

## **EXTENDED RANGE DIVER**

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### **Intention of this course**

The intention of this course is to dive deep safely by means of professional training and equipment. Two different inhaled gases at least are going to be used in each dive: Air as basic breathing gas and EANx during deco- levels. It is important to get along with the more bulky equipment.

This course addresses to these divers who want to extend their skills within controlled and safe circumstances on air. It is no "mass course" that has to be done by everyone. It is - as well as the Normoxic Trimix course - a preparation for the Advanced Trimix Course.

Instruction by ProTec Extended Range Instructor.

### **Training environment**

Any open water, safe for scuba diving. Recommended:

Walls with smooth falling off area at the desired depth range. The recommended max. depth is 60 msw for perfect conditions. Either slope / wall or use safety line down to the bottom. No "Blue Water Diving".

### **Prerequisites**

- Advanced diving skills also in depths 40-45 msw, which should be proved to the instructor
- Advanced Deep Diver certification
- Nitrox 2 Diver certification

### **Accomplishment**

The instructor may adapt the course program according to the local conditions. Only the faultless accomplishment of one module of the course program permitted the advance to the next course module.

The instructor is required not to allow any inadmissibility concerning also the equipment.

Even if there is no need (while exercises in less depth) for the complete (heavy) equipment, dive training with the full equipment is essential during this course.

ProTec recommends the use of high quality as well as fully functional equipment only.

In case of the use of inoperable equipment the instructor has to avoid making the dive and select another date to repeat the class after solving the equipment problems.

To protect the instructor as well as the student, he has to contract an insurance that covers the intention of this course.

## **Theoretical lessons**

### **General Part**

- To check up the skills of advanced diver/Nitrox diver.
- Planning air consumption
- Partial pressure.
- Nitrogen narcosis – effects / measures.
- Oxygen toxicity

Class 1 to 5 according to ProTec Extended Range manual:

### **Class 1**

- Stress & deep diving – effects /measures.
- Causes
- Symptoms
- Panic
- Control

### **Class 2**

- Advanced theory of Oxygen and decompression
- EANx, O2
- OTU
- Calculate your best deco mix / deco procedure
- Possibilities/danger
- Deco – tables

### **Class 3**

- Deep diving – analyse situation
- Problems and risks
- Measures & control
- Solo diving situation

### **Class 4**

- Equipment
- The right handling and use of a deco buoy
- Redundancy
- Quality
- Solo diving

### **Class 5**

- Advanced diving planning
- The diving plan
- To collect information
- To check the possibilities
- To set a goal / how to approach
- To calculate the factors
- Decompression and gas change
- Measures & emergency plans
- Staff / tasks.
- The Briefing
- Related discussions
- Examination - variance comparison

- Exchange of experience
- Improvements

## **Practical lessons**

### **Equipment**

Apart from/instead of the standard equipment the following are to be used/carried with:

- Two independent double cylinders (min. 2x12 L) – to be used as alternative each 50 bar.
- Only high quality regulator (with freezing up protection if necessary). One to each cylinder.
- An octopus on about 2m long (optional) pressure air hose.
- Primary light + position light if poor visibility / less light.
- Sufficient cold insulation = dry suit at temp. below 15° C.
- Spare mask.
- UW slate (multi – sheet for example; executive slate).
- Stage bottle (Deco bottle with EANx).
- Two buoyancy systems (for example; dry suit & large volume BCD).

The diver should be able to handle all parts of the equipment UW without any assistance – even the valves.

### **Generally applies**

- Max. depth 65 msw, may be reduced due to situation.
- Check always your actual dive plan with smallest breathing gas supply available.
- Max. 30 minutes for deco stops.
- There is no student – teacher situation but advanced diver – dive supervisor, therefore, each diver is responsible for himself.
- Moreover take care in case of buddy breathing (normal or at emergency case), the regulator of the stage bottle (EANx) should never be taken erroneously at greater depth. Emergency cases should be exercised.
- At 40 msw and deeper: Max. 2 divers per instructor. Rescue diver on surface and help are ready on land.

### **Theory part for each UW practise module**

- **Planning:** To discuss the way by sketches, air management, to specify the tasks and positions of each particular diver, to check abort – emergency plan.
- **Briefing:** (short before the dive/in front of the place): To repeat the important points inclusively an equipment check.
- **Debriefing:** To recognize the mistakes and improvement possibilities, to revise them.

### **Quality requirements**

- **Best buoyancy:** Sediment should not be whirled up and uncontrolled contact with environment should not be allowed.
- The divers should always completely control, consider, without sign of stress or Nitrogen narcosis, so to act with self- assurance.
- The permission to the next difficult course module can just be given after the positive termination of the module before.
- After a negative result, the diver should be sent to the surface or a break off should be made.
- At deep dives never cause intentionally emergency situations (for example; to turn off cylinder valves). Just simulate.
- Never simulate an emergency situation without prior arrangement (briefing).

### **Module 1**

Gear on; check buoyancy as well as operability and function.

### **Module 2**

Check-up exercise at the depth of 10 meter:

- Sign language
- Simulated turn off of the valves (switch regulator) as freezing up exercise.
- To solve an arithmetical example on the UW slate (it should be very well solved in less than 1 minute on land)..
- Exercise usage of a deco buoy (only at deco stop levels – not below 12 msw)

### **Module 3**

- Maximum depth is 50m.
- Check the advanced deep diving skills during submerging.
- Stops to check at the depth of 40 and 45m.

- Decompression stops with additional +1 minute for extra safety

#### **Module 4**

- Maximum depth is 55 meter.
- Check –up at the depth of 45, 50 meter.
- Decompression stops with additional +1 minute for extra safety

#### **Module 5**

- Maximum course depth (see training environment with check of arithmetical example.
- Decompression stops with additional +1 minute for extra safety

#### **Module 6**

- Repeat module 5 with check- up,

<b>Courseware</b>
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Visit ProTec members area for any material / price list.

- Checklist