

**THE LEADING ROPE AND WIRE ROPE MANUFACTURER,
STOCKIST OF ANCHORS, ANCHOR CHAINS & ACCESSORIES**

ANCHORED IN THE MARINE INDUSTRY

FOR MORE THAN 50 YEARS



D. KORONAKIS S.A.

**The company was founded
in 1967 by Dimitris and Eleni Koronaki
and continues to be 100% family owned.**



**Today, D. Koronakis Sa operates
one of the most modern rope
productions in the world
at Thiva, Greece.**

More than 5.000 tones of ropes are produced yearly,

While 80% of this production is exported

Serving the needs of :



Shipping Industry



Offshore



Oil and Gas



Drilling



Towing



Military



Yachting



Fishing and Aquaculture

From port to port, across the globe, we provide fast and reliable service to our customers through our network of stock centers (depots).



OUR RANGE OF PRODUCTS



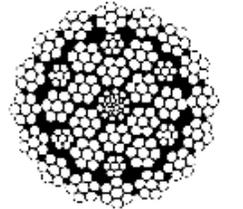
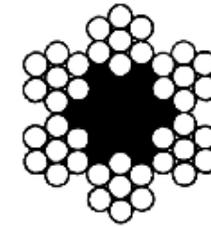
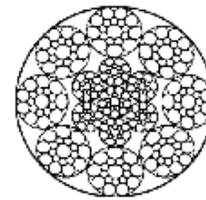
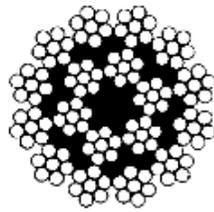
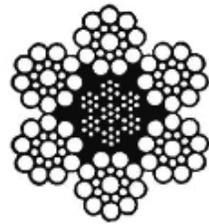
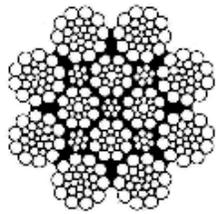
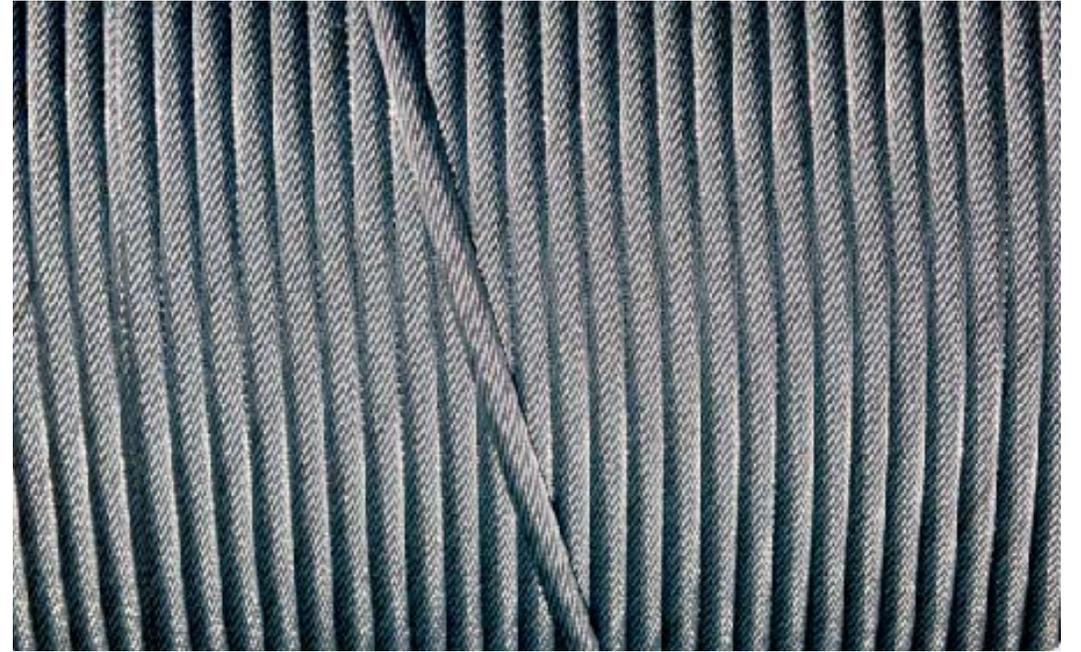
3.500 tons of anchor chains from 16 mm to 102 mm available in stock



