

TECHNICAL BULLETIN

SUMMER 2008

Belanak Project - First in-house design Umbilical Dynamic Bending Stiffener delivered.

Following a request from one of our Gulf of Mexico Customer, at the end of 2007, DUNLAW and EXSTO have delivered their first own-designed Umbilical Dynamic Bend Stiffener. The development has been mutually undertaken by both DUNLAW and EXSTO, respectively.

- DUNLAW being in charge of project management, general arrangement and primarily calculations of the DBS.
- EXSTO being in charge of detailed engineering, FEA calculations, mould manufacture and part moulding.

The supplied DBS (as per picture above) was 5.3m long, had a base diameter of 715mm and weighted 1.43 T.

The DBS is actually being installed in Indonesia, aboard BELANAK FPSO.

EXSTO and DUNLAW are pursuing a complete development program in order to fully qualify their "own" design process for Umbilical DBS. Completion is scheduled for the end of 2008.



FLEXIFRANCE 2007 Supply Star Award for EXSTO

On the 8th of February 2008, during an official ceremony held in the offices of TECHNIP La Défense, EXSTO was presented with an award by its major customer, FLEXIFRANCE, for its distinguished contribution, commitment and outstanding performance in the category of Environment.

EXSTO is proud to receive it's 3rd Supply Star Award.

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HIP for the Agbami Project

Offshore Nigeria, 70 miles from the coast in Central Niger Delta, in 1400-1500m water depth, Chevron with independent local company FAMFA, is developing the billion oil barrel Agbami field with an FPSO which has subsea production wells connected to the sea floor by a series of umbilicals, flexible risers, flowlines and jumpers.

For the Agbami project, Dunlaw has supplied 200m of HIP (Half Shell Impact Protection) to act as a crossing protection by keeping a constant gap between the lines (50mm) under load. Final Element Analysis and mechanical testing has enabled Dunlaw to finalize the design according to very demanding specifications.

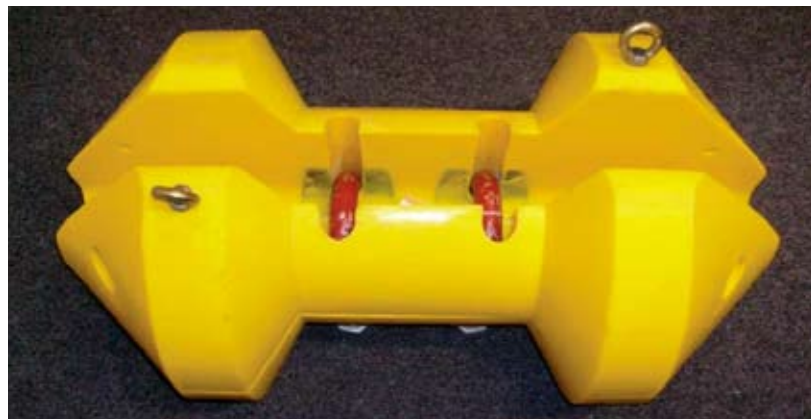


Pull-in wire centraliser project

As part of the offshore installation on the North West Shelf of Australia, six flexible risers were to be pulled in through TP buoy j-tubes. The j-tubes were internally coated with a high specification paint system to prevent corrosion, any corrosion build-up could cause wear and potential failure of the flexible

Originally a synthetic pulling rope coupled to a steel wire cord was the favoured option, but this solution did not allow for acceptable contingencies should the subsea winch fail during pull-in.

