

world of rope

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WORLD CRANE AND TRANSPORT
SUMMIT AMSTERDAM

The Gelmer Funicular: Renewal of a 90 year old gem

This past summer, the Swiss Gelmer Funicular was extensively renovated. This is a 90 year old funicular that began operation in 1926 in the valley known as Haslital in the canton of Bern. Originally, the work line was constructed to transport material to build the wall of the Lake Gelmer dam and the water supply line for the Handeck power plant. Since opening for tourism in 2001, it has enjoyed growing popularity among young and elderly alike. As a result, the Gelmer Funicular is used by up to 45,000 passengers a year. Since the funicular continues to serve as a work line, part of the logistics infrastructure of the Grimsel power plant, it was decided that the system should undergo a complete renewal. After converting the electric drive in 2001, the intensified usage of the line was seen to justify more comprehensive work. And so it was that at the start of the season, on 3 June of this year, both the open winch drive and the machine foundation

in the building of the summit station were renewed. As part of this renewal, the winch drive, including the gearbox and the service and safety brakes, the towrope was also changed. The consensus was that the towrope used should feature interior copper cores so that the line guide along the track could be removed. Together with our partner of many years, the Swiss Jakob AG, we have agreed to deliver a 10 strand winch rope with the requisite internal copper cores. This is a modified CASAR Superplast8 with a nominal diameter of 38 mm and a total length of 1,100 m.

The term "modified" in this case means that the core strand was replaced by the electric lead while the intermediate strands, that is the outer strand layer of the core rope, have been retained. This brings with it two decisive advantages for the line operator:

For one, the demands made on the rope's breaking load are directed entirely to the



Andreas Schmeiss
WireCo WorldGroup
VP Global Cranes

Dear readers of our newsletter,

I don't know what you think, but I always find something new in this industry that grabs my attention. As ever, ropes are a basic element in construction when it comes to the safe and efficient lifting of loads and machines. We work constantly to improve our products and as a loyal reader of our newsletter, you will always have the latest information, straight from the source. In this edition, you will find an article

on the current state of synthetic rope development for crane applications. WireCo is also working intensely on the relevant products, though also on the necessary standards, as this is the only way to safely bring a new technology to market.

I hope you enjoy reading our newsletter.

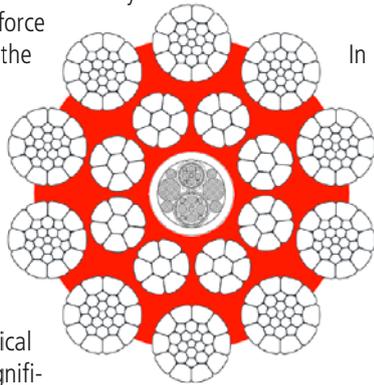
Yours sincerely,

Andreas Schmeiss
VP Global Cranes



outer strands. This means that the required minimum breaking load of 850 kN has already been achieved through the outer strands alone and the intermediate strand layer offers additional breaking load, or in other words safety, for the operator. In internal testing, the entire rope achieved a breaking result of 45% above the required minimum breaking load. During the breakage testing, the conductivity of the electrical line was continuously monitored and none of the electrical lines showed any impact from the tensile force whatsoever right up to the point of breakage.

The second advantage has to do with the fact that in applications such as this in which the rope is wound in multiple layers around the drum, the electrical lead is subjected to significant transverse pressures.



The additional strand layers protect the lead and provide the entire rope with the necessary transverse stability. The rope also receives additional protection by virtue of the fact that both the lead in the core as well as, afterwards, the core rope itself were both sheathed with plastic. 10 compacted outer strands in lang lay round out the entire package and provide even the cross-over points of the rope on the drum with the necessary smoothness and minimum abrasion.

In fact, inclined lifts in Switzerland are also funiculars, which is why this line is referred to by its operator as the steepest funicular in Europe.

