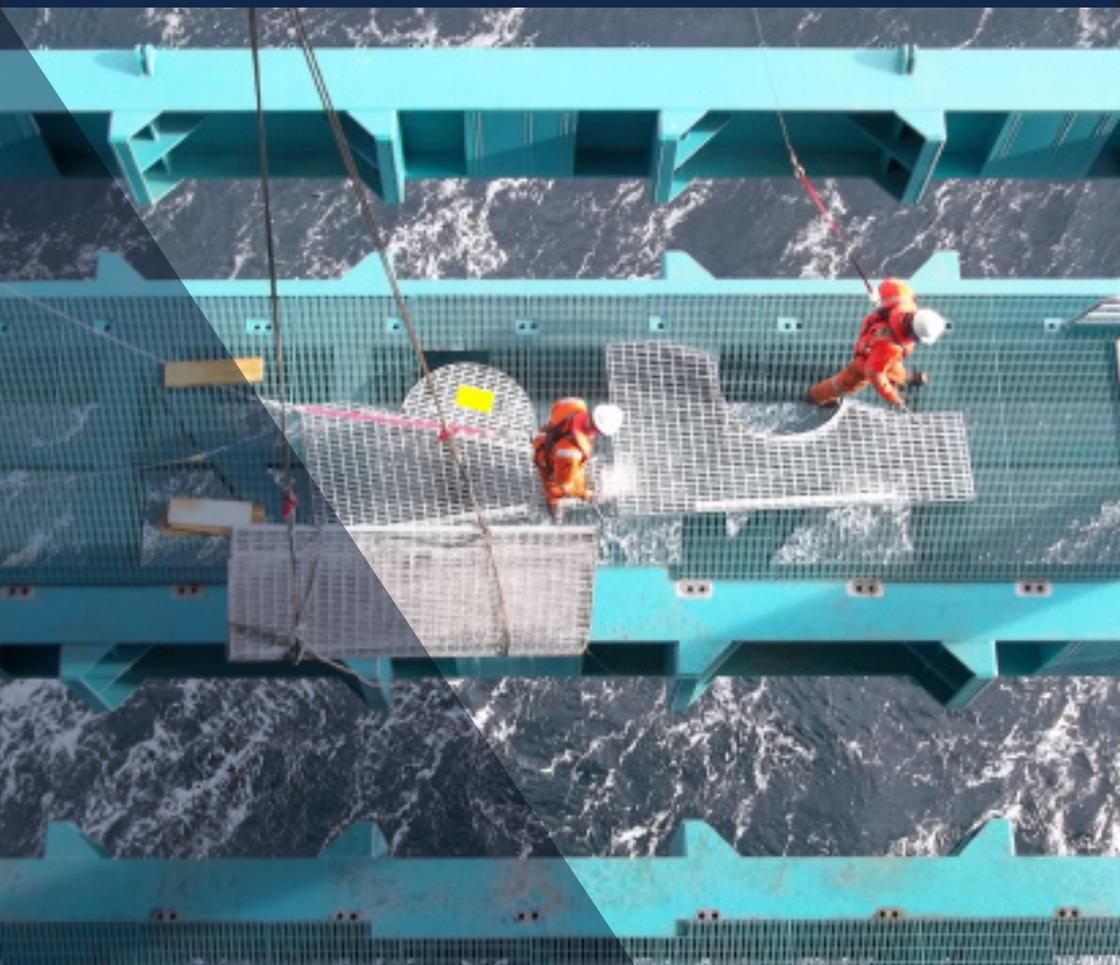
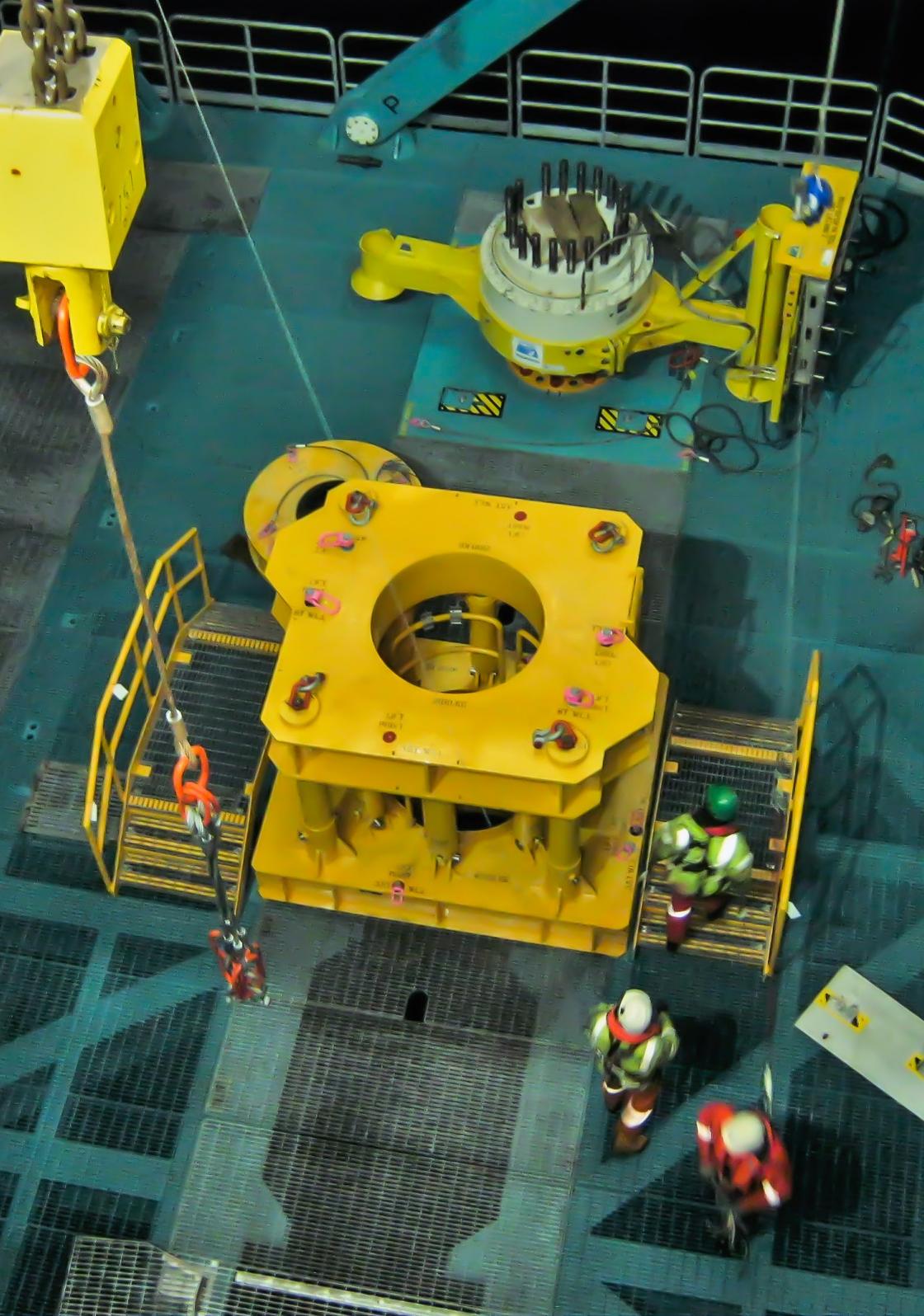