1.500 tons of anchors from 25 kgs to 14 tons available in stock

Wire ropes

All types & constructions



Ropes

3 & 4 strand twisted
8 strand braided or plaited
Kapa 12 & 24 strand

KAPA ROPE was invented by
D.Koronakis SA, back in 1992.
It is the only round surface rope,
suitable for winches, that can be:

- Operational on drums
- Re-spliced on board



The maritime industry is facing the challenge of adopting new solutions for safer and faster mooring operations. For this purpose, the last 15 years, we have intensively developed synthetic ropes that can replace wire ropes.



KAPANEEMA



KAPANEEMA PLUS



KAPA KORONA

These ropes can offer lower operational costs, are designed to maintain their technical properties for extremely long time periods and respond to the most challenging operations.

One of the most demanding operations, with constant increasing capacity worldwide is the ship to ship transfer (STS).



STS transfer usually requires the mooring alongside offshore of two different size ships for the purpose of cargo transfer. The mooring arrangements adopted will depend on the sizes of the ships carrying out the operations and the difference in their sizes.



The most common mooring arrangement during STS operation is the one where vessel's main mooring lines (Wire Or UHMPE) connected with mooring tail (Mixed, Polyester or Nylon) are secured to the other vessel's bitts passing through type approved chocks or fair leads.



In order to achieve a smooth operation it is mandatory to assure that all contact surfaces on winch drums, stand rollers and roller fairleads, universal fairleads and/or Panama chocks, are regularly inspected and are free of any rust scale, grooving or cuts.

Even if chocks are new, it is still recommended to place a synthetic "Kapa Protection Sleeve" or "Chafe protection tube" to avoid the contact of the mooring ropes with the metal surfaces and minimize abrasion and temperature increase.

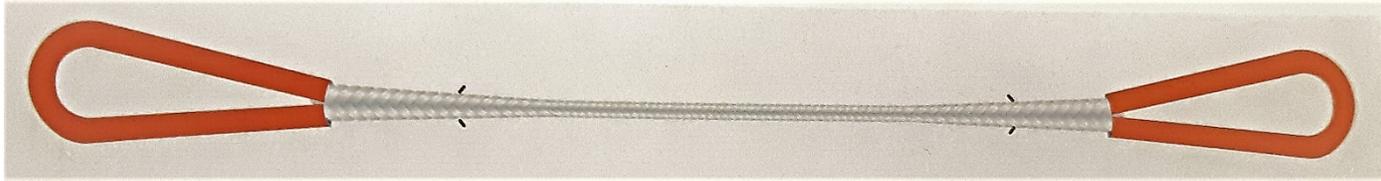


Mooring tails should have at least a length of 11 meters (sheltered ports with normal weather-sea conditions), can be of mixed synthetic materials (polyester and olefin) or 22 meters Nylon for STS operations or when vessel operates to open ports under abnormal weather, sea and tide conditions.

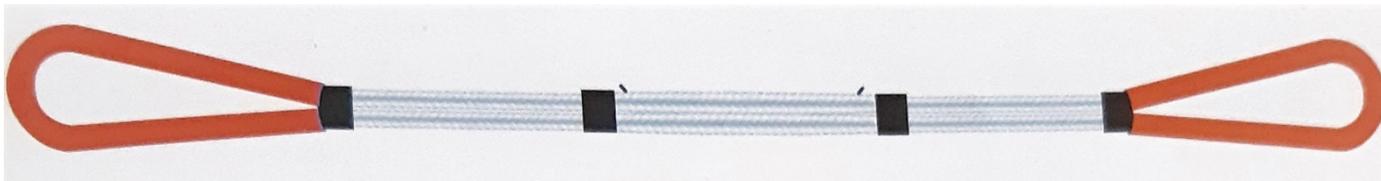
Tails of medium or high elasticity reduce and distribute evenly the mooring rope's dynamic loads.

