
Tfi Mooring Tether

Developer Assessment

-Tfl's tethers offer major cost and performance benefits while eliminating shock loads
-have assessed that they reduce
 - mooring loads by over 70%
 - amount of steel in their device
 - anchor size
 - diameter and length of mooring lines
 - watch circles (more devices can be deployed)
- The tethers will be considered an enabling technology

The Tfi Tether Proposition

For marine device owners, mooring architects and consultants

who need to moor buoys, fish farms, renewable energy devices or floating platforms, in challenging environments or **who want** to lower the cost of their mooring solution

The WaveProtector Elastomeric Mooring tether offers

a polymer based mooring solution

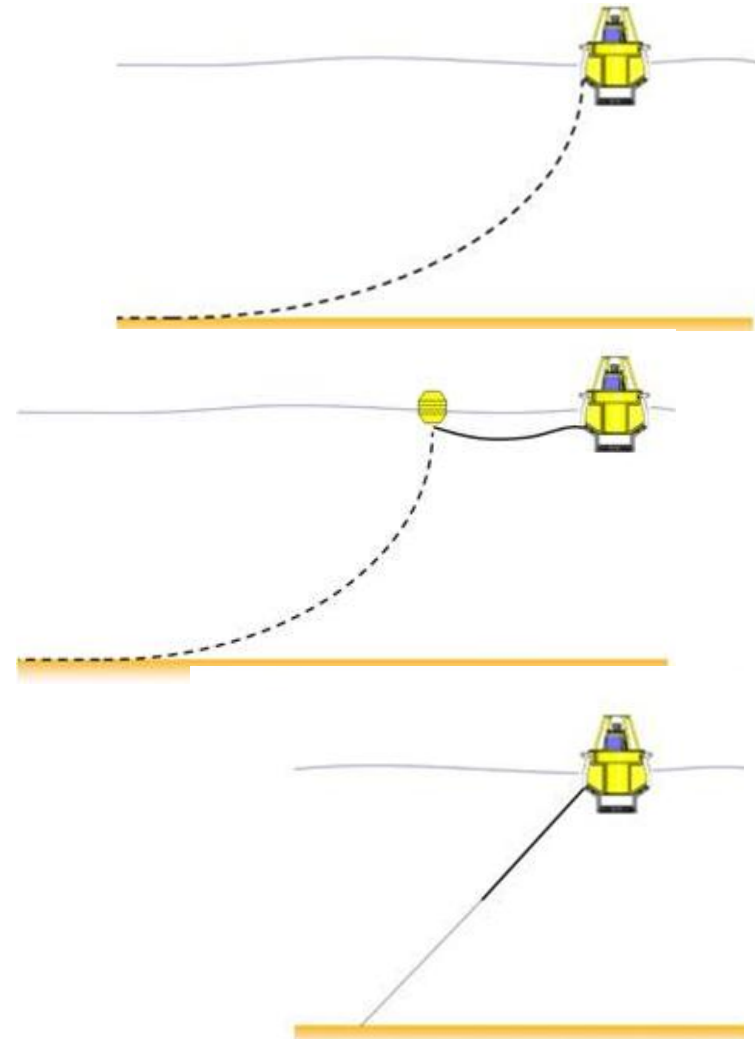
that delivers substantial load and fatigue reductions

which is achieved through a unique combination of thermoplastic springs with elastomeric/rubber tethers.