# RISER AND CONDUCTOR TENSIONING SOLUTIONS



[www.aquaterraenergy.com](http://www.aquaterraenergy.com)



# OUR SOLUTIONS

## **RISER AND CONDUCTOR ANALYSIS**

Verify and optimise your equipment for the correct tensions.

## **SUREGRIP TENSION RINGS**

Ready to go via our Aquaterra Express service.

## **PROTEN RIG FLOOR TENSION TABLES**

For intervention surface and subsea riser/intervention pressure control system support.

## **PROTEN PULL-UP TENSION SYSTEMS**

Provides automatic maintenance of tension via retractable hydraulic cylinders and rigging at a fleet angle.

## **PROTEN PULL-UP TENSION DECKS**

Increased capacity and BOP access via vertical hydraulic cylinders and rigging.

## **PROTEN CTU PUSH-UP TENSION SYSTEMS**

For extreme weather conditions - a fully active system, providing constant tension and lateral support.

## **TENSION DECKS**

Provides moonpool access and tension position adjustment for well re-entry, subsea tree handling and running. Bespoke multi-string, high load systems for top tensioned MOPU applications.

## **PROTEN CEMENT HANG-OFF SYSTEMS**

To support the conductor while waiting on cement during platform drilling operations, saving 24 to 48 hours of drilling unit idle time.

