

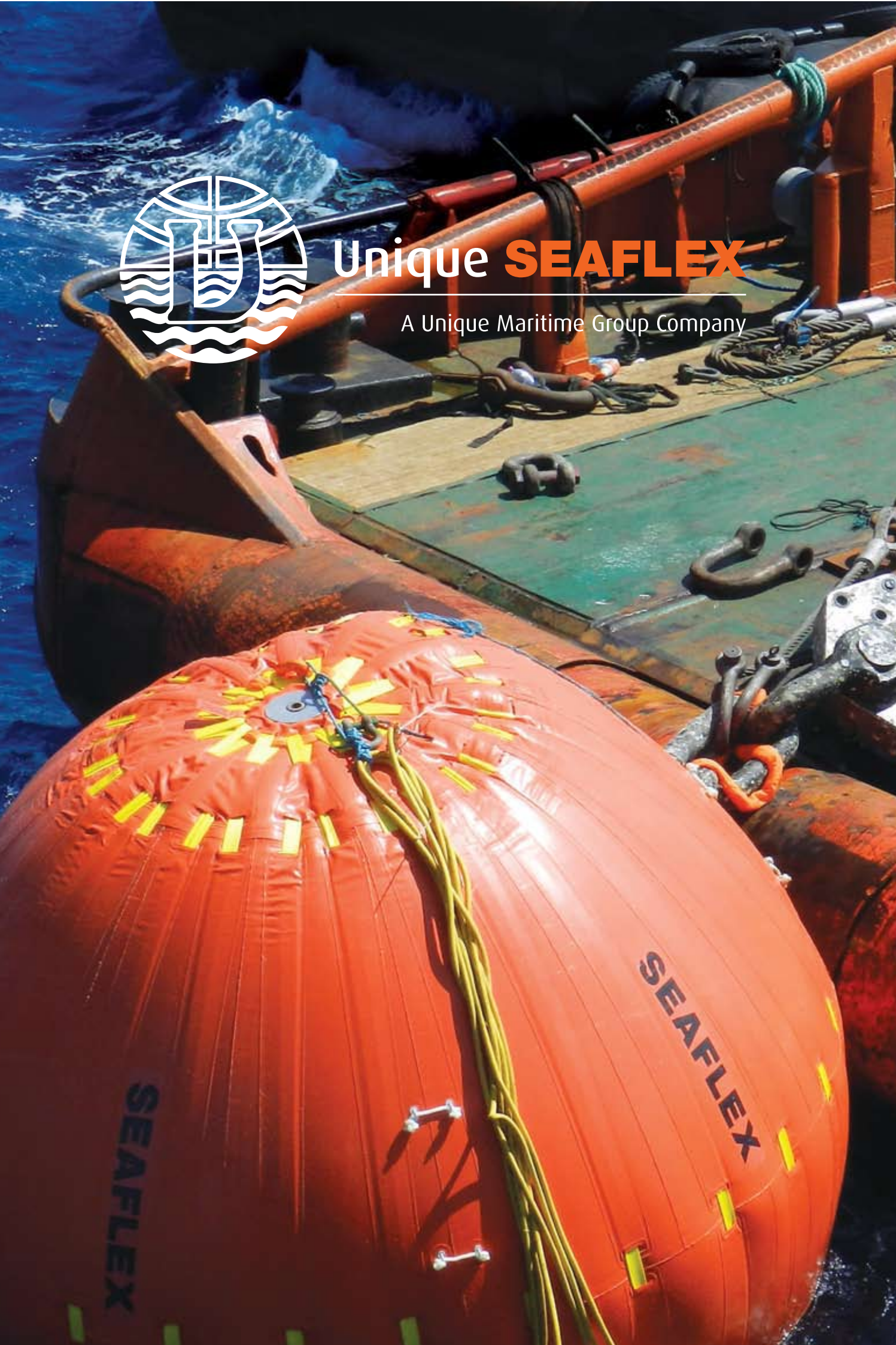


Unique **SEAFLEX**

A Unique Maritime Group Company

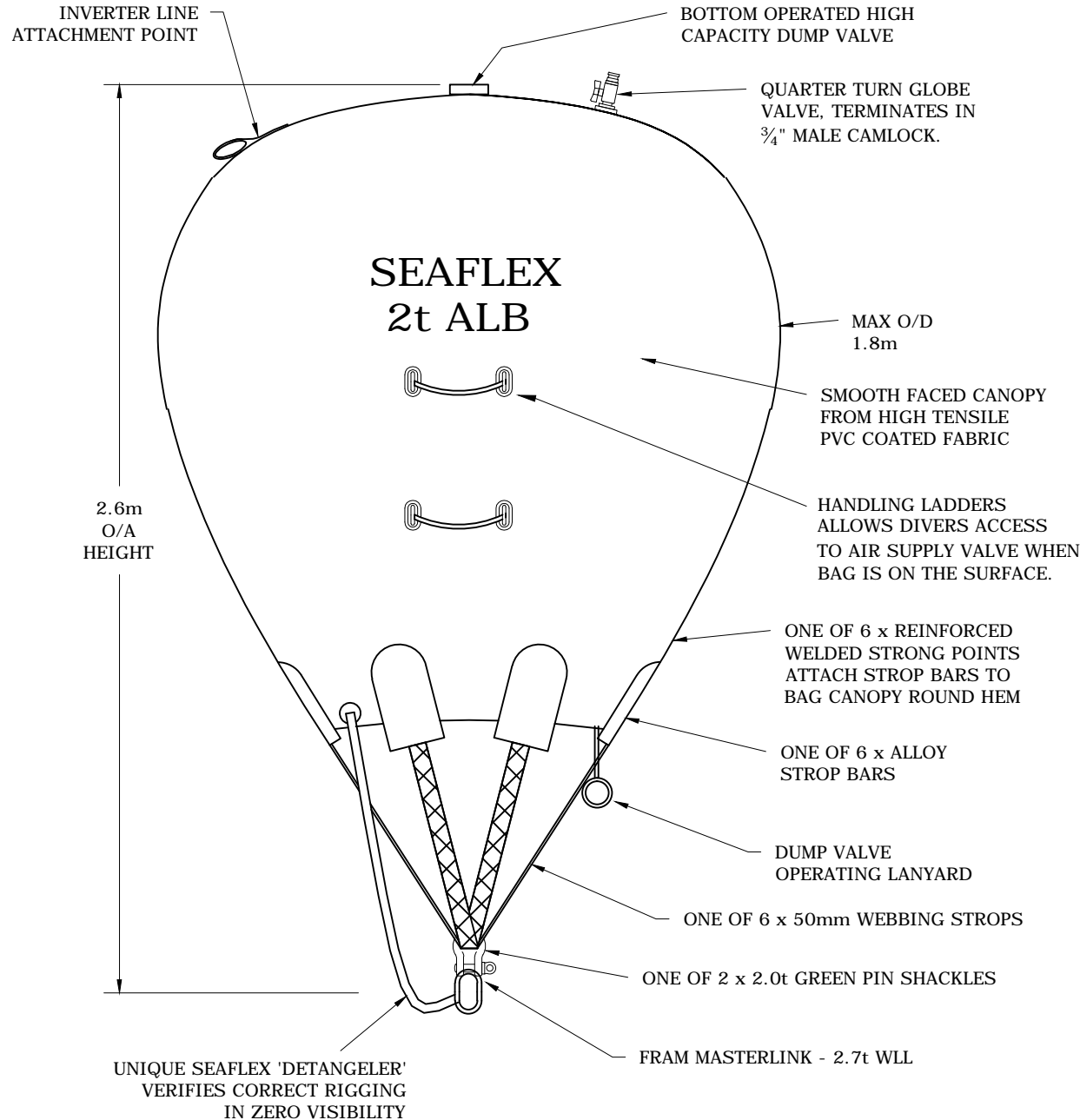
SEAFLEX AIR LIFT BAG (ALB) 2T SPECIFICATION

www.seaflex.co.uk



UNIQUE SEAFLEX STANDARD PRODUCT

2t AIR LIFT BAG (ALB)



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MANUFACTURED IN ACCORDANCE WITH ISO 9001:2008 PROCEDURES SUPPLIED WITH IMCA CERTIFICATION & LOG BOOK COMPLIES WITH IMCA D016 - Rev 3

AIR LIFT BAGS INDEPENDENTLY TYPE TESTED BY TUV NEL LTD IN ACCORDANCE WITH IMCA D016 WITH A SAFETY FACTOR IN EXCESS OF 5:1. CERT No. Seaflex Type 2.0t/001/2006

01	07.08.12	Drawing Amended and Renumbered from 221002/1MLB	GJP	GSB
Rev	Date	Description	Drawn	Checked



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TITLE			
2t AIR LIFT BAG (ALB)			
SCALE	DATE	DRAWN	CHECKED
N.T.S @ A4	07.08.2012	GJP	GSB
DRAWING No.			REVISION
2tALB - 016 - SS			01

DO NOT SCALE



PRODUCT WEIGHT - 22kg App.

