





Q-Connect quick connection & disconnection system

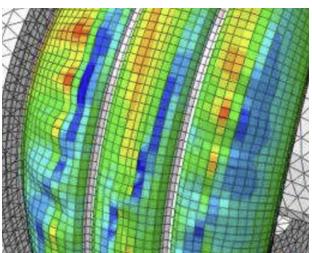
Richard Yemm Quoceant Ltd



Quoceant – offshore renewable engineers





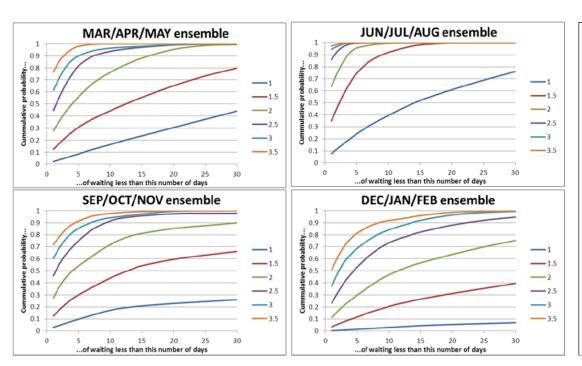


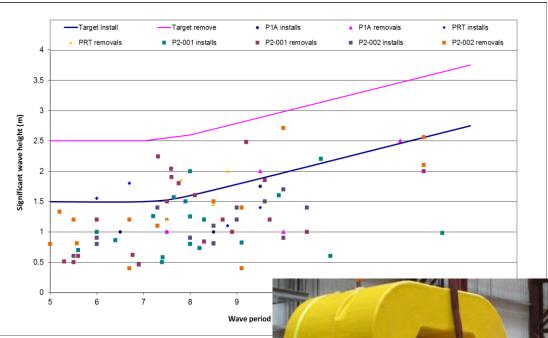


- Core technical team from Pelamis Wave Power
- Multidisciplinary fundamental modelling, design, build, through to offshore operations, and economics
- "Practitioners" perspective "whole-system" approach genuine shortcuts for industry
- Broad range of clients and projects over last 6 years
- Advancing a number of core enabling technologies from the Pelamis programme:
 - Advanced hydraulic power take-off systems
 - Fatigue optimised structural design
 - Quick connection/disconnection systems
- Contact us to discuss how we can help: <u>richard.yemm@quoceant.com</u>



Quoceant – quick connection system benefits





- Facilitates safe execution of big jobs, with modest vessels, year-round, in tough conditions
- Risk control on prototype programmes "ocean as a wave tank"
- Reduces operational costs additional Capex << ongoing Opex
- Enables off-site maintenance strategy for commercial projects



Quoceant – quick connection system experience



- Original Pelamis 'TLA' system
- 6 systems built & installed
- Install <1hr, remove <15mins
- >50 cycles in up to 2.5m H_s
- See WES Knowledge library



Picture: AHH/Meygen

- Andritz system for Meygen
- Rapid solution, no wet mates



- Minesto DG100 system
- In partnership with Inyanga
- Design, build, install



Q-Connect – new generic solution

Draws the control of the control of

Installation winch housed in WEC

- Draws the connecter together with single action
- Initial connection while lines slack at surface
- · Then operation is remotely controlled
- · No divers and no lifting or hauling on deck

Receptacle housed in WEC:

- Provides alignment, latching, connections, and controls
- Compact, with suitable load ranges (e.g. ~0.6m diameter for 250te peak load)

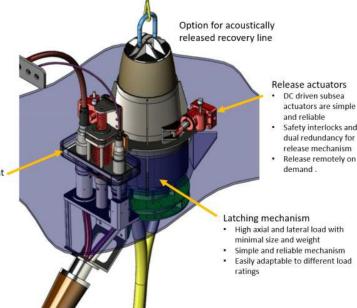
Mid-water mooring and electrical connection (buoyancy no shown)

- Avoids controls sub-sea
- Wet mates protected from bio-fouling
- Coarse axial and yaw selfalignment is made
- Fine alignment and insertion follows for wet mates
- then mechanical latch secured, all with same pull in action.
- Methods proven on previous quick connect systems

During installation

Independently compliant wet mate carriage

- Locally ensures accurate alignment for wet mates
- Power (900kW) and communications using proven components
- Automatic biofouling protection caps on wet mates
- May be integrated with third-party mechanical connections



Connected

- Wave Energy Scotland funded project, Stages 1 & 2 completed
- FEED work complete, example WEC cases considered, costing, operations etc
- Currently working on proposal for Stage 3 of work to build and qualify system
- In parallel, seeking first users for integration/deployment 2023/24
 - wave energy Quoceant SCOTLAND





- Combined mooring-electrical system
- Operability limits >2m Hs, "limited by the vessel not the Q-Connect system"
- Modular applicable to widest range of moorings/ umbilical/MEC types
- Pull-up, pull-down & pull-though configurations
- Self-latching, command-release no divers/ROVs
- Wet-mates mechanically isolated critical
- Mooring loads range of load ratings up to 600tonnes
- Standardised wet mate connectors
 6.6kV/1.25MVA, auxilliary power, fibre comms etc
- Pre-qualified components minimum application specific work
- Objective pays for itself in <2 operations









Q-Connect quick connection & disconnection system

THANK YOU

Richard Yemm
Quoceant Ltd
richard.yemm@quoceant.com