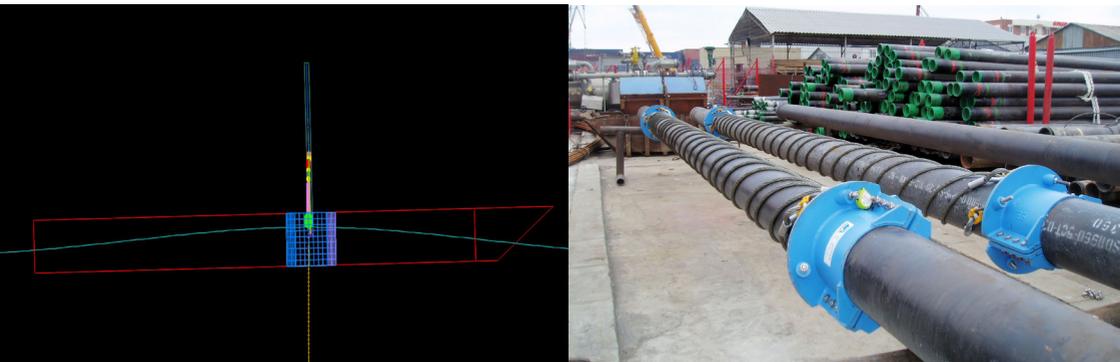
# RISER AND CONDUCTOR ANALYSIS

Our comprehensive riser and conductor analysis service verifies and optimises riser or conductor system design to deliver performance improvements and meet international regulations and requirements.

Our highly qualified and experienced team provides in-depth analysis, highlighting specific project needs and building bespoke models to replicate different situations in offshore environments. Our in-depth detailed design is optimised to ensure that customers receive a solution that is tailored to meet their exact needs for a variety of offshore operations.

## Services include:

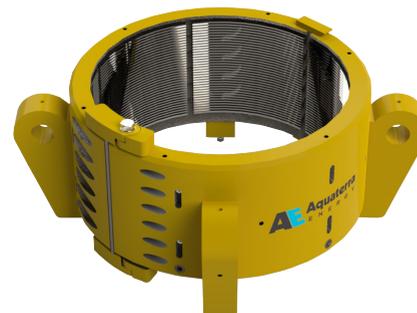
- Tension Optimisation
- Vortex Induced Vibration (VIV) Assessment
- Strength and Stability
- Wave Fatigue Analysis
- Simple to understand tensioning and lateral load requirements for offshore implementation



# SUREGRIP TENSION RINGS

## Features:

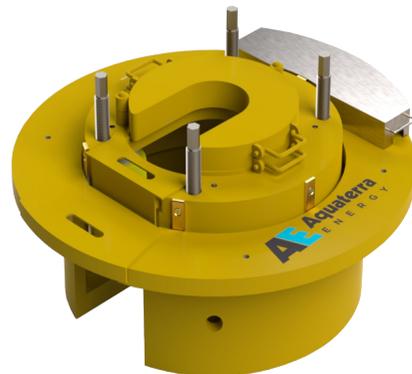
- Designed for use across all riser systems and pipe sizes, providing a quick and simple installation of tensioning clamp around the conductor or riser
- Can be installed at any height and within any position around the OD of the pipe
- Re-usable
- Push-up or pull-up applications
- Provides a working load of up to 300 tonnes
- Load testing in accordance with DNV rules for Certification of lifting appliances
- SUREGrip load shoulder system – for high fatigue and high combined loading applications (subsea riser systems for example), up to 400 tonnes
- SUREGrip slimline - can be deployed through a rig rotary table and pre-installed to conductor or riser



# PROTEN RIG FLOOR TENSION TABLES

## Features:

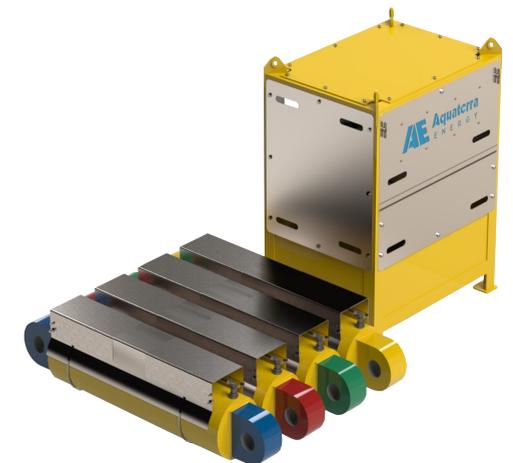
- Sits flush within the rotary table's master bushing slot
- Interfaces with the casing/tubing or intervention riser, to enable a significant reduction in stack up height
- Uses an upward force, supplied via hydraulic jacks, to cause reaction against plates to provide tension to casing/tubing, intervention subsea or surface risers and landing strings
- Variations in spaceout are achieved via simply altering the height of the jacks, C plates or via use of a SUREGrip tension ring
- Accommodates passage of intervention and landing string umbilicals
- Supplied with back-up manual screw jacks