Certificate of Type Test

Issued by : National Engineering Laboratory
Mechanical Testing & Analysis



Certificate No. : Seaflex Type 2.0t/003/2006 Date of Issue: 10 October 2006

 technology for life	National Engineering Laboratory East Kilbride, Glasgow G75 0QU, United Kingdom Tel No. +44 (0)1355 220222 Fax No. +44 (0)1355 272791 Direct Line +44 (0)1355 272174 or +44 (0)1355 272382 Email: dhare@tuvnel.com or lhunter@tuvnel.com	Page 1 of 2
	Approved Signatories L. Hunter – Test Section Manager 	

Customer : Seaflex Ltd.
Customer Address : Samuel Whites, Cowes, Isle of wight, PO31 7R, United Kingdom.

Order No. : 101006/1GB **Project No.** : WAW600000

NEL Test Mark : MTAT-03 **Certificate No.** : Seaflex Type 2.0t/003/2006

Specimen received date: 5 October 2006 **Date of Test** : 10 October 2006

Specimen Description : 2000 kg capacity Air Lift Bag (ALB) constructed from high tensile PVC coated polyester base cloth. 6 x 50 mm wide polyester webbing straps c/w sewn loops are attached to the bag via alloy strop bars secured within reinforced welded strong points equi-spaced around the circumference of the bag hem. The free ends are terminated in loops through which 2 x 2t SWL green pin shackles are passed (3 straps/shackle) and linked to a 2.7t SWL Fram Masterlink lifting ring. A spring loaded dump valve complete with an operation lanyard, plus a quarter turn 3/4" BSP male threaded globe valve are inserted in the top of the bag. The bag has a maximum diameter of 1.8 m and an O/A height of 2.6 m. (See overleaf for bag drawing and Components List).

Identification Mark : Seaflex 2000 kg ALB

Type of Test : Type Test in accordance with Health & Safety Executive Notice 3/88 and Guidance No. IMCA D016.

Test Machine : D1

Peak Load Achieved on Snatch Test : 198 kN (19.38 Tonne)

Test Results : Pass

Comments : Full Dimensional Specifications supplied by Seaflex Ltd. and Retained by NEL.

Distribution

Seaflex Ltd.	1 copy
NEL	1 copy

Tested by D. Hare 

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.



CERTIFICATE NUMBER

DATE

12-LD890111-PDA

22 August 2012

ABS TECHNICAL OFFICE

London Engineering Department

CERTIFICATE OF DESIGN ASSESSMENT

This is to Certify that a representative of this Bureau did, at the request of
SEAFLEX LTD.

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

PRODUCT: **Air Lift Bag**

MODEL: **25kg ALB, 50kg ALB, 100kg ALB, 250kg ALB, 500kg ALB, 1t ALB, 2t ALB, 3t ALB, 5t ALB, 10t ALB, 20t ALB and 35t ALB**

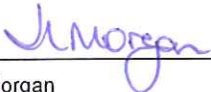
This Product Design Assessment (PDA) Certificate 12-LD890111-PDA, dated 22/Aug/2012 remains valid until 21/Aug/2017 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

AMERICAN BUREAU OF SHIPPING



John L. Morgan
Engineer

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by the terms and conditions as contained in ABS Rules 1-1-A/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

Air Lift Bags - The Contractors' Workhorse

Versatile

Seaflex ALBs are immensely versatile, and ideal for safely supporting and lifting loads at or from any depth. The single point attachment is ideal for lightening underwater static structures such as pipes and templates, or for salvaging vessels from the seabed to the surface. They are robust and highly resistant to damage even in the harshest environments. Our larger ALBs can be surface-towed with their under-slung load at up to 1.5 knots in moderate sea states.