TYPES OF MOORING TAILS

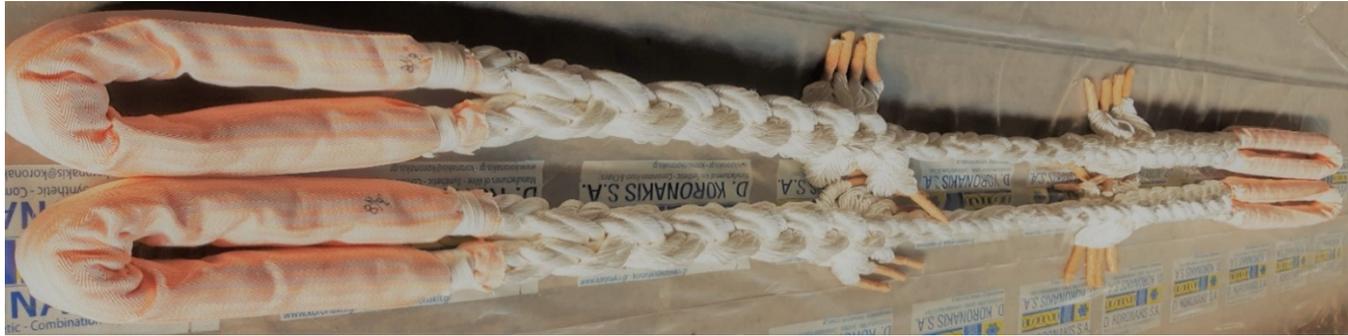
Single Tail



Double Tail “Grommet”



Tails with special protection sleeve



Tails with braid chafe protection



Fully jacketed tails



PROPER CONNECTION BETWEEN TWO SYNTHETIC LINES (MOORING LINE AND TAIL)



