

SI TECH

SI TECH Variable Volume Valves ease buoyancy control at any depth, regardless of insulation - in any attitude

We congratulate you on having chosen a diving suit that includes the truly variable volume drysuit valves. This valve system was invented in 1969 by SI TECH and has been produced in Sweden since then. In recent years a new exhaust valve with a low profile and a rotating intake has been developed. With an extensive knowledge of manufacture and use of diving equipment since 1962, we can guarantee the best valve system available.

To maintain ultimate valve performance, we urge you to take good care of and treat your valve system just like you treat your breathing regulator. An annual check, by a recognised repair facility, of all your diving gear, including your dry suit valves, is recommended. Remember your life depends on it.

Our service programme includes a test facility where the performance can be verified by service personnel. If a correct or expected function is not achieved, please call your dealer or suit manufacturer or contact SI TECH by phone, fax or E-mail.

The total system includes:

1. Connecting hose
2. Intake valve
3. Exhaust valve

Connecting hoses can be furnished with different quick connections, chosen by the suit manufacturer. If suit manufacturers select an other connecting hose and/or intake valve in combination with SI TECH exhaust valve, they must make sure that the hose has a fitting socket to the gas source with a restricting orifice and an UNF3/8" thread to fit regulator low pressure port. The restricting orifice is a safety device to facilitate the control of buoyancy, to prevent hyperinflation that can cause uncontrolled ascent, and prevent pressure loss to the second stage if any free flow occurs. The flow capacity of the intake valves considerably exceeds the restricted flow in the hose orifice. (If an experienced diver demands a higher flow into the suit, the orifice can be reamed with caution on the users own risk.)

Intake valves are provided by SI TECH in a large range of options: Fixed or rotating valve housing, exposed or recessed push button or sliding activator and appropriate quick connector sockets.

Exhaust valves by SI TECH are the most easy operated, reliable and sensitive variable volume exhaust valves available. They are designed to assist a safe ascent. The valve acts as a safety valve with a maximum pressure which is not harmful to the diver. It is also adjustable with a minimum hysteresis (minimum difference between cracking and closing). The suit pressure can be set to obtain the desired internal volume. The setting can easily be over ridden by pressing anywhere on the large valve lid to manually vent gas from the suit. At the maximum setting, the valve will preserve gas pressure minimum 20 Mbar in the suit, i.e. for long surface duration. The valves must be attached in a fixed valve port to ensure reliable valve fitting.

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Recommended dry suit diving procedures

Recommendations

We recommend an approved dry suit diving course to start gaining knowledge.

Start all dry suit exercise in shallow waters until you are confident in using the equipment.

Accept training from experienced divers, ideally only from those who have obtained recognised diving qualifications.

Make sure your equipment works as expected, otherwise abort your training.

Proper weighing is extremely important.

Knowledge and understanding of basic diving physiology is essential for optimal performance.

BCD is recommended as a back up only. Suit valves are designed to provide buoyancy control.

Guidance for the use of variable volume valves

1. Make sure to check the valve attachment before diving.
2. Determine your insulation according to water temperature and adjust weighing accordingly.
3. Start fully equipped, enter into water not deeper than standing depth, with the exhaust valve fully open, the lid turned counter clockwise to minimum internal pressure (-). Add weights until neutral, with the very top of the head just in the surface in an upright position. The valve should be at the highest position possible in the water (in comparison to the rest of the suit.)
4. Estimate the weight loss of the air consumed during your dive, compensate this plus a little extra led weight (not more than 2 kg) in order to enable decompression stop, and/or to slow down the ascent speed.
5. Inflate the suit and adjust the exhaust valve clock wise in order to re-establish the neutral buoyancy.
6. To initiate a feet down descent, press the valve lid to reduce gas volume. During the descent, compensate for suit squeeze and buoyancy loss by inflating the suit.
7. Practice buoyancy control by rolling, looping and hovering. Do not hesitate to practice inverted (head down) hovering. A good idea is to put a strap around the ankles to prevent the boots from sliding off the feet.
Remember to exhale if ascending.
8. To recover from a feet first ascent, bend knees and body to obtain minimum length and rotate with the help of hands and fin kicks. In the upright position, stretch to allow gas to reach the exhaust valve for venting.
9. Ascending is controlled by the exhaust valve, if it is properly tuned and at the highest position. While diving, minor adjustments must be made by carefully setting the valve (weight lost due to air consumed). Adjusting the internal volume can also be made by pressing the lid or by rising the arm with the valve (for slower ascent speed) or lowering the arm (for faster ascent speed). Follow micro bubbles while ascending. Always ascend head up!
10. Make your home swims with the exhaust valve lid turned to maximum clockwise setting (+) and inflated suit.

Warnings

1. Unexpected buoyancy and ascent speed can be the result if any inflatable devise attached to the diver is inflated during diving. This is also to be expected from heavy neoprene suits when the material is expanding.
2. Uncontrolled ascent speed can also be caused by a slow permeable underwear. Breathable fabric does not always allow enough gas to reach the exhaust valve for control of ascent speed.
3. Avoid gas inflation into the suit when the feet are in a high position.
4. Make sure that the neck dam is properly trimmed and folded to your comfort. If it is too tight there is a risk for poor gas exchange in the blood vessels in the head. If it is too loose, the suit gas will not be retained in the suit.
5. Avoid jumping upright into the water. A 'bottom first' entry will reduce the risk of creating too high pressure at the neck seal.



wish you many safe, pleasant and comfortable dives!