BASIC INFORMATION ON THE GELMER FUNICULAR:

- Around 45,000 passengers per year
- Built in 1926 (first renovation 2001; second renovation 2017)
- Maximal slope 106%
- Speed 2 m/s (7.2 km/h)
- Travel time 10 minutes
- Altitude difference 468 m (altitude of valley station 1,412 m above sea level/altitude of summit station 1,860 m above sea level)
- Winch rope 1,100 m 38 mm CASAR Superplast8 with electrical line

WireCo supports new mobile crane standard for synthetic hoist ropes

Synthetic hoist ropes for crane applications have already been successfully in use at WireCo for many years, e.g. in ship cranes and various lifting devices. Their use in mobile cranes, however, represents a special challenge. As mobile load lifting devices, these vehicles are subject to special norms and regulations. Their widely varied use in nearly every climate zone on Earth, as well as their frequent assembly and disassembly on site, constitute an enormous strain on the components. Of course this is particularly true for that safety-relevant component, the rope.

A further special demand levelled by crane manufacturers is to be able to use a rope with an optimal balance between breaking load and weight. Both the limited axle load of road-approved vehicular cranes as

well as the limitation on transport weight for caterpillar cranes has led to a steadily increasing breaking load combined with a constant rope diameter. Replacing these high-performance steel ropes with ones made of synthetic materials requires special fibre materials with a tensile strength similar to that of steel. Ropes made of such special fibres are already available and WireCo already offers the rotation-free hoist rope Lanko®Lift S under the brand name Lankhorst Ropes.

Steel ropes have been successfully used in these applications for many years and there are numerous norms which set out their selection, calculation, handling, assembly, maintenance and necessary

replacement schedules. Through use, every rope eventually wears out with time and must be regularly checked according to set criteria and, when necessary, discarded.

In order to set the use of synthetic ropes on a broad foundation, the area "mobile cranes", a sub-group of the FEM manufacturer's association "Cranes and Lifting

Devices", has created a working group

comprised of manufacturers of mobile cranes as well as producers of synthetic hoisting ropes. After 2 years of intensive work, last summer it was possible to publish the requisite guidelines. This is available through the publishing house VDMA Verlag.



WireCo was also intensively involved in this publication and is very excited about the results achieved. We would like to thank

Mr Rui Pedro Faria from the development team in Portugal for synthetic ropes and Mr Christian Schorr-Golsong from Product

Management Crane Applications in Germany for their incredible efforts during this project.

The brand-new synthetic hoist rope Lanko[®]Lift S



Synthetic ropes for crane applications have already been in development at WireCo for several years. The bright yellow rope, made by Lankhorst Ropes, consists of 12 braided outer strands made of the high-tech material Dyneema. The properties of these special fibres result in a breaking strength equal to a steel rope of the same thick-

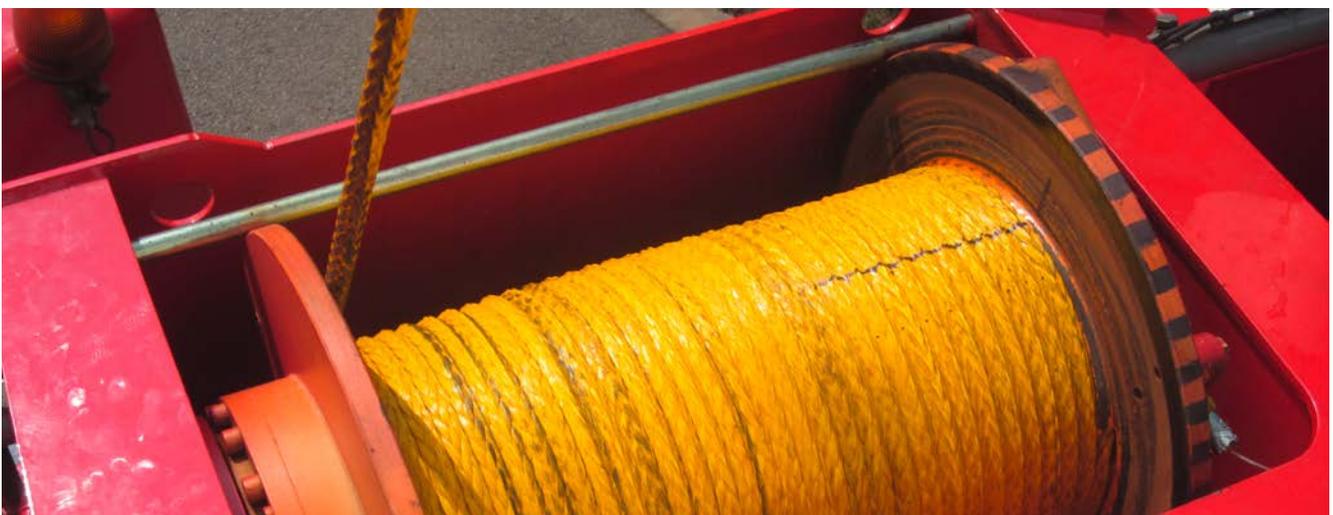
ness. The construction of the rope core is specially designed to achieve the required resistance to transverse pressures.

