level 2 scuba diver in accordance with ISO 24801-2.

Students shall have experience of night/limited visibility diving, deep diving (taking into account local environmental conditions), and navigation (as documented in bearer's log).

6 Introductory information

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

Students shall have sufficient understanding and knowledge of the following topics to plan and execute their dives in all typical conditions encountered in the local environment and to plan for and respond to possible emergencies during such dives:

— equipment,

— physics of diving,

— medical issues related to diving,

— use of diving tables and dive computers,

— diving environment,

— dive planning and dive management,

— communications, both underwater and on the surface,

— recommended safe diving practices,

— boat diving procedures,

— night diving procedures,

— limited visibility diving procedures,

— deep diving procedures,

— tides and currents,

— limitations of diving with no direct access to the surface,

— navigation,

— accident management,

— lost diver procedures,

— competencies scuba divers at level 1 — “Supervised diver” and level 2 — “Autonomous diver”,

— awareness and understanding of diving related legislation and legal requirements.

8 Personal scuba skills

8.1 Scuba skills

The competence of students in all scuba skills shall be suitable to cope with the most demanding operational factors of their region. Influencing factors may include the following:

— depth range exceeding that of level 2 scuba diver,

— underwater visibility,

— size and experience of the group,

— equipment in use,

— current,

— surface conditions,

— water temperature.

Students shall competently conduct the following skills in a manner showing highest level mastery and competence:

— use of mask, fins and snorkel,

— diving equipment assembly and disassembly (at water's edge),

— pre-dive inspection of diving equipment and in and out of water buddy checks,

— entries and exits,

— proper weighting,

— mouthpiece clearing — snorkel and regulator,

— regulator/snorkel exchanges at the surface,

— proper descent and ascent procedures (e.g. equalizing pressure in ears and mask),

— swim under water efficiently with appropriate buoyancy and attitude control,

— mask-clearing, including removal and replacement,

— controlled breathing under water without mask,

— buddy-system techniques (e.g. appropriate hand signals, staying close, monitoring the buddy),

— underwater and surface buoyancy control,

— underwater problem-solving (e.g. regulator recovery),

— monitoring instruments,

— surface-snorkel swimming with full diving equipment; the diver shall be able to swim back to the point of safe exit,

— surface operation of the quick release of the weight ballast system,

— removal and replacement of weight ballast system,

— removal of scuba system on the surface,

— procedures allowing a scuba diver to ascend to the surface in the event of an out-of-breathing gas situation, acting as both receiver and donor; this may include emergency ascents and the use of alternative breathing gas supply (own and buddy's),

— equipment care and maintenance (at water's edge),

— diver assistance techniques (self/buddy) (i.e. to assist a buddy to the surface and provide support on the surface),

— underwater navigation,

— use of a surface marker buoy (delayed or permanent).

8.2 Deep diving

Students shall demonstrate mastery of the techniques involved in planning and executing dives beyond the depth ranges typical for recreational scuba diving in the local environment. Specifically these techniques shall address the following issues:

— nitrogen narcosis,

— air consumption and breathing,

— decompression limits,

— proper ascent procedures including in-water stops,

— buoyancy changes,

— use of specific equipment (e.g. emergency breathing gas supply),

— emergency equipment and procedures.

8.3 Navigation

Students shall demonstrate mastery of underwater navigation.

They shall demonstrate their ability to plan, organize and conduct their dives and to safely lead other recreational scuba divers using both instruments and natural navigation.

9 Leadership skills

The following skills shall be competently conducted in depth ranges and environmental conditions typical to those usually met in level 3 — “Dive leader” scuba diving activities.

9.1 Dive related skills

9.1.1 Dive planning and preparation

— site selection taking into account dive team capabilities and environmental factors,

— emergency plan and equipment preparation,

— decompression calculation and consideration of other factors affecting off-gassing (e.g. flying and other changes in altitude, physical activities),

— dive limits,

— descent and ascent aids (e.g. shot line, emergency breathing gas supply),

— indicating diving operations where required (e.g. by means of A-flag or other signals).

9.1.2 Dive briefing

— team assignments,

— time/depth limits,

— problem/emergency procedures,

— site/environmental considerations,

— communication,

— pre-dive equipment preparation.

9.1.3 Dive conduct

— kitting up and pre-dive checks,

— entry control,

— descent control,

— monitoring of depth, time, progress of the dive plan and scuba divers' breathing gas supplies,

— continued monitoring of environmental conditions,

— awareness of scuba divers stress levels,

— identification of under water hazards,

— appropriate reaction to problems and emergencies,

— underwater navigation (see 8.3),

— safe ascent and exit control.

