ADV TRIMIX DIVER

(Advanced Trimix Diver)

Intention of this course

The intention of this course is to arrange safely extreme deep dives (concerns sport dive range) by means of professional training and equipments. Two different inhalation gases at least are going to be used in each dive. After a positive course the diving is allowed to any depth within the partial pressure limits. Trimix as basic breathing gas and EANx for deco and as “Travel mix”..

Instruction by ProTec Advanced Trimix 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 by cold water and bad visibility / darkness is about 80msw and 90msw for optimal conditions. Either wall dive or use safety line down to the bottom. No "Blue Water Diving".

Prerequisites

- Advanced diving skills also in depths 50-60 msw (here about 25 logged dives), which should be proved to the instructor
- Extended Range Diver certification - or
- Normoxic Trimix Diver certification

Accomplishment

The instructor is allowed to adapt the course program according to the local conditions.

Recommended is to change EANx /Trimix at the depth of 20 - 30m, moreover, EANx (50%-80%) or pure Oxygen (< 6 m) for the last deco steps.

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.

Each diver should always carry the entire equipment (deco – bottles too).

Moreover, and for the security, deco - bottles are to be ready for use (in 12 and 6 msw) by the rescue team.

It is not allowed to use air as inhalation gas during the dive, except in case of emergency.

EANx and Trimix are to be used exclusively (with the option of pure Oxygen at the last deco – level and on land).

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**

- Check up the skills of Extended Range / Normoxic Trimix diver.
- Planning air consumption
- Partial pressure.
- Nitrogen narcosia – effects / measures.
- Oxygen toxicity

Class 1 to 5 according to ProTec Trimix manual

Class 1

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

Class 2

- Advanced theory (med.) of Oxygen (also less than 20% O2) and decompression
- TRIMIX - what it is, pro's and con's
- TRIMIX - calculate your best mix
- Travel gas (EANx) calculate best mix
- Trimix – Travel gas switch, calculate steps, emergency use
- Possibilities/danger
- Deco tables.

Class 3

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

Class 4

- Equipments
- Redundancy
- Quality
- Solo diving

Class 5

- Advanced dive planning
- The diving plan

- To collect information
- To check the possibilities
- To set a goal / how to approach
- To calculate the factors
- Decompression and steps for travel gas switch
- Gas switch procedures
- 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 equipments the following are to be used/carried with:

- Two independent double cylinders for Trimix (min.2x12 L) – to be used alternative each 50 bar
- Travel mix (min. 12L) with EANx, side or back mount.
- 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. under 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. Mark the different 2nd stages to avoid mix- up, but don't use colours as the only differentiating factor because they will be absorbed at depth.

Generally applies

- Max. depth 90 meter in warm water with good visibility (no “record attempt” to 100”), may be reduced due to situation
- Check always your actual dive plan with smallest breathing gas supply available.
- Max. 60 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 trained.
- 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 particularly 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 anaesthesia, 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 60 msw.
- Check the Ext.Rg. diving skills during submerging.
- Stops to check at the depth of 40, 50 msw.
- Decompression stops with additional +1 minute for extra safety

Module 4

- Maximum depth is 70 msw.
- Check –up at the depth of 50, 60 msw.
- Decompression stops with additional +2 minutes for extra safety

Module 5

- Maximum course depth with check arithmetical example.
- Decompression stops with additional +3 minutes for extra safety

Module 6

- Repeat module 5 with check- up,

Courseware

Visit ProTec members area for any material / price list.

- Checklist