the difference high performance synthetic ropes can make on your next project
Samson high performance synthetic ropes easily outperform wire in winch based applications

In the offshore and commercial marine industries, traditional marine application engineering holds that wire rope is the preferred winch line for use on winches. Unfortunately, these very heavy strength members greatly increase handling and safety problems. Working at ultra-deep depths places even greater loads on decks, and increases size and power loads on handling equipment.

There’s a proven alternative…

Over the past 30 years, Samson has led the way in developing high modulus synthetic fiber ropes to replace wire rope in critical marine applications. In fact, Samson 12-strand braided Dynema® mooring lines were the first to market in the early 1980’s. Now employed by the largest marine fleets in the world, Samson high performance synthetic ropes have proven reliability while significantly reducing the cost of operations in towing, mooring and offshore applications.

With increasing depths, the differences become critical…

As offshore operations move to deeper and deeper waters, the size and weight of the wire rope required becomes difficult to overcome. Size for size, Samson high performance ropes made with Dynema® are 1/7th the weight of wire, with the same or greater strength. Many have specific gravities of <1.0 – they float. Hauling thousands of feet of rope just got a lot easier. That means handling equipment will demand less power and dock loads are minimized. On new build construction design, the size of the handling equipment can be reduced.

Enhanced safety, reduced maintenance…

With lighter weight comes greater crew safety. There are no fathometers from broken strands, and maintenance is virtually eliminated. Lubrication is not required, and end for ending is a simple process. Splicing, repairs and terminations are all easily accomplished in the field without the mechanical assistance required by wire. Samson offers complete training in the field, and our reference materials for field splicing are the best in the industry.

Samson high performance synthetics outlast wire by at least three to one…

It has been proven in actual field trials over the past ten years. Synthetic ropes made with Dynema® have greater resistance to tension fatigue and bending fatigue than the wire they replace.

Best of all, The Samson Advantage comes with every rope we make.

Samson offers the most complete package of service – starting before the rope is even manufactured and extending until the rope is relieved. Application engineers assist in the application and recommend appropriate products, or help develop customized solutions to critical problems. Samson personnel assist with installations, train crews in maintenance and splicing, and provide periodic inspections to determine retirement criteria that assures the longest, safest service life in the industry. It’s all part of the commitment to customer service we call The Samson Advantage.
**A CASE IN POINT:**

**Technip’s Enfield Riser Project**

Installation of the world’s largest riser column at the Enfield oil field development site off the coast of Exmouth, Australia was halted due to problems with the wire used as a pull-in winch line for installation of the risers. The column’s design used special angled flow tubes to shorten the catenary required for the riser tubes. The wire caused abrasion damage to the flow tubes at the bend. Installation was halted until a solution was found.

Samson was contacted for a solution that would eliminate the problem while keeping the installation on schedule. The result was a custom engineered 12-strand Dyneema® braid, tapered to conform to the loads anticipated. The lines were jacketed with polyester, and master links were spliced into the ends, ready for use on the project. In-house testing was performed to confirm that the smaller than originally specified D/d ratio would be acceptable to the engineers at Technip.

The result: installation was completed on schedule, with the tapered lines meeting all expectations and surviving the installation process with only minimal abrasion to a small section of the cover jacket.

_Tapered STL buoy pull-in lines for a traction winch on the FPSO Excelsior…_

Recently, Samson engineered a tapered rope to replace the pull-in line for the STL buoy on the FPSO Excelsior operated by Skaugens Marine. The rope used was a specially tapered version of our standard Quantum-8 product. An 8-strand constructed using Samson’s DPX® technology that incorporates polyester fibers into the surface stands for increased grip without compromising the strength of the Dyneema® fiber. In addition, Samson AmSteel®-Blue was used to replace the buoy’s bridle during the installation.

A Samson application engineer, spent a week aboard the Excelsior to ensure that installation went smoothly and to train the crew on the use and maintenance of the synthetic rope.

*If you would like to explore the options of using high performance synthetics on your next project, give us a call. A Samson application engineer will recommend products or assist in developing a custom solution for a critical application.*
IMAGINE...

a winch line that reduces installation and operating costs by offering longer, more reliable service life.

being able to significantly reduce deck loads on your next design.

being able to specify a single length of rope to replace multiple lengths of different diameters with connectors.

less chance of damage to expensive equipment like risers.

a safer workplace where maintenance and lubricating wire ropes is a thing of the past.

Samson offshore high performance synthetic ropes – the clear performance choice over wire rope

Reduce deck loads by significantly reducing the total winch system weight...
Comparing systems with the same capacities, Samson high performance winch lines significantly reduce total deck loads. For a typical winch system with 300MT line pull, using 4-inch diameter lines, 150M in length, there is a 30% reduction in the weight of the winch alone using Samson high performance synthetic ropes.

That’s before factoring in the weight of the rope itself.
Add in the weight reduction of the winch line itself and you’ve got a significant reduction in the total deck load of the winch system.

Benefits of synthetics over wire winch lines
> Reliable strength and performance
> Lightweight and flexible
> Reduced maintenance costs
> Longer service life
> Better bend fatigue
> Safer, easier handling

150m by 4-inch diameter

<table>
<thead>
<tr>
<th>150M x 4-inch diameter</th>
<th>WINCH OPERATING WITH WIRE ROPE</th>
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</thead>
<tbody>
<tr>
<td>WIRE ROPE WEIGHT 6,300kg</td>
<td>30% Heavier</td>
</tr>
<tr>
<td>NEUTRON®-8 ROPE WEIGHT 810kg</td>
<td>30% LIGHTER</td>
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</tbody>
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300MT LINE PULL WINCH WEIGHT

150M x 4-inch diameter
WIRE ROPE = 6,300kg
150M x 4-inch diameter
SAMSON NEUTRON®-8 HIGH PERFORMANCE SYNTHETIC ROPE = 801kg
WEIGHT SAVED: 5,499kg (a little over 6 tons)