9.1.4 Post-dive procedures

— check out procedures,

— debriefing,

— check decompression calculation and consideration of other factors affecting off-gassing (e.g. flying and other changes in altitude, physical activities),

— equipment care and post-dive maintenance,

— recording the dive.

9.2 Diver rescue

Students shall complete level 3 scuba diver training in scuba diver rescue skills. Upon completion students shall demonstrate diver rescue skills by completing at least one open water rescue.

Rescue skills shall include:

— recognition of emergency situations (e.g. loss of breathing gas supply, lack of response),

— basic underwater search techniques,

— controlled casualty recovery from depth,

— effective emergency surface actions,

— casualty recovery from the water,

— emergency situation management including co-ordination with emergency services.

9.3 First aid

Students shall complete a course/courses in first-aid and cardiopulmonary resuscitation (CPR) approved by the training organization and have a valid qualification or certificate.

9.4 Emergency oxygen administration

Students shall have completed training in emergency administration of oxygen. This training shall include theoretical instruction of the medical principles involved and practical tuition on the use of an emergency oxygen unit.

10 Practical training parameter

10.1 An open water dive shall comprise at least the following activities:

— briefing,

— preparation to dive,

— pre-dive checks,

— entry into water,

— descent procedures,

— underwater activity,

— ascent and surfacing procedures,

— exit from water,

— debriefing,

— post-dive procedures,

— recording the dive.

10.2 During open water dives students shall be equipped with at least the diving equipment in accordance with 3.7.

11 Assessment

11.1 Knowledge

Students shall demonstrate to a scuba instructor mastery of the knowledge of scuba diving by passing an examination as prescribed by a training organization (see Annex A for an explanatory example). This examination shall test theoretical knowledge in accordance with Clause 7 and knowledge of skills in accordance with Clause 8 and Clause 9.

Mastery of a theory topic is defined as being able to demonstrate a detailed understanding of the causes and effects related to each item and further to demonstrate a complete understanding of all aspects of such topics that are relevant to the conduct of the diving activities as addressed in this part of ISO 24801.

11.2 Scuba skills

Students shall demonstrate mastery to a scuba instructor of the scuba skills in accordance with Clause 8 and capabilities in accordance with Clause 9 (see Annex A for an explanatory example). Students shall be able to demonstrate skills in group control and supervision of diving activities.

Mastery of practical skills is defined as the ability to consistently perform a skill in a controlled manner with low levels of personal stress in conditions typical of the local environment.

11.3 Minimum number of open water dives

To be certified as a scuba diver level 3 — “Dive leader” the student shall have logged at least 60 open water dives or 50 open water dives with a total accumulated underwater time of 25 h. At least 40 of these dives shall have been completed after level 2 in accordance with ISO 24801-2.

At least 30 open water dives shall include as wide a range of environmental factors as possible to ensure that the student has a wide range of experience. Examples of more demanding environmental factors may be:

— low visibility (less than 2 m horizontal),

— currents [more than 0,25 m/s (approximately half a knot)],

— cold water (less than 10 °C).

If the local environment does not include any such factors, the candidate's diving experience should be broadened by completing a greater number of dives and/or including dives of greater depth (e.g. more than 30 m).

12 Minimum age for leading

The minimum age for leading other scuba divers in accordance with Clause 4 shall be 18 years.

Annex A
(informative)

Examples for the degree of mastery required for the level 3 scuba diver examination

Theory topic	Required competency	Criteria testing
Equipment — Regulators	1. Describe what is meant by open circuit scuba, semi-closed circuit scuba and closed circuit scuba. 2. Explain how an open circuit regulator works. 3. Describe common regulator design types and the advantages/disadvantages of each. 4. Describe what is meant by fail-safe with respect to regulators, and the advantages of it. 5. Explain the purpose of a regulator environmental seal and state when it should be used. 6. Describe the differences between balanced and unbalanced regulators. 7. Identify when a regulator requires service and inspection and assess basic functionality. 8. …	Written or oral exam.
Practical topic	**Required competency**	**Criteria testing**
Dive planning and preparation	1. Conduct environmental and diver assessments, and take other appropriate supervisory steps based on the assessments. 2. Prepare an emergency plan appropriate for the diving location and dive team competencies and experience. 3. Conduct an appropriate pre-dive briefing for a dive site for assigned dive team. 4. Respond to or prevent diver problems appropriately. 5. Selection and preparation of descent/ascent aids. 6. …	Observation of practical exercises by scuba instructor and written and/or oral theory examination.
Buoyancy	1. Use another diver's buoyancy compensator or drysuit to lift the diver from depth in a controlled manner to simulate the rescue of a non-responsive diver. 2. Demonstrate perfect buoyancy in more demanding conditions. 3. Recognize and correct weighting problems of dive buddies. 4. …	Observation of practical exercises by scuba instructor and written examination.

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