

2.4.4 Cave Sidemount

2.4.4.1 Course Outcomes

GUE's Cave Sidemount course is designed to introduce experienced cave divers to the use of the sidemount configuration in a cave environment and to meet the challenges posed by such an environment. The course's intended outcomes are to help divers understand the techniques required to safely navigate confined cave passageways and the advantages and disadvantages of a lateral equipment configuration.

2.4.4.2 Prerequisites

Applicants for a Cave Sidemount course must:

- a. Submit a completed Course Registration Form, Medical History Form, and Liability Release Form to GUE HQ.
- b. Hold insurance that will cover diving emergencies, such as hyperbaric treatment, e.g., DAN Master-level insurance or equivalent.
- c. Be physically and mentally fit.
- d. Be a nonsmoker.
- e. Obtain a physician's prior written authorization for the use of prescription drugs, except for birth control, or for any prior medical condition that may pose a risk while diving.
- f. Be a minimum of 18 years of age. Documented parental or legal guardian consent must be submitted to GUE HQ when the participant is a minor.
- g. Be a certified GUE Cave Diver Level 2 diver.
- h. Have completed at least 50 non-training Cave 2 dives beyond GUE Cave Diver Level 2 certification.
- i. Have completed at least 200 non-training dives beyond autonomous scuba diver certification.

2.4.4.3 Course Content

The GUE Cave Sidemount course is normally conducted over five days. It requires ten dives (of which four must include restrictive passages) and at least forty hours of instruction, encompassing classroom lectures, land drills, and in-water work.

2.4.4.4 Cave Sidemount Specific Training Standards

- a. Student-to-instructor ratio is not to exceed 4:1 during land drills or surface exercises; it cannot exceed 2:1 during any in-water training.
- b. Maximum depth of 100 ft/30 m
- c. Maximum use of 1/3 of total gas supply can be used for penetration
- d. Minimum 140 ft³/4000 L of gas is required to begin a Cave Sidemount dive
- e. No DPV diving unless both instructor and trainees are GUE DPV Cave certified.
- f. Requires a minimum of two stage dives
- g. Students must negotiate a minimum of three sidemount-only restrictions.

2.4.4.5 Required Training Materials

GUE training materials and recommended reading as determined by the course study package received via online download after GUE course application.

2.4.4.6 Academic Topics

- a. Introduction
- b. Course overview
- c. Benefits and disadvantages of sidemount
- d. Sidemount history
- e. Equipment configuration and setup
- f. Geology and sidemount-specific cave morphology
- g. Conservation considerations and landowner relationships
- h. Gas management
- i. Dive planning

2.4.4.7 Land Drills and Topics

- a. Sidemount equipment setup
- b. Guideline use and navigation
- c. Guideline entanglement, cutting, and repair
- d. Loss of guideline
- e. Regulator switches and gas monitoring
- f. Feathering valves
- g. Gas sharing
- h. Stage cylinder positioning and related considerations
- i. Backup light deployment

2.4.4.8 Required Dive Skills and Drills

- a. Demonstrate proficiency in safe diving techniques, including pre-dive preparation, in-water activity, and post-dive assessment.
- b. Demonstrate a full understanding of pre-dive gear setup.
- c. Demonstrate basic proficiency in managing a GUE-approved sidemount equipment configuration.
- d. Demonstrate an efficient one-handed regulator switch.
- e. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual indications and dive partner needs.
- f. Demonstrate a safe and responsible demeanor throughout all training.
- g. Demonstrate proficiency in all aspects of sidemount diving in caves during training. This includes, but is not limited to: guideline installation and retrieval, underwater communication, decompression, stability and trim, complex navigation, propulsion, bottom stage and decompression stage management, stress management while task loaded, and gas management.
- h. Comfortably demonstrate at least three propulsion techniques that would be appropriate in delicate and/or silty environments; one of these kicks must be the modified flutter kick.
- i. Demonstrate safe ascent and descent procedures.
- j. Demonstrate proficiency in cave navigation, including visual references, guideline use, and limited and simulated zero visibility.
- k. Demonstrate proficiency in navigating restricted passages.
- l. Demonstrate proficiency in feathering a valve for at least 300 ft/90 m.
- m. Demonstrate proficiency during gas-sharing scenarios.

- n. Be able to swim at least 500 yds/450 m in less than 14 minutes without stopping. This test should be conducted in a swimsuit and, where necessary, appropriate thermal protection.
- o. Be able to swim a distance of at least 60 ft/18 m on a breath hold while submerged.
- p. Demonstrate proficiency in managing line entanglement, line traps, and broken line.
- q. Demonstrate proficiency in managing keyhole restrictions and resolving stuck situations.
- r. Demonstrate clear and effective underwater communication in both limited and simulated zero visibility.