Safe and Efficient

Our ALBs have been designed to provide the maximum amount of lift for the least overall height. The design brings with it a wide hem, which aids swifter emptying of the bag on emergency inversion - a notable safety benefit. All our ALBs automatically vent excess air as they ascend dynamically with their load. Their single attachment point helps keep them inherently stable, regardless of load orientation or trim.

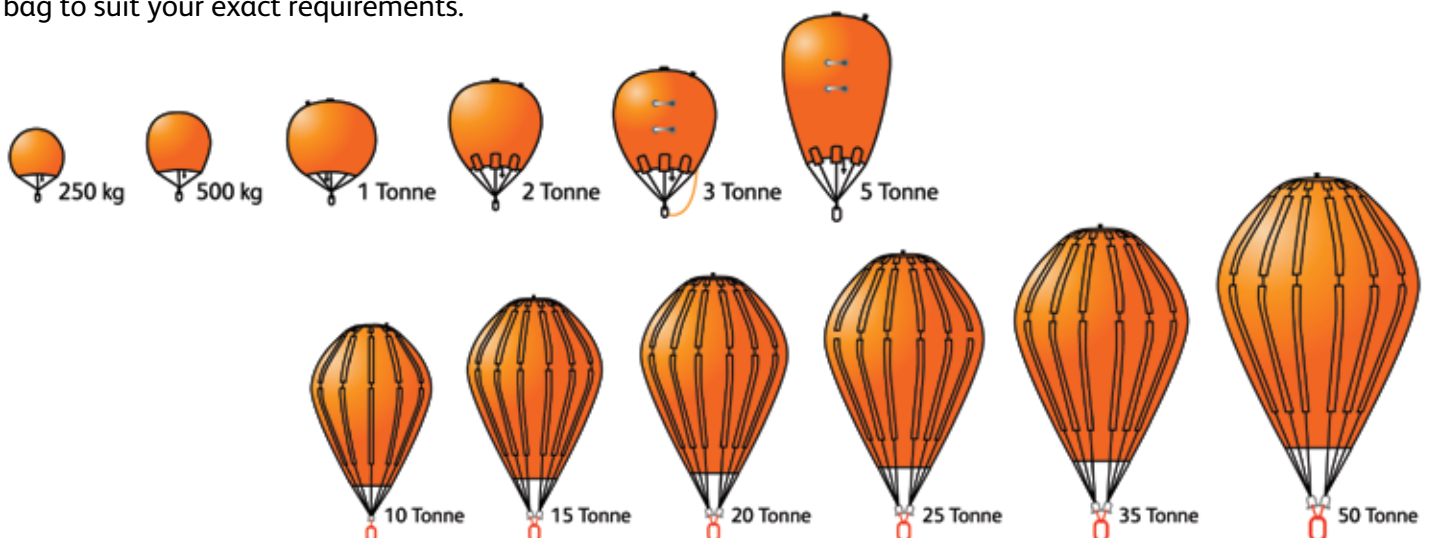
Our bags are also more efficiently rigged than others, saving shipping weights without compromising on materials, strength, capability or safety. We understand that time is money, especially during diving operations. Seaflex ALBs address the reality of subsea work: poor visibility, currents and surge, fatigued operators. We understand the challenges of rigging and operating a lift bag in less than ideal conditions underwater. Our ALB range has been developed not as a theoretical exercise by a desk jockey, but in conjunction with actual living, breathing users to make it as diver-friendly as anything in its class.

Tested and Proven

The ALB range is, like every Seaflex product, carefully designed, constructed and tested to meet and exceed demanding international standards. As you would expect, Seaflex ALBs fully comply with IMCA D-016 guidelines. But, uniquely within our market, we have drop-tested our ALBs to prove their safety factors and we have tested and demonstrated the performance of our inverter lines. The result? You can rely on Seaflex ALBs to perform safely, effectively and predictably, time after time and year after year. All our ALBs are delivered ready for immediate use with a universally compliant documentation: a unit-specific log book containing certification, service records and operating manual. Another benefit: our ALBs require remarkably little storage space relative to their lift capacity; ALBs capable of 350 tonnes of lift can be stored on a 6 x 6 metre footprint and weigh less than 3.5 tonnes.

