

# Classic Scrubber Duration

The duration of the Classic KISS scrubber canister is based on independent testing done at the ANSTI test facilities in the United Kingdom. Testing was conducted to the CE standard of EN14143.

The CO2 duration for this design of rebreather has been tested in accordance with EN14143 and at a depth of 40 m (131 ft), water temperature of 4° C (39.2° F), 40 litre/minute breathing rate, and 1.6 liter of CO2 generation, was found to have a duration of 2 hours and 37 minutes to 5 millibar of CO2 and 2 hours and 50 minutes to 10 millibar of CO2. Two tests were conducted.

Depth	Temperature	Breathing Rate	CO2 Generation	Duration
40 meters/131 ft	4°C/39.2°F	40 liter/minute RMV	1.6 liter/minute	157 min - 5mbar CO2

In order to better explain what these results mean, below is a table outlining RMV's, CO2 generation, and how long they are sustainable.

Breathing Rate	CO2 Generation	Explanation (CO2 = 85% of VO2 and VO2 = 4% of RMV)
22.5 liter/minute RMV	0.77 lpm CO2	Most relaxed divers, doing little or no swimming, can sustain an RMV of 22.5 lpm almost indefinitely.
37.5 liter/minute RMV	1.28 lpm CO2	A physically fit diver, taking slow deep breaths while swimming hard can sustain an RMV of 37.5 lpm for a few minutes.
75 liter/minute RMV	2.55 lpm CO2	A diver with the conditioning of a Navy S.E.A.L., doing severe work, can sustain an RMV of 75 lpm for one or two minutes.

We believe that the design of the Classic KISS scrubber canister is one of the most efficient axial canisters, per weight of absorbent, available today.

As gas density (depth), water temperature, and CO2 generation (divers work rate) vary, the canister duration will either improve or degrade.

While most divers can't maintain a breathing rate of 1.6 litres of CO2 per minute, don't dive in 4° C (39.2°F) water, and/or deep dive, these tests are still good indicators of scrubber duration. They show that scrubber duration should not be rated as a single value; that the type of diving that is being done must be taken into consideration. Also, it shows that any test results, from testing done at the surface, will not provide realistic canister durations.

All testing was conducted using Sofnolime 797 grade.

Any diver who use an absorbent which changes colour, should not use the colour-change as an indicator for time remaining on the canister.