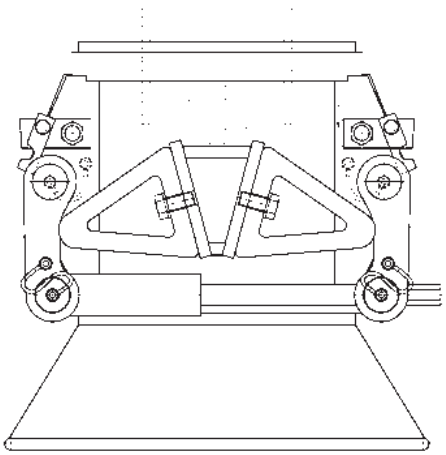
Diverless Riser Hang-off System- Wolly Butt

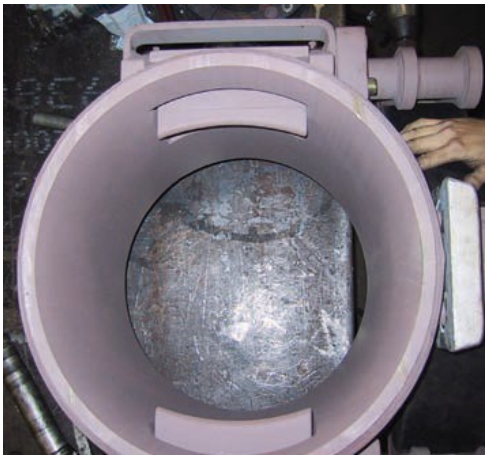
March 2015

LICENGINEERING A/S was contractet by NKT Flexibles to carry out development and prototype testing of a new type of hang-off for the bend restrictor system on flexible risers

The system consists of a machined steel male part and a female rolled and welded receptacle part. After full scale testing had been carried out succesfully on the proto- type, **LIC**ENGINEERING A/S got the contract for delivery off six female hang-off nits for the Wolly-butt FPSO project including three 6" and three 2.5" risers. The FPSO is operated by Agip Australia Ltd. in waters offshore Australia. The work was carried out in close cooperation with NKT Flexibles and other involved contractors as well as the end user client company. The development work was initiated based on a primary desire to develop a new and ro-bust female hang-off system. Existing systems have typically utilised many small hooks placed low in.the female pull-in bellmouth, and with complicated and delicate movement and lock pattern.

The new female system is based on two simple and very strong lock claws placed oppo-site directly in the lower J-tube itself just above the bellmouth. The hang-off system is self locking when the flexible with the male part attached is pulled past and landed on top of the claws. A spring system with neoprene fender elements providessecondary locking and keeps the claws positioned before the flexible is pulled in.





The system also includes a manual lock mechanism consisting of two lock bolts which can be engaged by ROV after the riser has been pulled in. Furthermore, the lock claws are connected to a cantilevered spindle drive placed on the front of the female unit. The spindle can be operated by the ROV to lock the claws into open position which is required when the flexible riser is to be disconnected and retracted.
The female part is strengthened by welded ring stiffeners and vertical stiffener plates to allow for the large cut-outs for the claws.

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