Unique Group

Buoyancy Solutions

RANGE OVERVIEW

Seaflex Fully Enclosed Single Attachment (FESA) Overview

Buoyancy & Ballast

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Product Details

Fully Enclosed Single Attachment Bags - For Lifting and Towing

+ Seaflex has designed, developed and manufactured what we term a Fully Enclosed Single Attachment (FESA) variable buoyancy system, which is ideally suited to operations which involve elements of both lifting and towing.

  Originally designed for a specific Deep Sea Plough project, the FESA system is equally suited to many other lifting and towing scenarios.

  The main advantage of the FESA is in reducing the heave compensation requirement, enabling heavy equipment to be deployed from smaller support vessels with a lower day-rate.

+ The FESA unit is an enclosed type of ALB employing a comprehensive air dumping system making use of multiple PRVs each capable of venting air at more than 2 cubic metres per minute. This permits a high level of controllability in the critical splash zone phase during launch and recovery.

  Where used at depth instead of air lift bags, for example to lighten manned welding habitats on soft mud, FESA bags provide a whole new level of controllability and safety to deal with the problems of suction and potential runaway buoyancy.

  FESA bags are available in a standard range up to 35t.

35t FESA bag

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The Tower Sinking Process

+ Seaflex FESAs can also be used for the floating out and final positioning of structures such as intake towers.

Typically large concrete structures of varying sizes but weighing up to 100 tons, these towers are often towed out and sunk into deeper water. The challenge is to as far as possible control the sinking process such that the tower will not plummet directly to the seabed, and such that the final position can be controlled for easy mating.

For this type of application, two rows of Seaflex Fully Enclosed Single Attachment (FESA) bags have previously been fitted to such towers. Throughout the towing process, the tower is supported by a bottom tier of bags on relatively short strops. At the installation location, an upper tier of bags is inflated,these bags are attached to the tower via longer strops.

The air is then vented from the lower tier of bags which causes the tower to sink down the water column until a few metres above the seabed – at which stage it is caught on the longer strops by the FESA bags at or near the surface. The tower can then easily be moved into final position before air is vented from the top tier of bags to see it sink into final position.

Sinking of Intake Tower (note submerged lower tier of FESAs, as upper tier is inflated)

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Case Study

ETPM Multipass Plough Buoyancy System

Client : **ELF EXPLORATION UK PLC.**

Contractor : **ETPM DEEPSEA LTD.**

Location : **BLOCK 22/30B, UKCS**

Water Depth : **85-105MSW**

Background

+ ETPM DeepSea (ETPM-D) were contracted by Elf Exploration UK Plc to undertake the trenching and burial works for the Elgin Franklin pipeline. ETPM-D commissioned a new Multi-Pass Plough (MPP) to do the works from their construction vessel TSV NORTHERN EXPLORER. However, The new plough was delivered over-weight and so as to keep to the operational parameters for over-boarding and recovery a solution was sought to reduce the weight of the plough. As a result of an engineering study it was decided that rather than 'chop the MPP down to size' a variable buoyancy system should be installed.

  On appraisal it was considered that solid buoyancy was not suitable due to its constant state and the size and weight of steel buoyancy tanks would be enormous. ETPM- D approached Seaflex to design, develop and manufacture a variable buoyancy system.

Seaflex Involvement

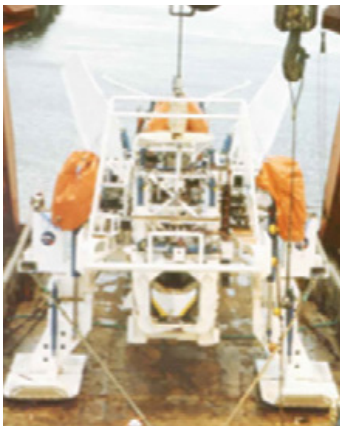
+ Seaflex's solution was the installation of four (4) 5Te Fully Enclosed Single Attachment (FESA) air lift bags, connected to a central ROV operated valve chest. The bags could also be inflated or deflated from the ship via an air line running down the MPP umbilical. The FESA bags allowed single point attachment to the MPP in addition to variable lift up to 5Te in each unit.