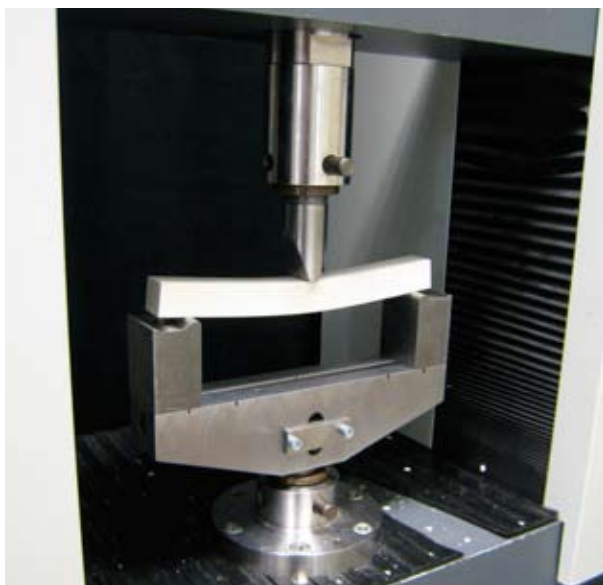
A Dunlaw feasibility study proposed a specifically designed centraliser. The centraliser, attached to a 90mm dia synthetic pulling rope was designed, manufactured and supplied in a very short lead time, and deployed successfully.



More waterstops for China

Dunlaw continues its strong presence in the Chinese market with another waterstop development project.

Dunlaw has successfully designed, tested and supplied Waterstops for the latest project handled from China. Using its own testing facility and extensive experience of similar demanding sealing systems, Dunlaw designed a waterstop able to withstand 10-12 Bar of pressure.



New Testing Facility

Thanks to the synergy between Dunlaw and its parent company EXSTO, Dunlaw now has the ability to characterize creep behaviour of PUR used for OFFSHORE applications.

EXSTO have developed facilities to perform short term and long term creep tests in accordance with the ISO 899-2 standard. This standard is based on three-point loading (see picture).

In addition to the usual Laboratory facilities (tensile/compression test, Abrasion test machine,...), EXSTO have developed facilities to check other particular characteristics like, creeping by tension loading, stress relaxation (tension, compression), fatigue behaviour.

Using this data Dunlaw is now able to design polyurethane products with consistent quality and performance throughout the product lifespan.

MAD 6 Centralisers

EXSTO has been awarded a contract for supplying flexible head centralisers, for the MAD 6 project. Similar very high hardness Urethane parts have for some time been successfully replacing metallic parts in a variety of industries. That specific solution eliminates all corrosion issues, and ensures a better sliding contact between the flexible pipe and the I tube.

Exsto have been, for some years, marketing the extensive properties of Urethane material to assist in solving major issues and problems, particularly with metal parts.





Events

In October 07, Dunlaw Engineering joined with our Norwegian partner, Marine Subsea Group (MSG), in exhibiting at Deep Offshore Technology Conference in Stavanger, Norway, an ideal setting as Norway is a key supplier to the global oil market and the lucrative European gas market.

We were one of a number of companies providing innovative technology for the deepwater oil and gas exploration and production markets.



The annual Subsea Tieback Forum in Galveston, Texas, 11-13 March, had as its 2007 theme "SUBmerge Yourself", particularly in confronting new challenges. As part of The Subsea UK pavilion, Dunlaw Engineering was pleased to participate in the sharing of knowledge and collective experience, crucial to improving the quality, safety, and economics of the subsea tieback industry.

Upcoming Events

Underwater defence Technology
Glasgow June 08



Dunlaw and its buoyancy partner MSG will be exhibiting at the ONS in Stavanger on the 26-29 Aug 2008.

Visit us at booth 442 situated in Hall D



New Agent

Dunlaw Engineering have appointed Offshore Industries Sdn. Bhd. (OISB) to represent their interests in the fast developing Malaysia and Brunei offshore markets.

Through their offices in Kuala Lumpur, Miri, and Kemanan, OISB are ideally located to pursue the many clients and projects where Dunlaw capability has been identified of considerable value.

Offshore Industries Sdn. Bhd. (OISB) is incorporated in Malaysia in 1976, set up to engage in business related to the oil & gas and petrochemical industries in keeping with Malaysia's aspiration in the context of the Malaysia Plan and in line with the National Economic Policy. Since its formation, the company has established itself and grown as a reputable vendor.



Products

- J Tube Seals
- Umbilical And Cable Protection
- Pipe In Pipe Waterstops
- Bend Limiters
- Cuproprene Anti Fouling Coating
- Underwater Markers
- Buoyancy Products
- Bespoke Engineered Projects
- Dynamic Bend Stiffeners
- Spoolpiece Insulation Systems



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