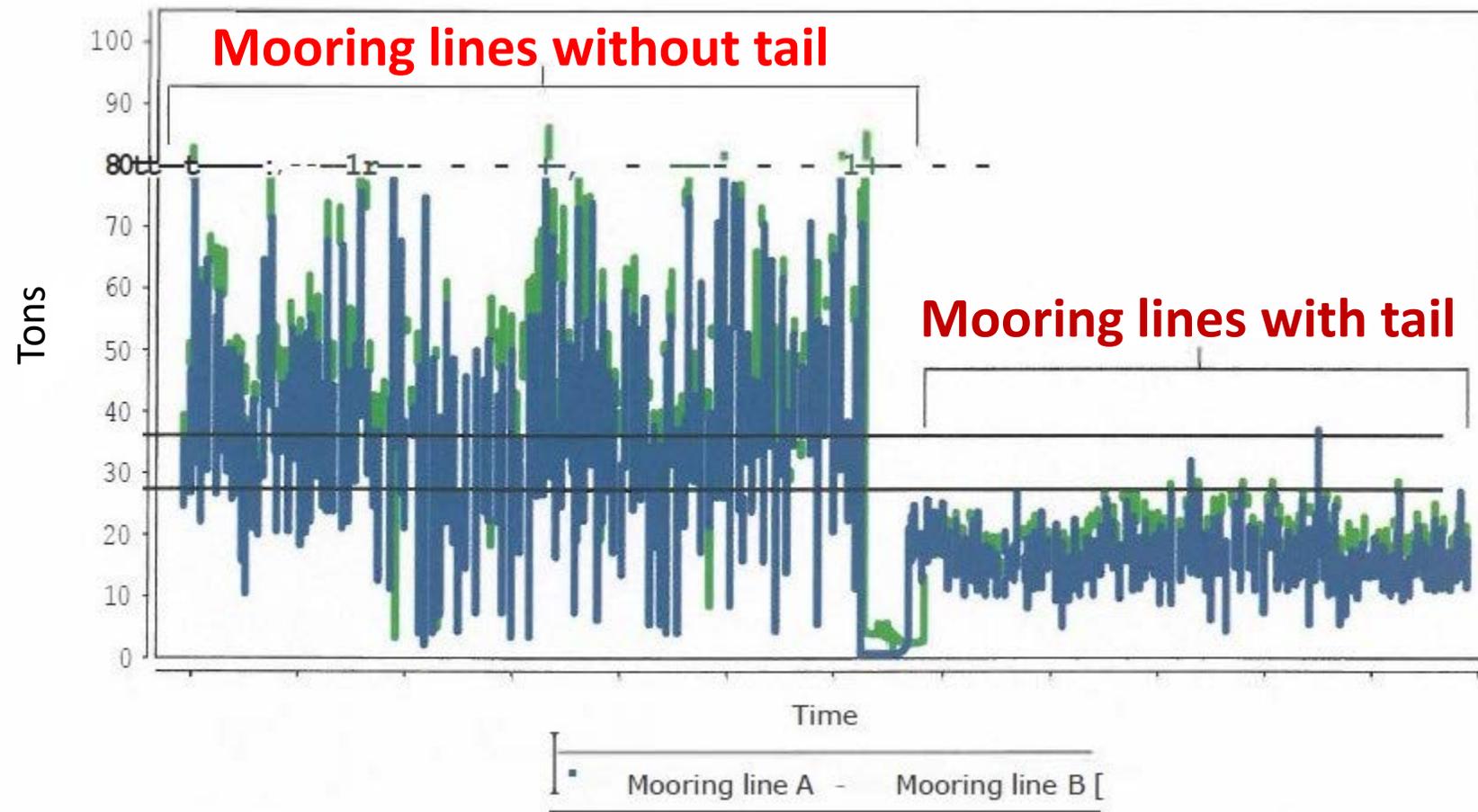
Figure 5.21: Cow hitch connection - HMSF line to polyester tail



Figure 5.22: Cow hitch connection with pigtail included

It is not recommended and should be avoided, instead of cow hitch as above, the use of mooring links.

THE IMPACT OF TAILS ON SYSTEM LOADING



As an alternative same mooring arrangement as described previously during STS operations, but with a wire tail attached at the end of the rope tail.



