

## **BSAC "Dräger Dolphin" Semi-Closed Circuit Rebreather Diver Course.**

This document outlines the Dolphin Rebreather course and provides guidance and definitions specific to the Dolphin Rebreather Diver qualification.

### **Prerequisites**

Minimum Sport Diver with basic nitrox or equivalent qualifications  
Minimum Age 18

### **Definition of a Dolphin Rebreather Diver**

A Dolphin Rebreather Diver is defined as a diver who is competent to:

- conduct dives with a buddy of a minimum grade of Ocean Diver within the restrictions of the conditions already encountered by each during their training, and under the supervision of a Dive Marshal
- conduct dives with another Dolphin SCR Diver, within the restrictions of the conditions already encountered during their training or previous experience
- conduct dives with a Dive Leader or higher grade, to expand their experience beyond that previously encountered, under the supervision of a Dive Marshal
- dive to a depth which is initially limited to 30m, but which can subsequently be extended progressively, under the supervision of a Nationally Qualified Instructor (NQI), to a maximum of 40m
- plan and conduct dives requiring mandatory decompression stops up to a total maximum time of 10 minutes
- conduct dives where other divers, capable of providing assistance and rescue management skills, are available at the surface
- conduct dives within BSAC safe diving recommendations

### **Dolphin Diver Course Outline**

The Dolphin Diver Course consists of the following elements:

- ten classroom lessons
- a theory assessment
- a dry practical lesson
- one Sheltered Water lesson
- five or six open water lessons depending on local conditions and student performance.

All practical training in both Sheltered and Open Water includes the achievement of specific performance standards at appropriate points throughout the lessons.

## **Instructor Requirements**

Dolphin Rebreather Diver training is required to be carried out by an instructor with a minimum qualification of BSAC Dolphin Rebreather Instructor.

Advanced Instructors with the appropriate level of rebreather diving experience may act as Provisional Dolphin Rebreather Instructors under the supervision of an approved Dolphin Rebreather Instructor Trainer. The following levels of supervision will apply to the training delivered by an Provisional Dolphin Rebreather Instructor:

- Classroom and Sheltered Water lessons under on-site supervision
- Open Water lessons under direct (i.e. in water) supervision.

The process and pre-requisites to qualify as a BSAC Dolphin Rebreather Instructor, a Dolphin Rebreather Instructor Trainer, or to act as an Provisional Dolphin Rebreather Instructor are defined in the relevant Dolphin Rebreather Standards and Procedures.

## **Student/Instructor Ratio**

For practical lessons, student/instructor ratios should comply with the following guidelines:

### **Sheltered Water lessons**

As for the Diver Training Programme, the sheltered water lesson notes assume the most likely scenario of lessons being carried out in a swimming pool, where time constraints impose a one hour limit. In order that all students can receive effective tuition during this time, a ratio of four students per instructor is assumed.

In less favourable circumstances, this ratio may need to be reduced appropriate to the water conditions and time available.

Where water conditions allow longer lessons, the above ratios may be increased to a ratio of a maximum of six students per instructor provided that:

- all students can receive effective tuition within the time available
- underwater visibility is a minimum of 5 metres
- the instructor is of a minimum grade of BSAC Dolphin Rebreather Instructor
- the instructor has the assistance of another diver, minimum qualification Dive Leader and Dolphin Rebreather Diver, to monitor the safety and control of students
- the lesson briefing includes clear directions as to the role of the assisting diver during skills instruction

## **Open Water lessons**

Because of the nature of the exercises being taught, the lesson contents assume a ratio of a maximum of two students per instructor, to ensure that each student receives effective tuition.

## **Dry Practical Lessons**

To ensure that the student can fully participate in the exercises and receives effective tuition, the lesson contents assume a ratio of two students per instructor.

## **Equipment Configuration**

For Sheltered Water training, the following student equipment configuration is assumed:

- a Dräger Dolphin SCR
- access to an Alternate Air Source (AAS) demand valve and cylinder contents gauge
- an instrument to measure FO<sub>2</sub> and/or PO<sub>2</sub>
- mask, fins and snorkel
- weightbelt or integrated weights where necessary

When progressing to Open Water lessons the equipment should also include:

- depth gauge and watch/timer or decompression computer
- protective clothing where appropriate Instructors should wear a similar configuration of equipment to the students with appropriate bailout considerations to support the students.

## **Definitions**

Certain terms are used throughout this section of the manual which are defined as follows:

**Sheltered Water** - a well-maintained swimming pool or water, which provides similar conditions, e.g. is generally less than 6m deep, with a stepped or gently shelving open bottom of firm composition, has adequate visibility (minimum 5m), and is free from significant water movement from either waves or currents. Within sheltered water depths are defined as follows:

**standing depth** - water that is between waist and chest deep allowing students to either stand comfortably or to kneel and be fully submerged

**deeper water** - water that is from approximately 2m to 6m in depth Open Water - water encompassing conditions beyond those defined for sheltered water, including a variety of topography and underwater life, and which may have noticeable water movement due to waves or current (max 0.5kn). Visibility will generally be in excess of 4m but may, on appropriate occasions, be less.

Until qualified as a Dolphin Rebreather Diver, depth should not exceed 30m. Subsequently, and with appropriate experience, this may be increased to 40m.

