



KONGSBERG



SEABED TENSIONER (ST)

DESCRIPTION

A Seabed Tensioner (ST) is a tensioner installed as a part of the mooring line located on the seabed. The ST enables the mooring chain to be tensioned by an anchor handling vessel (AHT-vessel).

KONGSBERG MARITIME DECK MACHINERY

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A Seabed Tensioner (ST) combines chain securing and remote tensioning in one unit.

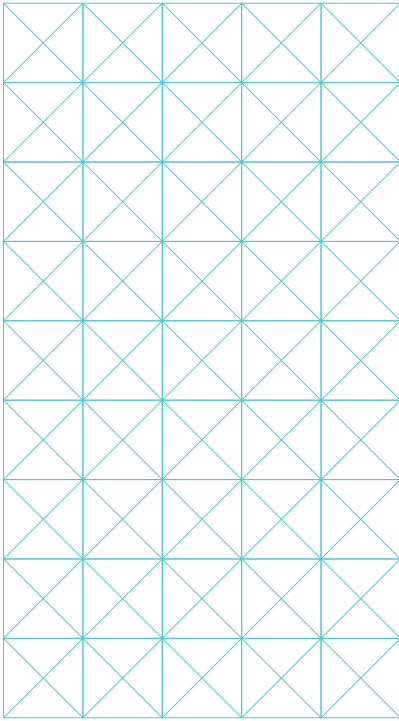
Eliminating the need for onboard floater winches leads to reduced CAPEX.

Having mooring winches installed onboard the floater itself is not cost-efficient, acknowledging that the floater will remain at location for a prolonged period without the need for re-positioning. The hook-up and tensioning of the floater is made possible by using the ST and utilizing a typical spot-market AHT-vessel to apply tension.

Utilizing the pulley block effect leads to a larger range of suitable AHT-vessels to perform the hook-up and tensioning thus reduced OPEX.

As the chain runs over a sheave in the ST and the angle of wrap around the sheave is large, the reaction load on the floater leg will be considerably increased compared to the applied bollard pull from the AHT-vessel. The anchor lines on the opposite side of the floater from the one tensioned will be subject to the same pulley block-effect.

The ST has received an Approval in Principle by DNV for compliance with DNV-OS-E301 and the ST is patent pending.

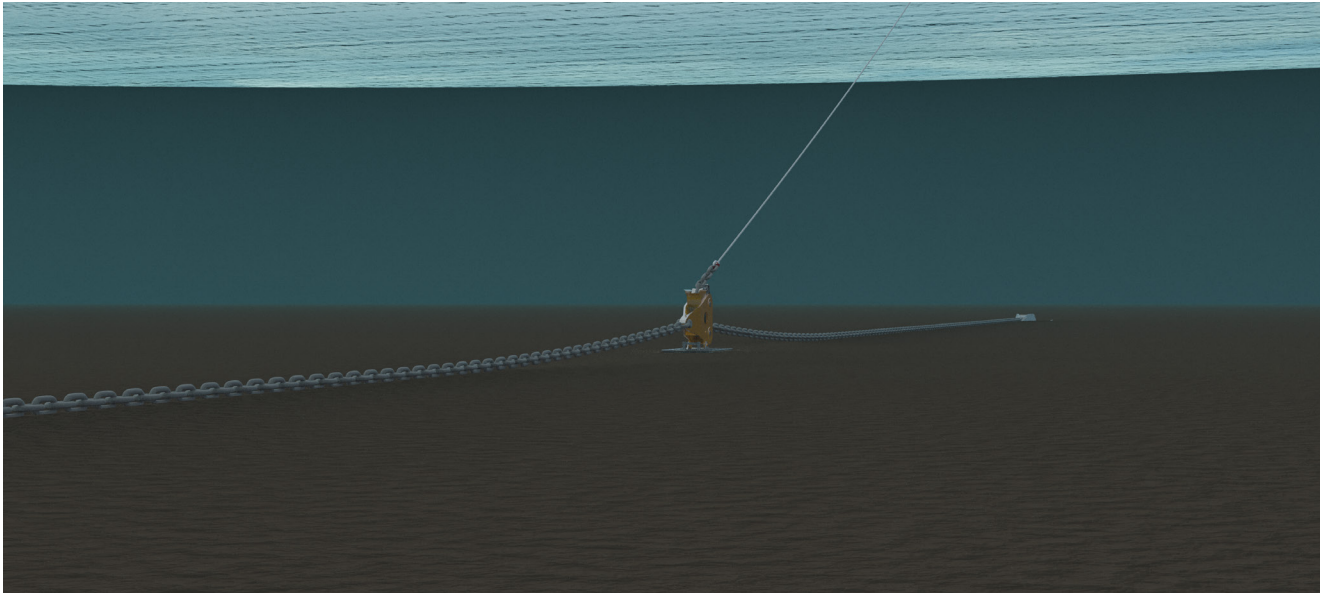
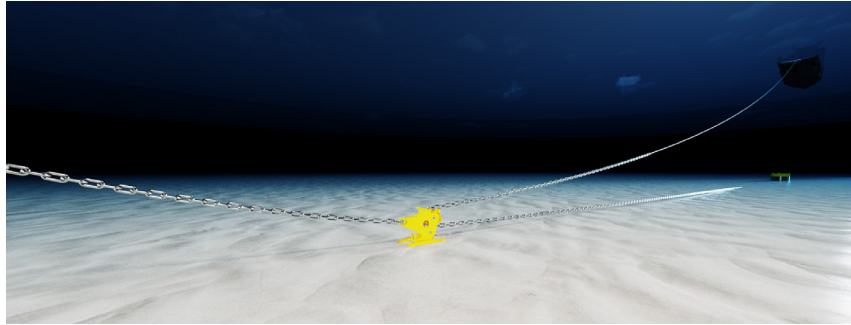


Operational advantages

The structural integrity of the mooring chain is ensured by a robust self-locking chain stopper system, designed to optimize the lifetime of the resting chain link and minimizing any Out of Plane Bending. The chain stopper system itself consists of a minimum of moving parts thus is maintenance kept to a minimum.

The pawl can be opened or closed by transmitting a signal from the vessel to activate a temporary energy storage unit.

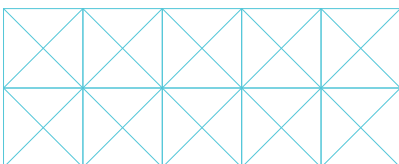
The ST is designed according to offshore standards and is built on decades of experience from the E&P Industry.



The solution has the following characteristics and benefits:

- Mooring chain dimension 76mm to 220mm and chain quality R3-R6
- Tensioning is done by bollard pull from an AHT-vessel.
- The chain load is held by a fail-safe pawl mechanism.
- The self-closing pawl is opened by transmitting a signal to a temporary energy storage unit and then apply tension by work wire from AHT to chain end link.
- The pawl and sheave design secures large contact surface on the chain link, optimizing the stress distribution and the out of plane bending properties.
- Few moving parts, making the solution robust and reliable.
- The design enables easy access for inspection and maintenance.

The Seabed Tensioner allows for smooth passage of the bottom chain, temporary installation chain or even work wire. It is equipped with lifting lugs for handling and has sufficient strength to be deployed over a stern roller.



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