



DIVEX

Manufacturers of Quality Diving Equipment



DIVEX BELL SURVIVAL KIT



NPD accepted



24 hour passive survival



CE certified

THE DIVEX BELL SURVIVAL KIT is for use in Diving Bells, Hyperbaric Lifeboats and Underwater Welding Habitats in the event of a 'lost bell' or emergency situation.

It provides a 'safe haven' for the diver offering thermal protection and gas conditioning.

Most major International Diving Contractors have installed the Divex Bell Survival Kit to their dive systems.

PACK NO. 1 - INSULATION: The Diver's Insulation System consists of a special survival bag and thick undersuit, both designed and tested for use in helium environments.

The Undersuit: This is a one-piece bodysuit complete with hood that the diver dons as his first layer of thermal protection. It uses multi-layer advanced Trispace insulation material sandwiched between Pertex inner lining, to wick moisture away from the skin, and outer splash proof cover. A towel is also included.

The Survival Bag: This is a specially made item that has the appearance of a very thick 'sleeping bag with arms'. It uses thick multi-layer Trispace insulation, between an inner lining and a breathable, waterproof outer cover.

A full harness is incorporated into the bag which has two functions:

1. It is designed with long support straps that penetrate the rear of the bag at neck level, which can be attached to a suitable securing point. This will then support the diver in an upright sitting position even when asleep or possibly unconscious, and thereby prevent the diver falling across the access door to the bell and hindering rescue.

2. The harness has two D-Rings on the chest to which the CO₂ Scrubber Unit is attached by way of small snap hooks.

This relieves the oral nasal of any strain, and eliminates weight on the diver's neck or head. The survival bag also features an orally inflatable cushion for the diver to sit on to help reduce heat conduction directly away from the diver, as this is obviously where the insulation layers will be crushed by the diver's weight and would be less effective.

Other features include:

- a) Storage pouches inside the bag in which the water bottle, ration pack and sanitary bags can be stored once the diver is in the suit or bag. This eliminates the need for the diver to unzip the system and lose valuable heat.
- b) The 'arms' permit the diver to perform basic functions within the bell without leaving the sanctuary of the suit. They can be withdrawn into the suit to further preserve heat.
- c) On the right chest is an expandible hole through which the thermal regenerator collar is pushed to aid gas circulation through the scrubber system.

The whole system is vacuum packed and contained within a strong satchel/bag, which features four hanging loops to give multi-storage options.

SPECIFICATION	
Dimensions	500 mm x 460 mm x 270 mm
Weight	10 kgs



PACK NO. 2 - HARDWARE: This pack contains a carbon dioxide scrubber/thermal regenerator assembly, a ration and water pack and sanitary bags.

The system contains a passive, lung power CO₂ scrubber unit and thermal regenerator system. Exhaled gases are passed through the CO₂ scrubber to the thermal regenerator fitted into the survival bag wall. Fresh gas is taken from the bell environment through the thermal regenerator to the oral nasal. Dead space is reduced to 0.05 litre.

The thermal regenerator was designed by Robert Gordon's Institute of Technology to give 95% heat recovery in a helium environment at 300m depth. The CO scrubber holds a 2.5 kg charge of MP 797 sodalime.

PACK NO. 2 (HCU): For use within a hyperbaric lifeboat or rescue chamber. This pack contains the hardware from the Standard Pack 2 minus the rations. It is contained within a satchel which contains foam protection.

This material has been shown to have a higher scrubbing efficiency than conventional absorbents. The canisters includes a dump valve prior to the regenerator to regulate return gas temperature. The oral nasal has been selected for comfort and efficiency. It has a pneu seal and a split band head strap.

Respiratory heat transfer is extremely high in heliox environments due to the density of the gas and the physical properties of helium. The combined CO₂ scrubber/thermal regenerator unit reduces this in three ways:

1. By containing the scrubber/regenerator within the insulated survival bag eliminates immediate contact of this unit with the colder bell gas.
2. As the carbon dioxide is 'scrubbed' from the diver's exhaled gas within the sodalime canisters, heat is created by this chemical reaction thereby warming the gas.
3. The heat contained within the diver's exhaled gas plus the heat gained from the chemical reaction in point 2, above, is transferred to the thermal regenerator and then given up by the Thermal regenerator as the next inspired breath is taken in from the atmosphere.

