

COBRA

Compact Bailout Rebreathing Apparatus



INTRODUCTION

The COBRA (Compact Bailout Rebreathing Apparatus) set has been designed to be as simple as possible to operate and maintain. The set is completely mechanical and relies on no complex electronics for its operation. Like all Divex breathing systems the equipment is robust and reliable and has a very low work of breathing. COBRA is designed with the intent that the diver should not have to think about his life-support equipment but should instead be allowed to focus on his task in hand, knowing the life support is always there when required.

For the past twenty years, Divex Ltd has produced the SLS (Secondary Life Support) rebreather bailout system for commercial divers. The system has been adopted world-wide where very deep diving programmes have been carried out and provides the diver with the assurance that in the event of a loss of his primary umbilical gas, he is able to switch to a fully independent breathing system which offers greatly extended duration over "conventional" SCUBA - type open circuit bailout cylinders.

Increasingly however there is a recognition in the diving industry that the same extended bailout breathing facility should be available not only to divers operating at extreme depths (greater than 200m) but also in the depths more common in the world's oilfields - typically 50-200 msw. With the use of extended excursion umbilicals from bigger diving bells the time required to return to the safety of the bell can be extended, and the combination of cold water, darkness,

subsea structures and the divers understandable alarm and disorientation can all contribute to delays in a successful return.

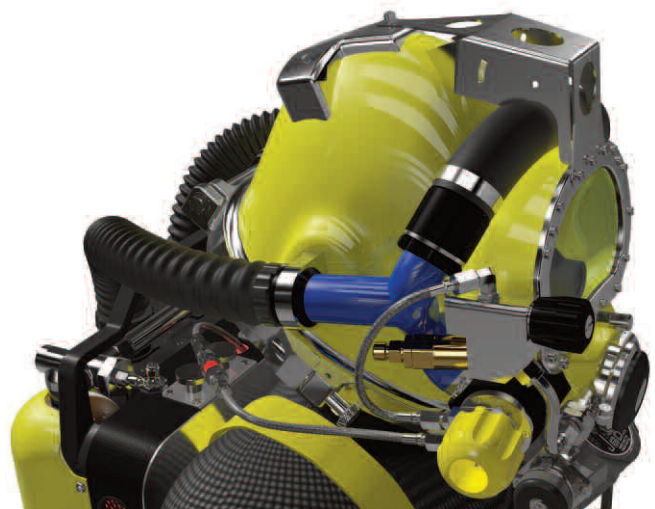
The Norwegian sector of the North Sea recognises this as a significant risk, and stipulates that a diver must have a minimum of 10 minutes of emergency breathing gas, calculated at a breathing rate of 62.5l/min. This renders the SCUBA approach non-conforming at depths greater than 56 metres. The same, or greater, capacity for divers should be available globally.

The new COBRA set is being developed to provide a simple, highly reliable breathing system which will offer a diver up to 45 minutes of fully independent breathing gas to return to the safety of the bell.

COBRA is the only commercial emergency rebreather system in the world to have been granted CE Marking status to NORSOK U101 (Diving Respiratory Equipment) and EN14143 (Self Contained Rebreathing Apparatus), leading the way in terms of safety and functionality.

INVESTMENT & DEVELOPMENT

The existing SLS Mk4 set has been successfully in service for many years and has proved to be dependable and robust. Since its development however, Divex has invested significantly in military diving rebreathers, and as a result of this investment and experience the new COBRA set has been developed.



The COBRA breathing system incorporates much of Divex existing technology which has been extensively proven in the military diving world. Additionally COBRA has been granted CE Marking status to NORSOK U101 (Diving Respiratory Equipment) and EN14143 (Self Contained Rebreathing Apparatus).

In common with the SLS Mk4, the new COBRA set incorporates:

- Scrubber hotwater jacket to ensure high CO₂ performance on actuation.
- Positive pressure when rebreather offline to maintain breathing loop integrity.
- Compatibility with KMDSI / Ultrajewel helmets.




ADVANTAGES

Following significant diver feedback on the existing SLS, the new COBRA set has the following advantages:

- The existing SLS has a “parachute” operation, while the COBRA can be mechanically switched on and off by the diver as a pre-dive check.
- The COBRA counterlungs are completely encapsulated on the diver’s back.
- The COBRA uses an easy fill scrubber system for fast, simple change out of sodalime.
- Increased positive pressure feed to allow more rapid descent.
- Smaller than existing SLS Mk4 backpack.
- Composite or steel twin cylinders easily accessible for charging.
- Single turn activation and no counterlung “ripcord”.
- Safety indicator “rotowink” provides additional assurance of positive pressure and hence integrity.

ENDURANCE

The figures below show the relative endurance, at 120 metres depth, of a conventional, open - circuit 300 bar 7 litre twin bailout, the existing SLS Mk4 set and the new COBRA set. The endurance is calculated using a conservative breathing rate of 40 litres per min.

	7 Litre 300 Bar Twinset 7 minutes 25 seconds
	SLS Mk4 30 minutes
	COBRA 45 minutes