2.4.4.9 Equipment Requirements

Each student should have, and be familiar with, all of the following required equipment:

- a. Tanks/cylinders: Students are required to use independent cylinders with single valves and without manifolds, which allow for the use of one first stage each. Stage cylinders as specified in section 1.7 will also be utilized.
- b. Regulators: One of the second stages must be on a 7 ft/2 m hose. Both first stages must supply a pressure gauge and provide inflation for a drysuit (where applicable) and a wing.
- c. Sidemount harness: A diver's sidemount setup should be back-mounted and minimalist in nature. Wing size and shape should be appropriate to the cylinder size(s) employed for training.
- d. At least one time/depth measuring device
- e. Mask and fins: Mask is low-volume; fins are rigid, non-split.
- f. At least one cutting device
- g. Wetnotes with pencils
- h. One safety spool
- i. One wrist-mounted compass
- j. One primary reel per team
- k. One primary and two backup lights
- l. Exposure suit appropriate for the duration of exposure
- m. At least twelve line markers; six directional and six non-directional
- n. At least two jump spools

Excluding:

- a. Surface marker buoy with spool

Prior to the commencement of the class, students should consult with a GUE representative to verify equipment requirements and appropriateness of any selected equipment.

Appendix A - GUE Base Equipment Configuration

The GUE base equipment configuration is comprised of:

- a. Tanks/cylinders: Students may use a single tank/cylinder with a single- or dual-outlet valve. Students may also use dual tanks/cylinders connected with a dual-outlet isolator manifold, which allows for the use of two first stages. Dual tanks/cylinders connected

with a dual-outlet, non-isolator manifold can be used, but only in recreational (no decompression) diving, and are considered an alternative for a single tank/cylinder. Consult course-specific standards and your instructor to verify size requirements.

- b. Regulators:
 - i. Single tank: The first stage must supply a primary second stage via a 5 to 7 ft/1.5 to 2 m hose. A backup second stage must be necklaced and supplied via a short hose. The first stage must also supply an analog pressure gauge, inflation for the buoyancy compensator (BC), and (when applicable) inflation for a drysuit.
 - ii. Double tank: One first stage must supply a primary second stage via a 5 to 7 ft/1.5 to 2 m hose (7 ft/2 m hose is required for all cave classes), and inflation for the buoyancy compensator (BC). The other first stage must supply a necklaced backup second stage via a short hose, an analog pressure gauge, and (when applicable) inflation for a drysuit.
- c. Backplate system:
 - i. Is held to the diver by one continuous piece of webbing. This webbing is adjustable and uses a buckle to secure the system at the waist.
 - ii. A crotch strap is attached and looped through the waistband to prevent the system from riding up a diver's back.
 - iii. The continuous webbing must support five D-rings;
 - 1. The first placed at the left hip
 - 2. The second placed in line with a diver's right collarbone
 - 3. The third placed in line with the diver's left collarbone
 - 4. The fourth and fifth are placed on the front and back of the crotch strap when divers plan to use advanced equipment such as DPVs.
 - iv. The harness below the diver's arms has small restrictive bands to allow for the placement of backup lights. The webbing and system retains a minimalist approach.
- d. Buoyancy compensation device (BC):
 - i. A diver's BC is back-mounted and minimalist in nature.
 - ii. It is free of extraneous strings, tabs, or other material.
 - iii. There are no restrictive bands or restrictive elastic affixed to the buoyancy cell.
 - iv. Wing size and shape is appropriate to the cylinder size(s) employed for training.
- e. At least one time/depth measuring device
- f. Wrist-mounted compass
- g. Mask and fins: Mask is low-volume; fins are rigid, non-split.
- h. Backup mask
- i. At least one cutting device
- j. Wetnotes with pencils
- k. Surface marker buoy (SMB) with spool: when required, the SMB should be appropriate for environmental conditions and deployed using a spool with at least 100 ft/30 m of line.
- l. Exposure suit appropriate for the duration of exposure

Additional Course-Specific Equipment

- a. Where required, back gas and stage cylinders are marked in accordance with the GUE General Training Standards, Policies, and Procedures document and configured in line with GUE protocols.
- b. When drysuit inflation systems are applicable, they should be sized appropriately for the environment; small tanks are placed on the left side of the backplate with larger supplies affixed to the diver's left back gas tank.
- c. Underwater lights:
 - i. When required, backup lights should be powered by alkaline batteries (not rechargeable) and stowed on the D-rings at a diver's chest.
 - ii. Backup lights should have a minimal amount of protrusions and a single attachment at the rear.
 - iii. The primary light should consist of a rechargeable battery pack and be fitted with a Goodman-style light handle.
 - iv. When burn time requirements create the need for an external battery pack, it should reside in a canister mounted on the diver's right hip.
- d. Guideline devices, as required during cave diving activities:
 - i. A primary reel is required for all cave diving and provides a minimalist form factor with a handle designed to support a Goodman or "hands free" handle operation. The primary reel must contain at least 150 ft/45 m of line.
 - ii. A safety spool is required for each diver while cave diving and must contain at least 150 ft/45 m of line.
 - iii. A jump or gap spool is required during Cave 2 diving and must contain at least 75 ft/23 m of line.