PROPER CONNECTION BETWEEN SYNTHETIC AND WIRE MOORING ROPE

a) Connection with Tonsberg link



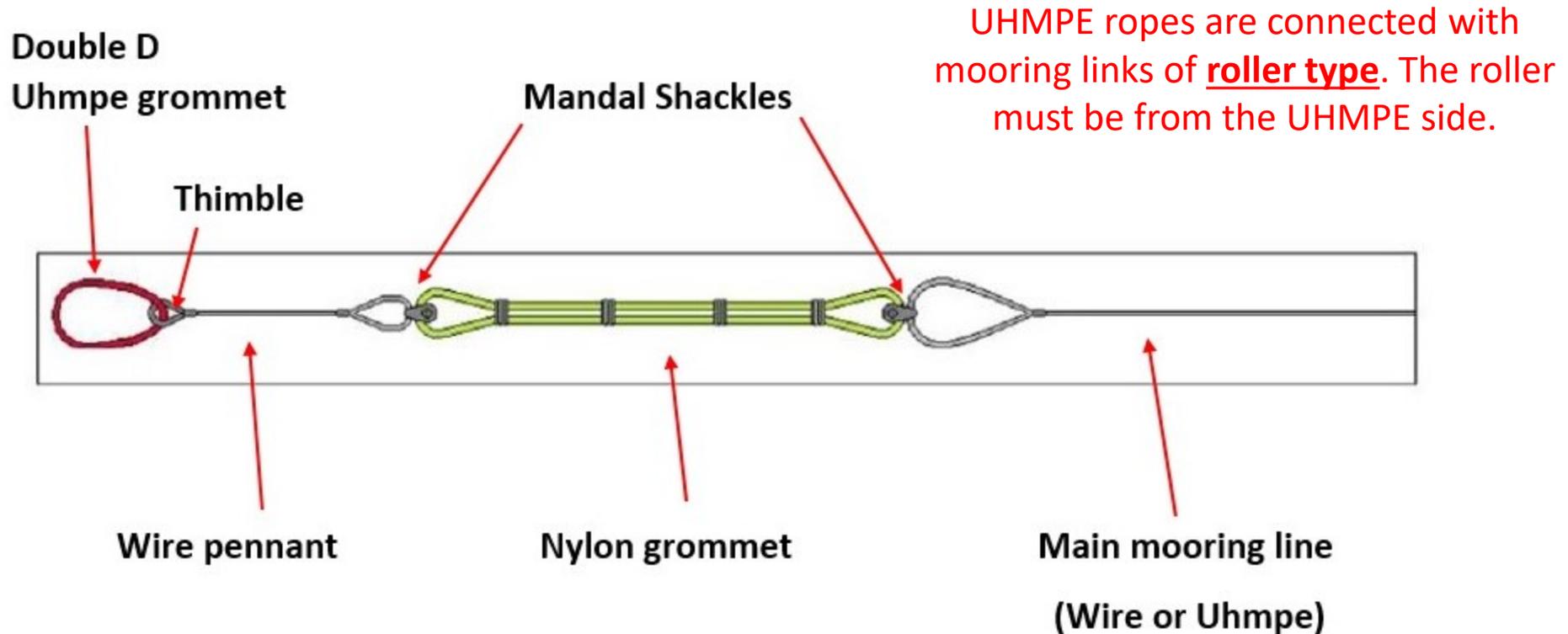
b) Connection with Mandal shackle



c) Cow hitch or any other knot to connect a mooring wire with synthetic tails is **not safe** and is **not recommended**.



For safer and faster operations, lately charters are requesting a separate configuration set consisting of nylon grommet / wire pennant / double D Uhmpe grommet, with certain type/size of eyes connected with mandal shackles.





GROMMET CONSISTING OF NYLON - POLYESTER 4 STRAND, DOUBLE SPLICED
(consisting of a load bearing nylon core protected by a non load bearing polyester jacket)
DIAM: 68-70MM X 11 MTRS WITH EYES AT BOTH ENDS MBL: 181 TONS



STS operations, present a number of risks that require effective risk control measures by all involved parties.

Considering unpredictable weather/sea conditions and/or unforeseen maneuvering errors, the mooring tails absorb the most of dynamic and shock loads and are subject to damages.

Very often, if/when a rope breaks the accumulated energy of the tail is causing significant snap back effect to the outer rope end. The other part of the rope, facing the winch, usually develops reduced snapback.

Whenever a mooring rope is parted on deck, its movement is unpredictable. Therefore, the crew should be extremely careful and keep away from any under tension rope.

D. KORONAKIS SA with a continuous research, is committed to provide feasible solutions for mooring, that assure the safety of :