# PROTEN PULL-UP TENSION SYSTEMS

## Features:

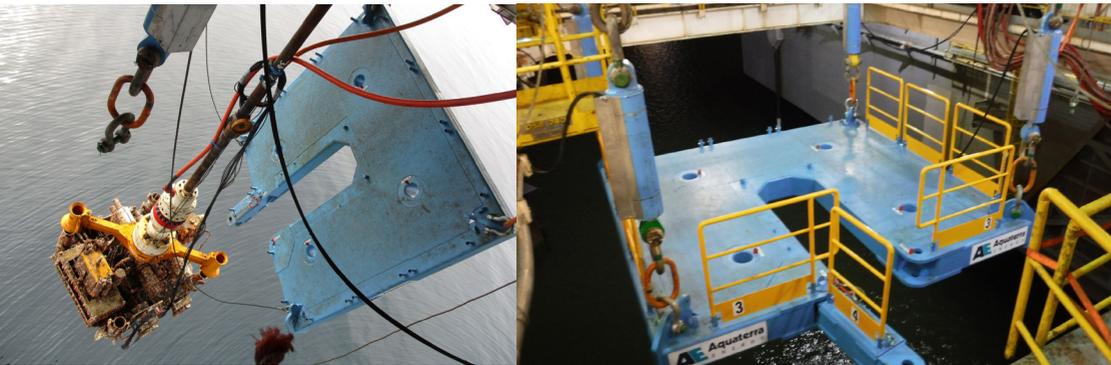
- Capable of applying tension loads of 4 - 400 tonnes via four hydraulic cylinders (effective applied tension to conductor or riser reduced via increased fleet angle)
- Powered by standard rig air supply
- Automatic maintenance of pressure/tension, meaning no requirements for regular intervention
- Enables rig to utilise full skidding capacity
- System is fully equipped with a gauged control fluid reservoir
- Can be used as a lateral restraint
- Can be used for conductor or riser tensioning and BOP stack support, as a two cylinder system



# PROTEN PULL-UP TENSION DECKS

## Features:

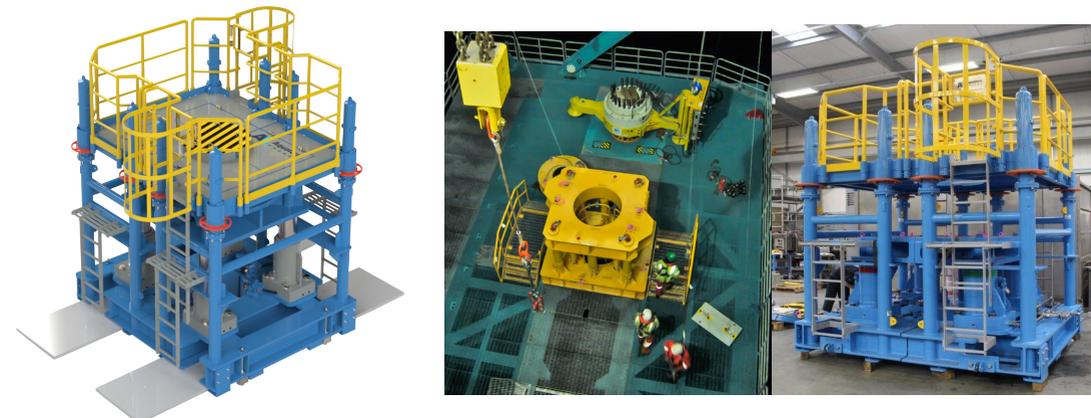
- Combines the PROTen Pull-Up Tension Systems with a floating tension deck for increased effective tension to conductor or riser and improved BOP access
- Increases tension capacity
- Has the ability to retrieve tension deck
- Lower weight
- Utilises PROTen Pull-Up Tension System to apply riser tension via a SUREGrip Tension Ring
- Easy handling of the floating tension deck, BOP system of subsea tree
- Can pivot into vertical position to allow easy running of riser with deck in location
- Enables rig to utilise full skidding capacity
- Easy to install or remove BOP (no clash with angled Tension System slings)
- Can be combined with rigging lateral support system