Additionally, the satchel contains a high energy ration pack - recommended by diving medical advisors - to ensure the energy balance is maintained, a supply of drinking water to counter dehydration and a supply of sanitary bags. All the equipment and rations are contained in a strong foam padded satchel fitted with webbing loops for attaching within the bell or habitat.

Divex do not recommend the use of larger granule size Sodalime. Testing has shown that the gas 'flow' paths are often created through larger and less homogeneous chemical.

NOTE: These systems must be properly inspected and maintained. Courses are available in usage and maintenance by contacting Divex.

A minimum six-monthly inspection/servicing interval is recommended.

SPECIFICATION	
Dimensions	500 mm x 350 mm x 140 mm
Weight	9.5 kgs

SSS BELL SURVIVAL KIT - PACK No. 1

ORDER CODE SE350

SSS BELL SURVIVAL KIT - PACK No. 2

ORDER CODE SE351



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Enterprise Drive, Westhill Industrial Estate, Westhill, Aberdeen, AB32 6TQ, UK
 Tel: + 44 (0) 1224 740145 Fax: + 44 (0) 1224 740172
 E-MAIL: info@divex.co.uk Web Site: www.divex.co.uk

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KINERGETICS BELL SURVIVAL KIT

-  **24 hour passive survival suit**
-  **One piece suit**
-  **Thermal survival bag**
-  **Lung powered CO₂ scrubber**
-  **Thermal regenerator**
-  **Two easily stored bags**
-  **CE certified**

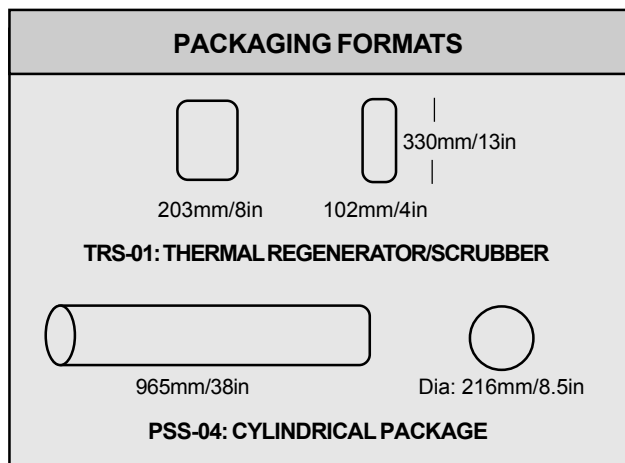
THE KINERGETICS STRANDED BELL DIVER SURVIVAL SYSTEM is totally passive, life prolonging survival equipment for cold hyperbaric heliox environments.

The system consists of two separate bags. The first contains a thermal protection suit and sleeping bag. This is now of similar design to the unit used in the SSS Bell Survival suit.

A one-piece insulated suit is donned by the diver prior to entering the heavily insulated survival bag. An integral harness prevents the diver falling forwards when fatigued. The kit is available packaged in two different formats (shown opposite), to suit various diving bell configurations.

The second bag (TRS-Thermal Regenerator Scrubber) contains the combined thermal regenerator/lung powered carbon dioxide scrubber - as shown in the photograph above.

The system has been trialed successfully in most experimental dives since 1986, and is one of the most commonly installed units in saturation diving facilities worldwide.



**KINERGETICS STRANDED BELL DIVER SURVIVAL SYSTEM
CYLINDRICAL PACKAGE (PSS-04)**

ORDER CODE KI17090

**KINERGETICS STRANDED BELL DIVER SURVIVAL SYSTEM
THERMAL REGENERATOR/SCRUBBER (TRS-01)**

ORDER CODE KI17091