- ❖ the crew**
- ❖ the ship**
- ❖ the terminal**
- ❖ and the environment**

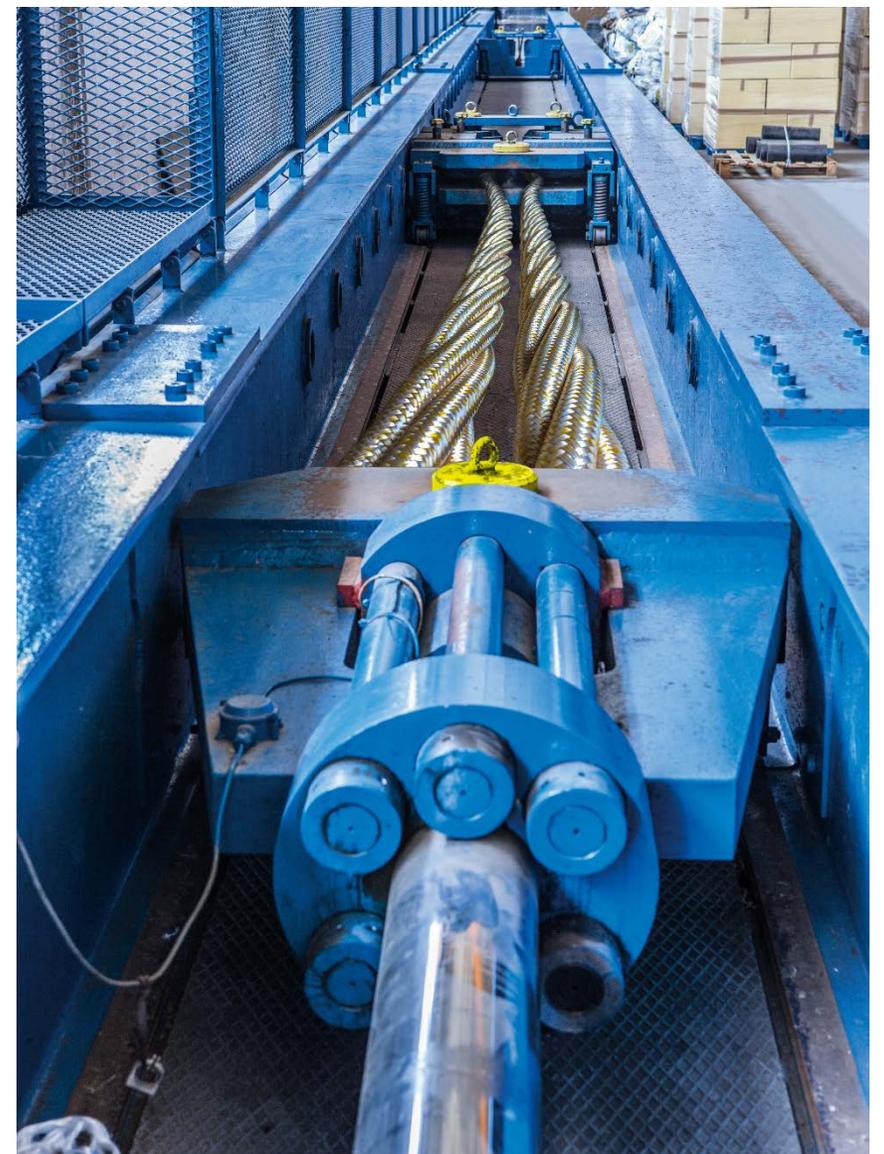
The use of effective mooring systems is essential for this purpose.

We have conducted at our premises simulation tests between:

-non jacketed 12 strand construction UHMPE mooring line and

-jacketed 12 strand KAPANEEMA PLUS mooring line

Both connected with cow hitch to a nylon tail



Fully certified 500 tons testing bench

Shortly, a new 600 tons testing bench will be available, custom made to meet new OCIMF MEG4 regulations.



The KAPA jacket managed to absorb the tail's accumulated energy and kept the mooring line in one part, prohibiting the total parting of the rope and the development of snap back effect.

We have every reason to believe that a jacketed rope, with our specially designed KAPA braided jacket, offers safer operational conditions than any non-jacketed UHMPE mooring line.

Our simulation tests were complemented by the feedback received from our customers, which proved the accuracy and reliability of our research.

Please see the following video from a moored vessel.

Cam2: 2 - AFT MOORING SPACE
2017/12/05 13:51:53 18



Cam2: 2 - AFT MOORING SPACE
2017/12/06 13:51:53 18



**Sudden wind causes the KAPANEEMA PLUS mooring rope which is
cow hitched with a Nylon tail to part to a point near the winch.**

You may see that the speed of the line when parting is extremely low.

The rope actually “falls” in the sea rather than “snaps”.