  Our thanks to ETPM DeepSea Ltd. for allowing these photo's and text to be reproduced.

  During overboarding the bags were fully inflated for the decent to the seabed thus reducing the loads on the wire and A-frame by 20Te. For recovery the bags were inflated only when approaching the heavy or splash zone. Each unit had a comprehensive air dumping system which could vent air at approximately 960cfm/28cmm.

FESA Bags

+ In recognition of the Elgin Franklin project buoyancy success, ETPM- D have used the Seaflex Variable Buoyancy System on every MPP project since. The units hired from Seaflex on a project by project basis. Seaflex hold the units at their Cowes facility and despatch to the boat load-out location on instruction. The hire contract allows ETPM-D to be sure that the units are fully serviced and in test which in turn give minimum overheads and minimum down time.



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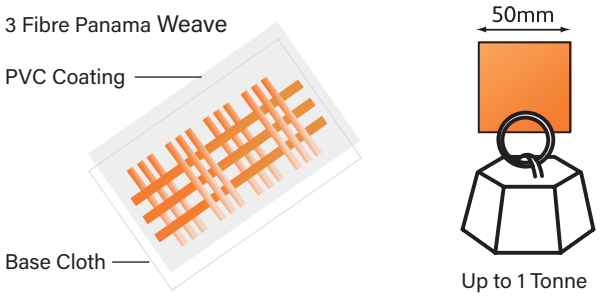
Technology, Service and Support

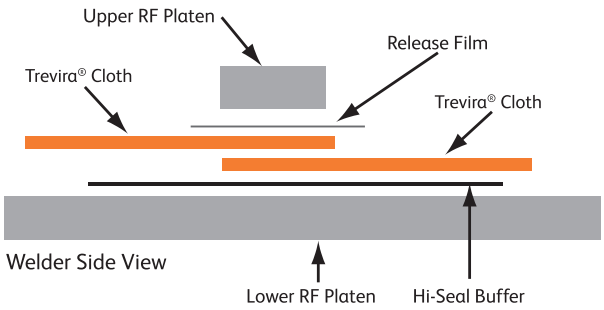
Manufacturing Technology

+ All Seaflex products are designed and manufactured in the UK. Our bag canopies are constructed from High Tensile Trevira® Polyester base cloth (either 2 /2 or 3 /3 fibre panama pattern weave) coated with heavy duty UV stabilised PVC coating or, for special applications, polyurethane. Trevira is incredibly strong; a 50 mm wide 3/3 strip has a break load of approximately 1 tonne. The panels for our bags are precision cut on our 15 metre long, 3 metre wide advanced automated table for perfect repeatability. Once inspected and approved panels are assembled by skilled personnel to using Radio Frequency welding to strict quality control standards.

Certification

+ All our work is carried out within a system which complies with the ISO 9001-2009 Quality Management Standard as audited by Lloyds Register Quality Assurance for full traceability – and we have now gained ISO 14001 and ISO 18001 accreditation.





Service

+ Whether for hire or sale, all Seaflex products are sent out fully tested and inspected against their build criteria. And we do also offer on-site support to our clients in the use of our products – this most often happens within the more complex buoyancy applications for our products.
  In the event that your Seaflex product should suffer minor damage in service, we can supply an approved, boxed field service kit comprising of patches, a professional quality heat gun and instruction manual to make good minor leaks prior to product refurbishment.
  We can also advise on the viability of carrying out more extensive repairs, which would typically be undertaken either at our factory or at one of our approved service centres.

Support

+ Our support philosophy is "Wherever, Whenever". This underlines the Seaflex commitment to not just sending out tested, proven products in proper shipping crates and with the most comprehensive documentation package in the business – but to assisting our customers in every way possible throughout their time using our products, whether the job is a hire project or an equipment sale.
  We offer worldwide support to our customers via either email or phone from head office in the UK and via our ever-growing network of offices and partners around the world.
  You can put your trust in Seaflex – we won't let you down.

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Unique Group's Buoyancy & Ballast products are available for hire or purchase from more than 20 other worldwide locations via our network of independent partners. Please contact us for more details.