The Mooring Challenge

Dynamic mooring solutions in exposed sites are expensive and challenging with

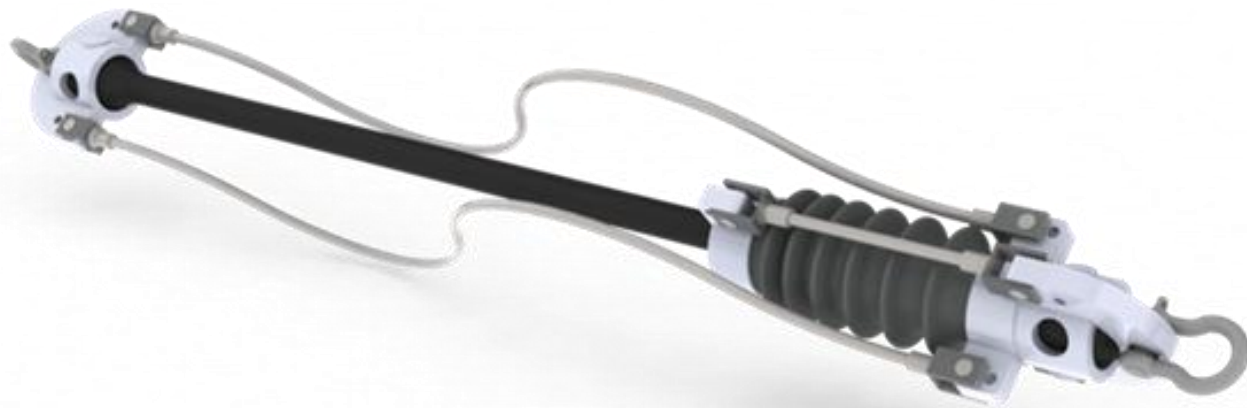
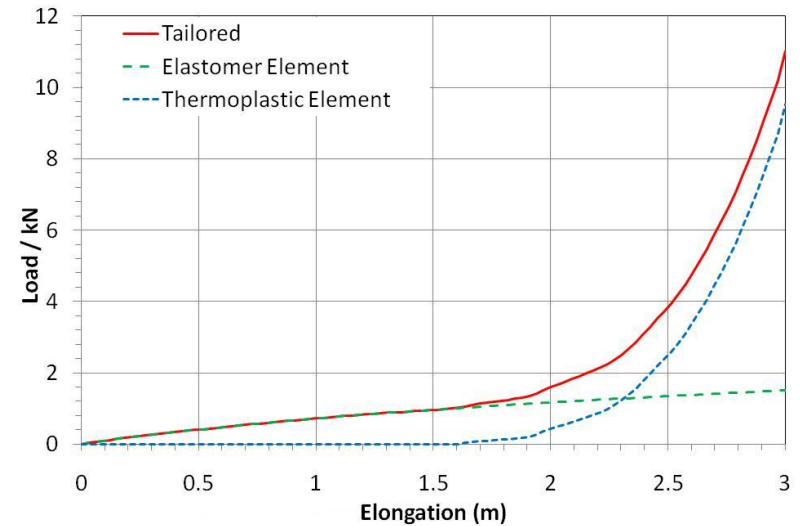
- Large footprint required
- High forces throughout
- Snatch Loads throughout
- Reliability & fatigue issues
- Impact on device motion



The Tfl Tether

A mooring tether with a combination of different polymer elements, tailored to the wave environment

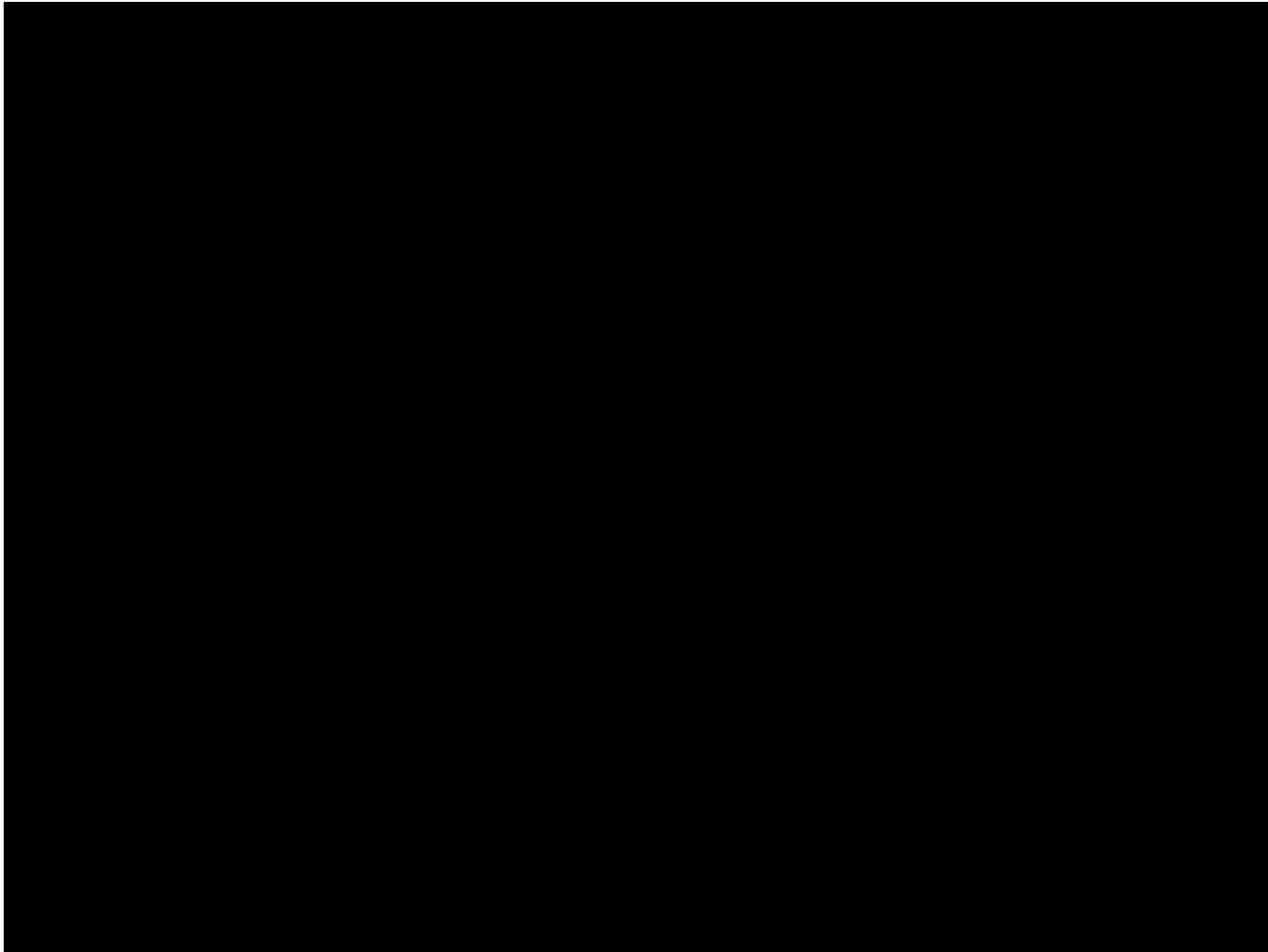
- Tensile rubber element for frequent waves
- Compressive thermoplastic element for storm event high load protection



