WHAT TO ASK ABOUT YOUR CCR

Questions to ask – and answers to expect – when you research which CCR is right for you…

Your research has you pegged as a good candidate to invest in a closed-circuit rebreather. That's great but now you're faced with the job of finding out which type of rebreather is going to be the best investment for you.

Your decision making WILL be helped by getting as many hours on as many different units as you can BEFORE making that final commitment. It will also be helpful to get answers to some fundamental questions concerning potential closed-circuit solutions to your needs. The list below contains 17 questions and answers that we think are important. Look them over and we hope they help you to make the right decision.

Is the CCR you are considering CE approved? It should be because CE approval indicates rigorous third-party testing for important performance issues such as work of breathing and overall functionality.

What is the tested depth rating? Some manufacturers put a depth limit on their gear and diving deeper than the recommended depth would be a poor judgment call.

Does the CCR you're looking at have Over the Shoulder (Front) or Rear Mounted Counter-lung design? There really isn't a great deal of difference between the two, but there are advantages to each. As far as we know, only one manufacturer offers divers the choice of BOTH options with each option carrying CE Certification.

What type of Oxygen Injection System, is used in the CCR you are looking at? Options include a Constant Flow Orifice, diver adjustable Variable Flow Orifice, a Static Solenoid or a Dynamic Solenoid. If you are looking for a CCR with the option of automatic set-point control, look for one with a Dynamic Solenoid capable of delivering continuous and instant reaction to changes in oxygen partial pressure in the diving loop.

If the unit uses oxygen controllers (has an automatic option) does it have independent dual controllers? It should do otherwise there is no backup for a system that is vital to life support.

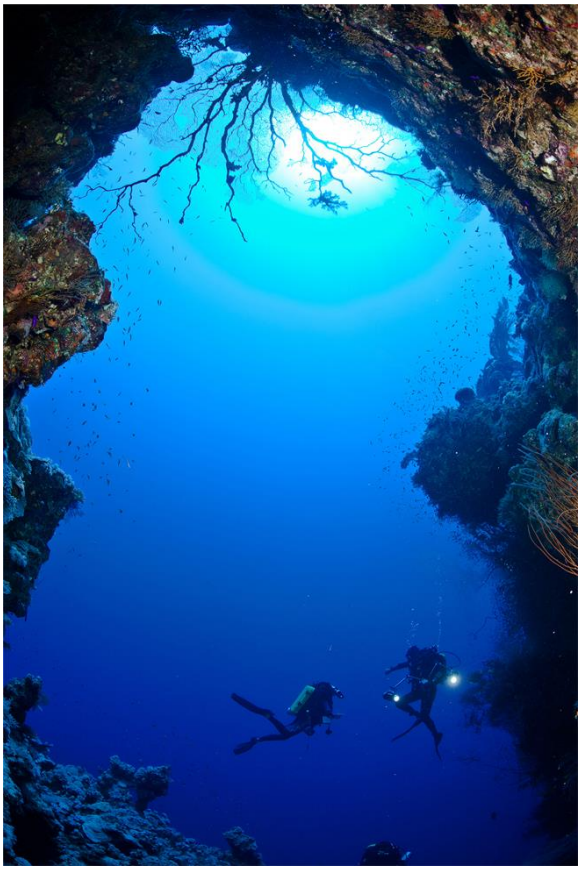
How well will it maintain constant PO2 during ascent? This really comes back to controllers. During ascent the partial pressure of oxygen in the diver's breathing loop can drop dramatically – even to hypoxic levels – as the ambient pressure drops. Unless the CCR's oxygen controller has the ability to react correctly and rapidly to these changes, the diver is at serious risk, and the unit is a poorly designed life-support system.

Does it have a CO2 Scrubber performance monitor? The scrubber bed is where carbon dioxide is removed from exhaled breath. There are several factors that can have a negative effect on its performance and how effectively it does its job. Since the chemical reaction that takes place in the scrubber material generates heat, a smart way to monitor performance is to measure which portion of the bed is "hot" and display that to the diver.

Does it have a CO2 Sensor? By following a few basic "rules" and sticking to certain guidelines, CO2 breakthrough can be avoided, but many divers feel more comfortable and secure with this type of sensor in place. If you'd like one, ask if it is available on the CCR you're considering?

Does it have Heads Up Display (HUD) and what information does it show to the diver? An HUD is a useful tool, but some are confusing and seem less than intuitive. An HUD should convey exactly the information necessary for the diver to fly the unit safely, and this includes warnings when PO2 is outside set parameters, when battery power drops, and when the scrubber bed is reaching the end of its effective life.

Does it have real-time Nitrox / Trimix Computer designed and manufactured by the same people who built the CCR? It should. Some CCRs use controllers and computers from



third-party suppliers. This may suit some risk models and business plans, but this approach is outside many diver's comfort level. We also believe it helps make things safer when the Quality Assurance protocols used for rebreather manufacturing extend to the computer providing information about CCR function and diver decompression status.

Does the CCR you're looking at have Automatic Depth Setpoint switching, and can that auto function be overridden simply without lots of button pushing? This is a good feature that can help to manage the risks of decompression stress, among other issues.

Does it have audible and visual alarms for crucial issues such as low or high PO2, high CO2, and scrubber life? These items are critically important. Most divers dive their unit so that no alarms are triggered, but it's nice to know there's a back-up if something slips between the cracks.

Are parts and service available worldwide? If you travel, it would be nice to know that in the event of something breaking, a replacement part is not sitting in a warehouse someplace on the other side of the world and several days or weeks away from where you need it.

How much service is required? Good industrial design and well made parts put together in an ISO 9001 factory rather than outsourced to the cheapest off-shore knock-off house does not provide a 100 percent guarantee that things will work as expected, but these things help make sure that service is reliable and swift.

Is there a backup power source? If a machine uses battery power to function, then there should be an independent backup battery pack and a mechanism to switch seamlessly from one to the other should it be required.

Can it be upgraded for Technical Trimix Diving? Not all CCR divers are interested in technical diving, but if you one day decide to take up technical diving, ask yourself if you will have to sell your unit and start again with a new model.

Does it have PC Interface and Dive log download? This is a nice feature to have at any time, but it becomes amazing when you can send that log to the manufacturer for system diagnostics.