Laboratory tests have produced excellent results for breaking strength and projected service life based on the reversed bending cycles completed during testing. An additional noteworthy feature is the special

coating treatment applied to the fibres to reduce interior friction and increase UV resistance. Tests in crane systems are on-going and show exceptional success.

Many of the users were suitably impressed by its extremely low weight and great flexibility. Not only do these characteristics make the handling of the product so much easier during installation and hook block changes, but they are also suitable for higher payloads, especially with higher lifting heights and longer jib lengths. The low maintenance requirements are a further advantage, since synthetic ropes of this type are corrosion-free and require no further lubrication.

Despite the slightly higher price of the Lanko[®]Lift S in comparison to conventional steel ropes, operators will benefit overall in terms of cost savings and other improvements. We would be delighted to send you additional information on this product.



Our new Lanko[®]Lift S in test use on a mobile crane

JDL Trade Fair in Beaune (France): Big things come in small packages

The JDL trade fair took place from 20 to 22 September in Beaune, France. This was an especially small and yet intensely interesting trade fair aimed at the logistics, lifting equipment, forestry, transport and energy sectors. This year, 150 exhibitors across over 36,000 m² presented their equipment and offered interesting conversations and answers. WireCo WorldGroup also had a stand at JDL in Beaune, which was represented by Peter van der Voorde (Head of Sales for France and the BeNeLux countries), Patrick Leborgne (responsible sales manager in our office in Paris) and Pascal Ignor (Product Manager for the European Crane Rope Brands). The JDL fair in Beaune is characterised by its family charm and, with about 10,000 visitors, it certainly belongs to the smaller conventions. Even so, the quality of the contacts and conversations is exceptional and it is highly valued by exhibitors and visitors alike. This was reflected in Mr van der Voorde's observation in summing up the event when he said:

"After being at previous JDLs as a visitor in the past, we noticed that, however it's a rather small exhibition, they're very focused on lifting, hoisting and cranes on the French market. WireCo WorldGroup's current product range, having the Casar, Oliveira and Drumet brands, allows us to produce and supply the full rope package needed for this market. As we play already a leading role on the supply of hoisting and crane ropes in the French market, having our own booth allowed us to support our regional distributors as well as sharing our knowledge and expertise with the end-users in the market.

The central location in France made it very accessible for everybody in the country. By having all these professionals together we were able to do a good networking and to share the latest ins and outs on the market, and therefore we plan to have a booth also at the next JDL 2019, which will take place in Beaune as well."



Our booth at JDL

NEXT ISSUE WILL BE PUBLISHED IN

JANUARY 2018

PLANNED TOPICS:

- NEW ROPES ON 1000 T ODENSE OVERHEAD CRANE
- REPORT: WCTS CRANE CONFERENCE IN AMSTERDAM
- OLIVEIRA ROPES ON NEW SARENS CRANE

World Crane and Transport Summit Amsterdam

It has almost become a tradition for CASAR to support this event, which has become well-established in the industry and takes place every 2 years in Amsterdam. The main focus of the event is on interesting issues surrounding lifting and transporting heavy loads, though the many informal conversations and the exchange between crane users and manufacturers also make a visit to this trade gathering well worth the trip.

For more information visit:
<http://www.khl-wcts.com/>

**WORLD CRANE
AND TRANSPORT
SUMMIT 2017**
AMSTERDAM
7 AND 8 NOVEMBER

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