

# FibreMax pioneers cable technology

**A** unique production process is behind the launch of a lightweight precision cable range for heavy lift and offshore applications.

Holland-based firm FibreMax has pioneered an “endless winding technology” which can produce cables of any fibre material including, for example, nylon, polyester, aramid or carbon.

“We are capable of producing precision cables that are far lighter, stiffer, stronger and thinner than conventional steel wire ropes and traditional braided synthetic ropes,” said Wilco van Zonneveld, sales engineer for FibreMax.

“They are not intended to be spooled on a drum, but should only be used as static cables in ‘under-the-hook’ applications. By using our cables, heavy lift/offshore companies will be able to reduce the cost of installation, handling, and transport, as well as introduce safer and better working conditions.”

FibreMax’s endless winding technology is a totally automated process involving the continuous winding of parallel strands of fibres around two end fittings until the right cable strength, or required cable stretch, has been reached.

By maintaining a constant and equal tension with an accuracy of 0.1 percent in all fibre strands during the winding process, an efficiency of more than 80 percent on the used fibres is reached, whereas other manufacturers reach only 40 percent with more conventional methods, according to the manufacturer.

“In this way, FibreMax is able to produce cables which have the lowest possible diameter, weight and stretch, at the same breakload as other manufacturers,” said Mr Zonneveld. “Our goal is to become the worldwide preferred supplier for lightweight precision cables in our chosen market segments. We already have a lot of interest in the product.”

FibreMax is the brainchild of Smartrigging, which invested over EUR4 million in developing an Endless Winding Robot (EWR) and purpose-built factory in the Netherlands.

After the required length has been programmed, the EWR computer calculates the amount of fibres and the amount of loops required for the specified cable. During the winding process, the EWR maintains an equal tension in all fibres with an accuracy of 0.1 percent, resulting in the highest breakload, lowest stretch, and lowest possible diameter.

When the desired amount of loops has been reached,



Wilco van Zonneveld with some FibreMax cable.

## FibreMax cable qualities

FibreMax lightweight precision cables have the following characteristics:

- 80 to 90 percent lower weight than steel wire\*.
- 10 percent lower diameters than steel wire\*.
- 30 percent lower weight than braided ropes\*.
- 30 percent lower diameters than braided ropes\*.
- No ‘bedding-in’ necessary.
- Maximum EA at 5% MBL.
- No construction stretch.
- No yarn-to-yarn abrasion.
- Terminations are incorporated, so no splicing is necessary.
- Excellent fatigue life.
- Torque free.
- Possible with different fibres, depending on the application.
- Lifespan up to 40 years (depending on application).
- Maintenance free.
- Lower installation costs.
- Lower handling costs.
- Lower transportation costs.

\* When compared at the same breakload

the cable is compressed by a strong and lightweight “wrap-around” tape to ensure minimal diameter, as well as the protection of the fibres.

After this tape has been wrapped around the cable, another light, but strong, heat-shrunk tape is automatically wrapped around the cable. These two layers of tape act as a particle filter layer to limit the particles from protruding and destroying the fibres.

## SPOTLIGHT

### MacGregor delivers crane with fibre rope system

Cargotec’s MacGregor has delivered the world’s first subsea knuckle-jib crane equipped with a system that uses fibre rope rather than steel wire rope for handling.

The 250 tonne Hydramarine active heave-compensated (AHC) offshore crane is designed with a 250 tonne/3,000 m single-line winch, and is prepared for a 250 tonne single-line fibre rope. The crane will be installed on the subsea ship Havila Phoenix.

“MacGregor’s technology for handling lightweight fibre rope rather than traditional steel wire rope offers several advantages that will meet the ever-increasing demands of the offshore industry as operators move further into deeper and more remote territories,” says Øystein Bondevik, sales director at MacGregor’s offshore division.

“For example, due to the neutralisation of the weight of the fibre rope in the water, much heavier loads can be handled without strain to the crane at unlimited depths. Consequently, overall safety is improved due to the lighter equipment, which can still carry out heavy work operations.”