

# MOORNEWS

INFORMATION FROM AND ABOUT GLOBAL MARITIME MOORLINK

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## Mk7 - the MoorLink Wire Rope Clamp goes flexible

After the success with the more user friendly, lighter and more compact wire rope clamp Mk6 we now present the latest version - Mk7. Still including the same features of the superior grip technology and simplified assembly but now with a replaceable insert system.

The new system feature with an insert change out system allows the clamp to be used with a range of steel wire rope diameters only replacing the internal grip system in the same body.

This means the user can keep the outside body with shackle and swiveling function and only replacing the internal grip. This makes the wire rope clamp a lot more cost effective and user friendly for our customers working with multiple wire diameters.

Also the new systems reduces downtime for service and



Moorlink Mk7 wire rope clamp with inserts.

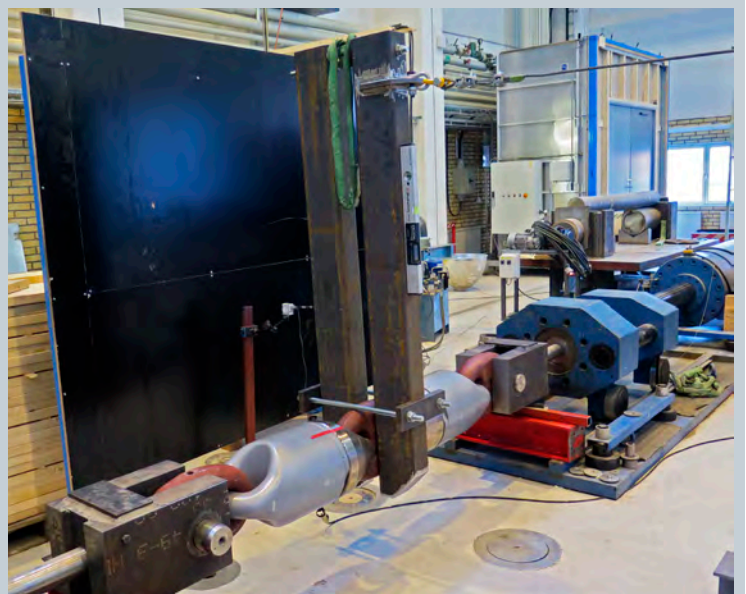
refurbishment as you can easily replace the worn parts. The Mk7 is available in the following standard ranges: 32-44 mm, 46-60 mm, 64-76 mm and 80-92 mm or other sizes upon request.

## JIP subzero mooring hardware research

Global Maritime MoorLink has participated in the Joint Industry Project: "Design and Operation Practice for Arctic Mooring Systems" during 2014, 2015 and the beginning of 2016. MoorLink's test program included Break load testing at -40 degrees Celsius, material testing at subzero temperatures ranging down to -80 degrees Celsius and extensive break out friction measurements to study the functional behavior of a sub-zero tempered swivel. Fracture surfaces were also studied in detail to determine how steel properties change with decreasing temperatures.

The study delivered was titled "Mooring Hardware in Arctic Environment: Mooring Swivels" and currently is being reviewed by the other JIP participants.

The test setup used for the frictional testing can be seen in the picture on the right.



Friction test setup.

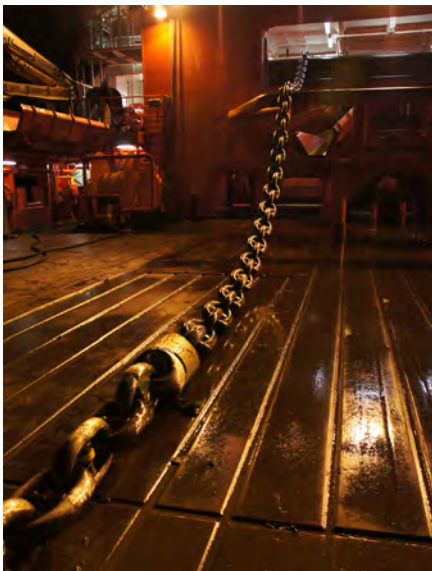


## Key-hole M-link

MoorLink has developed a new patent pending locking system for its M-links that makes it possible to design for long term mooring times of 40 years and beyond.

The new M-link series are called Key-hole links or K-links, due to how the axis are locked in place and the new design has been developed to exclude all threads in the primary load path. The design is allowed to corrode and instead of relying on threads in for example a nut, the transverse load is taken through the main solid shafts using a flange and slot design. This can be designed to meet any corrosion or lifetime requirement.

Threaded connectors are still used during assembly, but once assembled all threaded connections can in fact be un-done, the M-link will still be intact and load bearing. The K-link can be fitted between any combination of chain and polyester and can be delivered with or without buoyancy elements.