Technology Proven

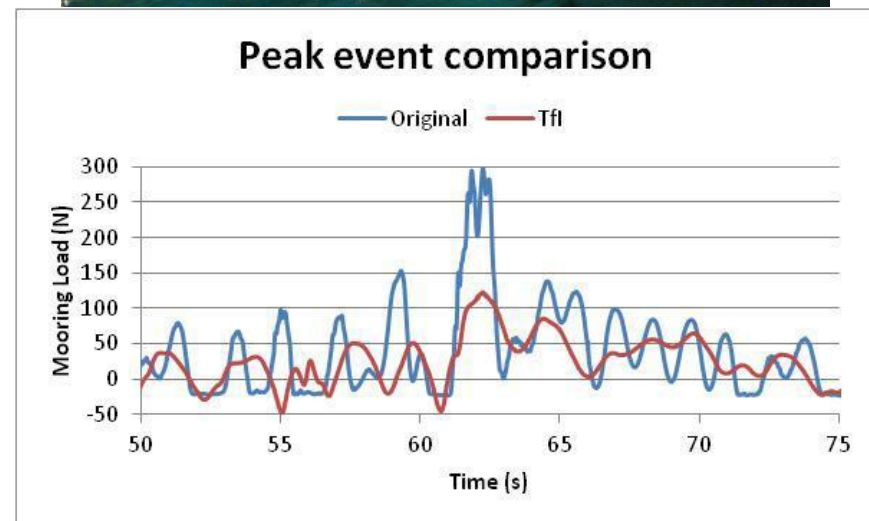
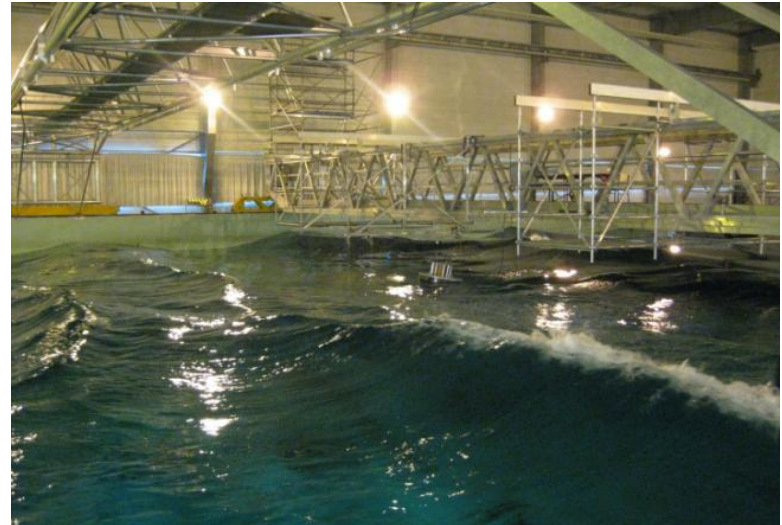
- ✓ **HMRC - 2012**
 - Individual elements
- ✓ **Exeter - 2012**
 - Ability to deliver desired response
- ✓ **Nantes - 2012**
 - Technology demonstration / proof
- ✓ **Supply Chain – 2013**
 - Manufacturing partners in place
- ✓ **Lead Customer Deployments - 2013**
 - Managing existing loads of 150-300kN per tether

Video



Nantes validation

- Nantes testing showed
 - ~70% reduction in peak loads
 - Survivability in repeat extreme event cycles
 - Survivability over 3 hour winter storm
- Validated simulation work and confirmed benefits

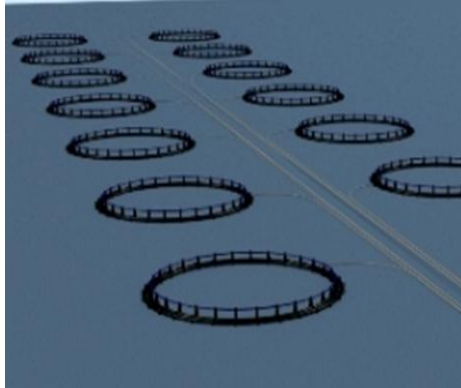


Targeting Multiple Markets

..... opportunities in....



Renewable Energy



Aquaculture



Marinas/Pontoons



Buoys

.....now seeking customers