# PROTEN CTU PUSH-UP TENSION SYSTEMS

## Features:

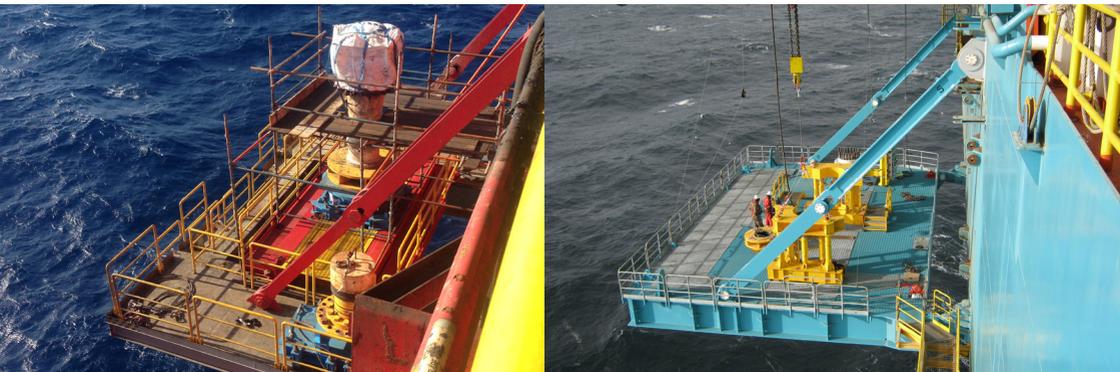
- Suitable for use in extreme weather conditions
- 400 tonnes axial load capacity and 100 tonnes lateral load support
- Enables rig to utilise full skidding capacity (when combined with Aquaterra Energy moonpool tension deck systems)
- Designed to open for larger items passing through, such as Xmas tree
- A crows nest BOP/surface wellhead adjustable access deck eliminates any scaffolding requirements
- Anti-jump/locking bars and skid crawlers allow both halves of system to be closed around conductor/riser, making it hands free with no loose parts and therefore greatly improving operational weather windows
- Eliminates over-the-side operations - increasing rig-up time
- Fully active system, providing a constant tension to the riser conductor



# TENSION DECKS

## Features:

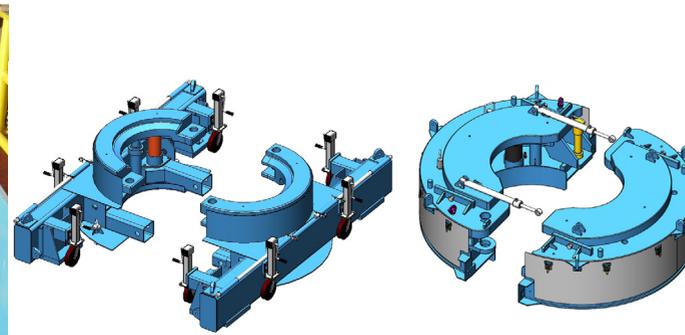
- Provides moonpool access and tension position adjustment for well re-entry, subsea tree handling and running. Bespoke multistring high load systems for top tensioned MOPU applications.
- New build rig-supplied tension decks
- Replacement tension decks to improve efficiency, capacity, skidding envelope or lateral support
- Modification and upgrade of existing tension decks
- Bespoke MOPU tension deck systems to accommodate multi-string top tensioning, surface wellheads and process equipment



# PROTEN CEMENT HANG-OFF SYSTEMS

## Features:

- Supports the conductor whilst waiting on cement during platform drilling operations - saving drilling unit idle time
- Can save 24 - 48 hours of idle rig-time whilst waiting on cement to cure
- Low profile and light weight design, to allow easy positioning in congested cellar deck areas
- Integral trolley wheels and multiple lift points for handling
- Cylinder stroke accommodates space out and slump of the conductor once cement has cured to allow the unit to be removed
- 250 tonne axial support
- Fail safe cylinder design and locking system
- Engages directly with the underside of the starter head profile or can be used in conjunction with a SUREGrip tension ring around the conductor OD
- Guards in place to protect against moving parts



## **ABOUT AQUATERRA ENERGY**

Aquaterra Energy is a provider of equipment and solutions to the global oil and gas industry. The company provides services across the seabed-to-surface value chain, and specialises in riser systems and design analysis, tools and products needed during the first days of a well's operation. In addition they provide components for offshore structures, including the Sea Swift platform, which provides a technologically superior and more cost-effective alternative for subsea wells in shallow waters. Many of Aquaterra Energy's most popular tools and products are available on either a rental or purchase basis.



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