## Announcement of new MD of MoorLink Solutions AB

We are pleased to announce that from 1 January 2016 Andreas Odenman is appointed as Managing Director of MoorLink Solutions AB replacing Björn Palmquist. Andreas will be responsible for the leadership of the MoorLink team, developing new business opportunities and creating customized solutions to customer needs.

Andreas is well-known within MoorLink being the Project & Production Manager for 10 years. He holds a BSc in Marine Engineering and has more than 15 years of experience in the O&G industry.



Andreas Odenman, new MD of MoorLink.

## Installation swivel delivery



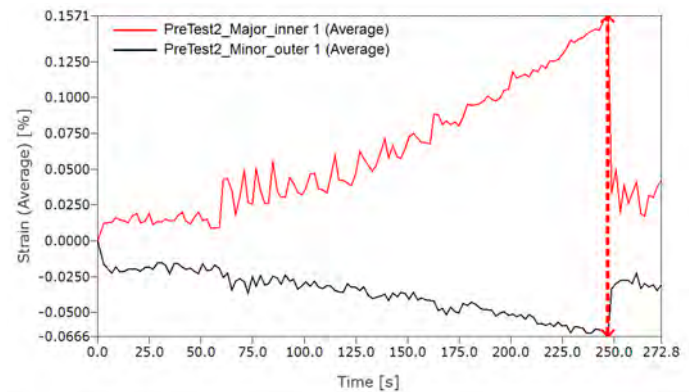
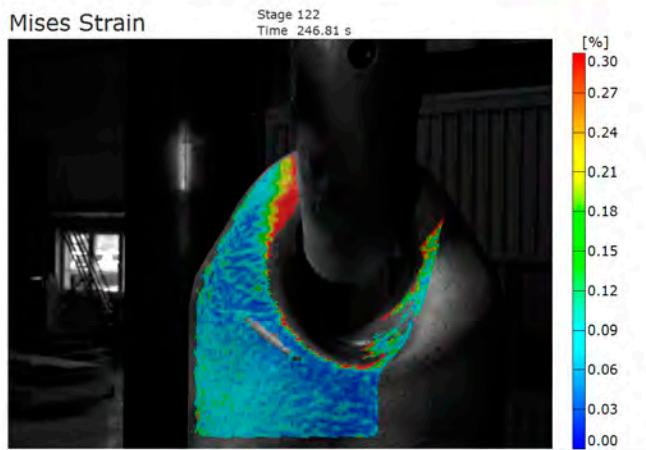
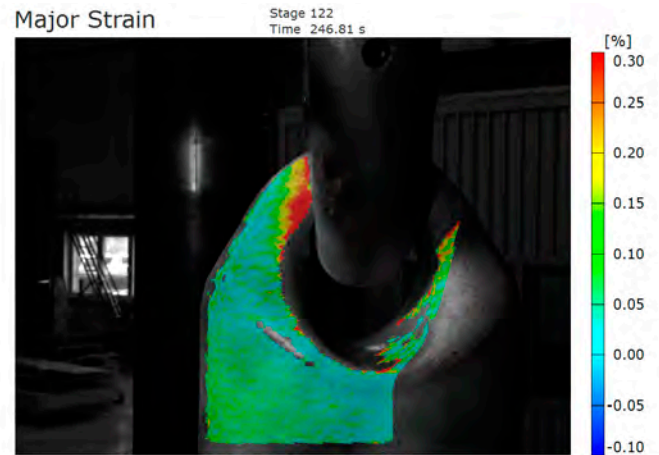
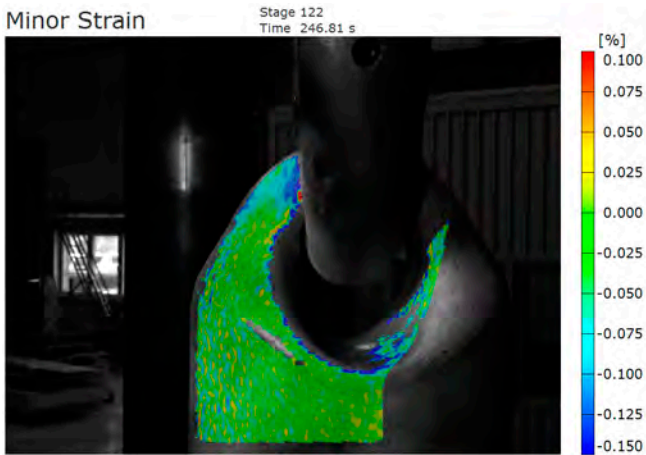
The SWL 600 mT installation swivel can be used down to 3000 meters.

MoorLink delivers large SWL 600 mT installation swivel to Technip Flexi France. With a capacity to be used down to 3000 m, the low friction swivel is a versatile piece of equipment that has a broad range of uses within offshore installations.