Off the Shelf or Made to Measure

There is most probably an existing Seaflex ALB, or ALB combination, suitable for your exact subsea lifting task. But if there isn't, then our team will draw upon their long experience in this field to design and manufacture a bag to suit your exact requirements.



Key Features and Benefits At a Glance

For Your Peace of Mind

- Fully compliant with IMCA D-016, and with ABS PDA.
- 7:1 design WLL factor on the strops.
- Overall assembly tested and proven to a 5:1 minimum WLL safety factor. Independent Type Test Certificates are available.
- Tested and proven inverter line attachment point.
- High performance structural fabric canopy.
- RF welded seams.
- Rental units inspected and tested between every single job.



For Your Ease of Operation

- Seaflex DeeTangler™ to enable simple “sort and check” of the strops subsea to avoid twisting and overloading.
- Unique strop i/d system terminating in a closed ring: no risk of incorrect connection leading to in-service failure.
- Integral handling ladders on units over 1 ton.
- 3/4 inch BSP standard inflation valve with 316 stainless steel Camlock end fitting standard on ALBs of 2 tons and above.
- Base-operated high flow dump valve.
- Industry-leading height to weight ratio: maximising load freeboard where required.
- Design service available, to provide optimised solutions for specific tasks.
- Delivered in an enclosed crate and ready for immediate use with universally compliant documentation: ALB specific log book containing certification, service records and operating manual.

Model No	Inflated (Kgs & Mtrs)				Packed (Kgs & Mtrs)			
	Lift	H	Ø	Wt	L	W	D	No / pallet
250 ALB	250	1.3	0.9	3	0.4	0.2	0.4	40
500 ALB	500	1.7	1.2	5	0.5	0.3	0.5	30
1t ALB	1,000	1.9	1.6	11	0.6	0.4	0.6	20
2t ALB	2,000	2.5	1.8	23	0.8	0.4	0.8	10
3t ALB	3,000	3.2	2.0	32	0.8	0.4	0.8	6
5t ALB	5,000	3.7	2.0	38	0.9	0.5	0.9	5
10t ALB	10,000	4.5	2.4	75	1.2	0.5	1.2	3
15t ALB	15,000	5.4	2.7	110	1.2	0.6	1.2	2
20t ALB	20,000	5.5	3.2	120	1.2	0.7	1.2	2
25t ALB	25,000	5.9	3.8	175	1.2	0.9	1.2	1
35t ALB	35,000	6.5	4.0	230	1.4	1.2	1.4	1
50t ALB	50,000	8.2	4.5	416	2.6	1.22	0.96	1

Providing AND Proving: Seaflex ALB Testing

Whereas some other companies simply provide ALBs, Seaflex has gone further than anyone in the market in proving our designs and our products via rigorous and documented testing of both their structural integrity and their ability to invert during operation. Why? To give our customers complete peace of mind, given that the safety of their personnel is at stake.

Overload Type Testing

Seaflex engineers every ALB from 25 kg to 50,000 kg to a 7:1 WLL ratio, well exceeding the IMCA D-016 design requirement of 5:1. And then we go another step further than even IMCA stipulates: we have chosen to Type Test every model of ALB from 25 kg to 35,000 kg to a minimum of the IMCA figure of 5:1.

Seaflex conducts these Type Tests at the TÜV National Engineering Laboratory in Glasgow. The Type Tests are performed by dropping and then catching the water- filled ALB to produce a shock overload, testing the fabric integrity, stropping arrangement and hardware of each type of ALB. A Certificate of Conformity to the Type Test is then supplied as part of the documentation pack for with each and every Seaflex ALB..

Inversion Testing

IMCA D-016 stipulates that a clearly designed strong point is built into all parachute-type bags for attachment of a suitable inverter line. However, there is no IMCA requirement to test if this will work in a scenario where a bag is suddenly released as a result of attachment failure, rapidly accelerating to produce a shock load on the previously slack inverter line and its attachment point. So in this further respect, Seaflex have again gone over and above the minimum industry requirements to demonstrate that our ALBs will perform exactly as they need to: we conducted full-scale subsea testing, suddenly releasing fully filled ALBs against their inverter lines. And as you would expect, our ALBs came through these tests with flying colours, and with measured overload strength to spare. So our clients can be completely assured that Seaflex ALBs will invert to design, rather than surfacing at high speed and getting caught up in the thrusters of their support vessel.





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