### **Lesson Sequencing**

Classroom lessons are structured to provide the pre-requisite knowledge appropriate to their counterpart practical lessons. Classroom and practical lessons should therefore be run in an integrated sequence but, the lessons have been developed to cater for differing logistics as follows:

DnT1 Classroom Lesson Course Overview  
DnT2 Classroom Lesson Introduction to Rebreathers  
DnT3 Classroom Lesson Preparing a Rebreather  
DnT4 Classroom Lesson Equipment Care  
DnO1 Practical Lesson Confined Water Skills  
DnT5 Classroom lesson Dive Conduct & Problem Analysis  
DnO2 Practical Lesson Open Water Lesson – Basic Skills & Buoyancy  
DnO3 Practical Lesson Open Water Lesson – Vertical Ascents & Descents  
DnT6 Classroom lesson Gas Physiology  
DnT7 Classroom lesson Physics  
DnT8 Classroom lesson Dive Planning  
DnO4 Practical Lesson Open Water Lesson – Bailout from 15m  
DnO5 Practical Lesson Open Water Lesson - CBL  
DnT9 Classroom lesson Kit configuration  
DnT10 Classroom lesson Dive Marshalling  
DnT11 Classroom lesson First Aid  
DnT12 Classroom lesson Ownership of a Rebreather  
DnO6 Practical Lesson Open Water Lesson – Dive Plan  
DnO7 Practical Lesson Optional Open Water Lesson – Skills reassessment dive

The lessons have been developed for complete flexibility, for example, the Senior Instructor may decide to run a full days theory and dry run sessions followed by consecutive days of confined and open water lessons and assessments.

In addition to the above, where training has been interrupted for a significant period or was carried out in dissimilar conditions, refresher/orientation lesson may be required. This should be conducted prior to any open water training if required.

## Open Water Lessons

Some Open Water lessons involve multiple ascents. Where these require an ascent to the surface, decompression considerations dictate that they be performed at the start of diving activities and before diving to any greater depth.

Where lessons involve multiple ascents from deeper than 6m, these should be performed early in the lesson and they should be terminated at a depth of 6m.

Instructors should ensure that the impact on decompression considerations for the remainder of the particular lesson, and on any subsequent diving activities, are taken into account.

To ensure that students receive experience in a range of conditions, the open water dives must include 3 conditions from the following, appropriate to the local conditions in which they will subsequently be diving:

- shelving shore dive - dive commencing and ending at a gently shelving shore requiring a wading entry/exit
- steep shore dive - dive commencing with a deep-water entry and ending with a deep-water exit
- dive using shot line - dive commencing with a deep-water entry, using a shot line as the only visual reference for the descent and ascent, and ending with a deep-water exit
- drift dive - dive in moving water in the speed range between 0.25 and 0.5kn
- small boat dive - dive from a boat of less than 8m overall length, where water entry is via a backward roll, and egress from the water requires removal of equipment in the water
- large boat dive - dive from a boat of greater than 8m overall length, where the water entered is via a stride entry, and egress from the water is accomplished via ladder without removal of any equipment except, possibly, fins
- wall dive - dive along a vertical or near vertical wall with no solid bottom closer than 4m below the divers
- dive in protective clothing - dive wearing either a wet suit or dry suit

Only one of the above conditions may be logged per dive.

The Dolphin Rebreather Diver syllabus includes 6 (potentially 7) in-water lessons, which should total a minimum of 360 minutes underwater time. The sheltered water lesson contributes 60 minutes, i.e., 300 minutes of open water diving required to achieve certification.

## **Adapting Lessons for Differing Conditions**

The sheltered water lesson contents have been based on the most common conditions of a swimming pool containing warm water. As with the BSAC Diver training program however, Dolphin Rebreather Diver Sheltered Water training may be carried out in other conditions. The main impact on the lesson will be that due to buoyancy of any protective clothing. The objective of keeping the task of buoyancy control as simple as possible by using the minimum number of volumes of air should be maintained. In practical terms this means:

- no protective clothing or wet suits – buoyancy control and CBL using the BC
- dry suits - buoyancy control using the air in the suit; CBL using the air in the suit where possible
- surface support - BC in all cases For most Open Water lessons the content is not affected by different standards of protective clothing.

In those few instances where some adaptation may be required this is addressed at the end of the relevant lesson notes.

### **Dry Practical Lesson – Preparing a Rebreather**

Before undertaking this lesson, students require a complete Dräger SCR unit.

### **Depth Experience**

Newly qualified Dolphin Rebreather Divers, wishing to increase their depth experience, should be encouraged to do so in a progressive manner, in increments of approximately 5m. They should be accompanied on such dives by a diver holding a minimum qualification of Dive Leader, and all such dives should be performed under the supervision of a NQI.

### **Performance Assessments and Standards**

Dolphin Rebreather Diver training includes a specific theory assessment and continuous assessment of the practical skills.

### **Practical Assessments**

As in Diver training, where specific performance standards are required to be achieved, these are identified in the lesson notes by the words “competent and confident”. Where these words appear in the lesson content, students should have progressed sufficiently to be able to achieve the specified performance standards without supervision, as applicable to the water conditions appropriate to that lesson.

The appropriate performance standards are therefore incorporated into the relevant lesson notes.

During the lessons, students should also be monitored for any deterioration in skills learned during basic Diver training. Where necessary corrective instruction should be provided to re-establish the appropriate performance standard.

### **Theory Assessment**

The theory assessment can be undertaken any time after the completion of the classroom lessons but must be successfully completed before the end of the course. A pass mark of 80% must be achieved.

A written assessment is not always the most suitable check for transfer of knowledge. The BSAC has produced independent guidelines to ensure all candidates are fairly treated and their needs are catered for.