With this delivery MoorLink has once again demonstrated its readiness to deliver to ultra-deepwater installations.

The swivel was delivered with a clevis and padeye interface, totaling a length of 1.8 m.

To the left: MoorLink swivel used in offshore testing of new Stevshark<sup>®</sup> anchor in coronite soils



The tests were made at SP Technical Research Institute of Sweden.

## Applying DIC technology and testing swivel to actual break

To further increase and develop the understanding and reliability of the MoorLink design, Global Maritime MoorLink has tested a swivel up to its ultimate break load and the actual break.

The test was performed at a third party accredited test facility and filmed using the latest Digital Image Correlation technology (DIC).

Global Maritime MoorLink R&D engineer Nicolas Berner Wolf explains:

“By spraying the interesting areas of our test object with a so called “speckle”, an irregular spray pattern, we can by using a high speed multi camera system analyze 3D

displacements, deformations and strain levels in the test object. What we get is a real world description of what happens when we apply different loads. This helps us not only to better our design but also to fine tune our FE analysis as the results from the DIC measurements can be readily compared to the FEA.

Pulling a swivel up to the actual breakage also gives us the opportunity to study the material deformations and behavior in the plastic region.

Combining this type of study with the DIC technology we believe is a way to stay at the forefront of science and continue to deliver some of the industry’s highest quality products.”



## New order of M-links with buoyancy for chain to chain connection

Global Maritime MoorLink receives order to deliver M-links with buoyancy elements together with Balmoral Comtec Ltd. The order includes Y-links for chain to chain connection and the delivery will be during 2016.

## Founder leaves Moorlink

"I just want to express my thanks to all our clients, all interesting and competent persons I have met during my long career in one of the best industries available on this earth. Millions of miles, thousands of hours have been spent travelling around our globe.

I am fully convinced that all competent colleagues I had working with me will maintain MoorLink's good reputation and continue to deliver first class technical and quality products. I wish them all luck and finally I will again thank everyone I met."

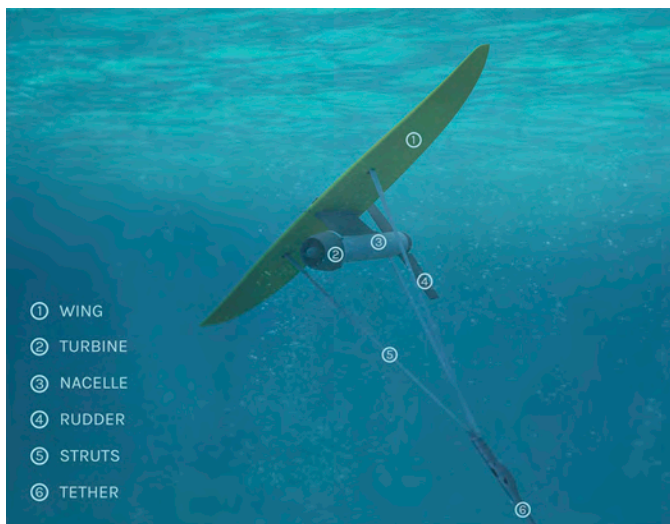
Björn Palmquist left MoorLink end of March 2016. Björn founded MoorLink on his own in 1995 after spending 10 years in the accommodation rig market.

So now after 30 years in the offshore industry, with approx. 2500 mooring components delivered to more than 100 clients worldwide, he is ending this career.

MoorLink was sold to Vryhof Group in 2014 and is now a part of the Global Maritime Group.



Björn Palmquist.



Minesto's Deep Green tidal energy take off unit.

## On the forefront of research

**MoorLink is a proud member of the EU funded Powerkite consortium aiming to build and deploy a tidal power take-off system (PTO).**

At the core of the consortium stands the tidal energy company Minesto who uses a subsea flying kite to extract energy from ocean currents.

The project aims to further develop the electro-mechanical design of the PTO, allowing arrays to be deployed at sites with low velocity currents.

MoorLink's main role in the project will be to help developing the mooring system as well as contributing in general with our experience in offshore mooring equipment. The project totals 5 MEUR and will be finished in 2018. For more information go to [www.powerkite-project.eu](http://www.powerkite-project.eu)

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### CONTACT GLOBAL MARITIME MOORLINK

Contact Global Maritime MoorLink

Head office	Phone: +46 (0)31 301 20 60
MoorLink Solutions AB	24 hours: +46 (0)768 84 38 00
Bror Nilssons gata 5	Fax: +46 (0)31 708 79 00
SE- 417 55 Gothenburg	E-mail: <a href="mailto:info@moorlink.se">info@moorlink.se</a>
Sweden	Web: <a href="http://www.moorlink.com">www.moorlink.com</a>

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