**We are proud to inform you that throughout all these years that
we are producing such ropes**

we have never been reported of any recoiling incident.

Our research is now oriented to the elimination of the snap back effect presented to other part of the mooring system, the mooring tail.

We have designed a braided jacket that covers the whole body of the tail and absorbs the accumulated energy of the tail when parting.





Such tails are already used successfully on Shell's FLNG Prelude, the world's largest floating liquefied natural gas platform, as well as the largest offshore facility ever constructed.

MOST COMMON DAMAGES AFFECTING

SYNTHETIC ROPE'S PERFORMANCE



ABRASION:

Is the wear of the rope caused by the contact with sharp surfaces and edges, contact with non-properly maintained surfaces of rollers, fairlead rollers and chocks, contact with winch drum side and separating flanges, contact with rough surfaces on a rusty deck and cargo remnants/grit etc.

In addition it is noticed when the rope is subject to many and continuous bending and/or to cyclic tension.

Abrasion should be carefully evaluated, as the rope is losing strength proportionally.

It is eliminated by using:

- a) Special robust synthetic jackets
- b) Protection with synthetic sleeves and chafe guards



CREEP:

Ultra High Modulus fibers under a constant load in certain periods of time, subject to creep rupture which takes place usually after many years. It is a non-reversible failure caused also when fibers suffer from high temperatures due to their low melting point.

Creep it is not visible, but where signs of reduced diameter are found in any length of the rope, this is a creep indication and further examination is required to the core. In this case the rope should be turned end for end and when convenient to be sent to the manufacturer for further examination/repairs or retirement.

SHOCK LOADING - OVERLOADING – INCONSISTENT DIAMETER:

Visually detected as localized reduction in diameter and localized increases of diameter as in the figure below. Probably have been caused by shock loadings and/or cut yarns inside the rope. Normally this part of the rope has to be removed and splice the two ropes. The cut to be made by the crew if possible, otherwise by the manufacturer. If this is not possible the rope has to be retired.

Shock loads and overloads result to melted or cut yarns inside rope, where finally a local reduction of the diameter is noticed.

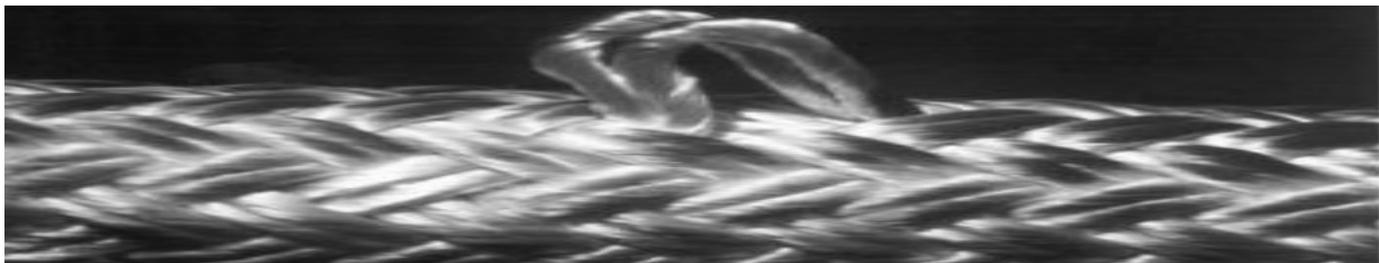


PULLED YARNS STRANDS:

This may be caused during rope snagging somewhere to the equipment during operation. If there is not any cut or damage it can revert through working back the pulled yarns or strands into the rope. No other corrective action is needed.

Pulled out yarns (if not in a great extent in rope's length) do not affect seriously its strength. Meanwhile we have to follow up each case and if in doubt to request inspection by a competent person or request manufacturer advice, or the tail to be downgraded.

If the damaged area has pulled strands or fibers up to 15% of the total number the strands, we may try to repair them manually by patronizing the affected area. If the destructed fibers or strands exceed the 15% of the total, the rope must be removed from operation.



CUT YARNS - STRANDS:

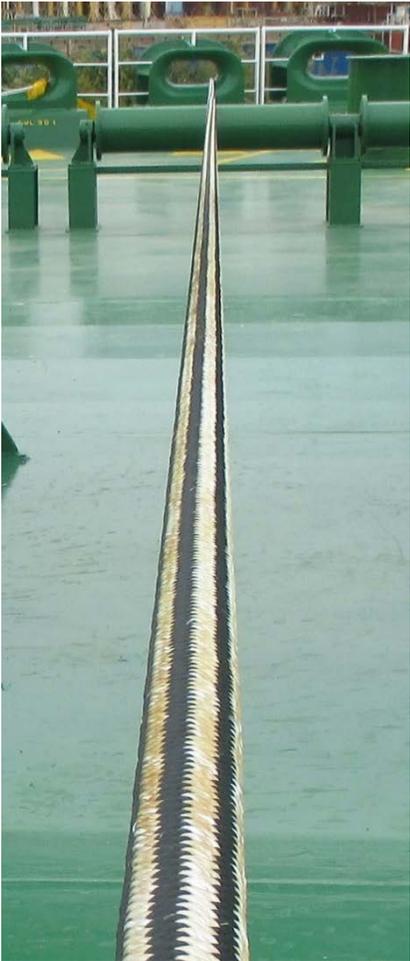
This may be caused by operating the rope over sharp edges and surfaces, more rarely from wear caused by extreme abrasion during operation. If two or more strands are cut this part of the rope has to be removed and splice the two rope parts. The cut to be made by the crew if possible, otherwise by the manufacturer. If this is not possible the rope has to be retired.



TWISTS, KINKS:

Kinks are sharp twists/bends which will distort/deform the strands mostly permanent, therefore should be removed immediately by a counter rotation with the rope relaxed.

Take into consideration that 3 complete twists in a length of 1 meter, reduce the LDBF approximately 8-10 %.



HEAT FUSION-MELTED YARNS :

Visible detected as charred and melted yarns. Normally in these areas the rope is very stiff and cannot revert by flexing. This may be caused when rope sustained to extremely high load on to a bending surface or has been exposed to excessive heat. Normally this part of the rope has to be removed and splice the two rope parts. The cut to be made by the crew if possible, otherwise by the manufacture. If this is not possible the rope has to be retired.



FIGURE D12: ACTUAL MELTING DAMAGE, OFTEN BLACK HARDENED YARN END THAT CAN NOT BE FLEXED BACK. IN THIS PICTURE APPROX. 50% OF ONE STRAND IS ACTUALLY MELTED AWAY.

FUTURE ROPE TECHNOLOGY

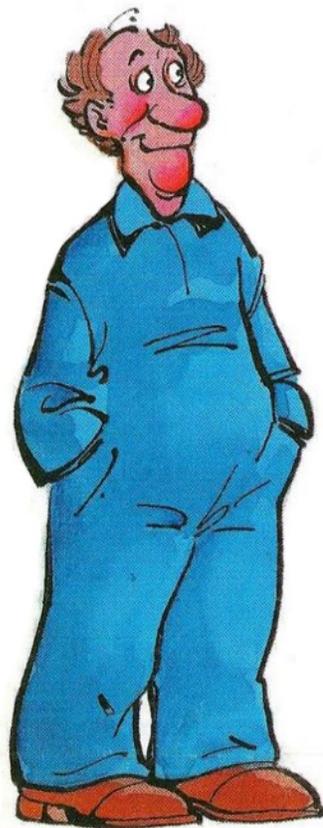


Committed to excellence, we always:

- ❖ Remain updated and comply with the strictest international and national regulations**
- ❖ Provide cost effective solutions**
- ❖ Preserve the trust and long-term relationship with our customers**
- ❖ Aim to achieve incomparable safety conditions**



D. KORONAKIS S.A.



We can solve all your problems!

Thank you for your kind attention