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world of rope

New Singapore national stadium – Singapore Sports Hub, Kallang

The new national stadium of Singapore was opened at the end of June 2014. In 2015, it will be the venue of the 28th South-East Asian Games. It features 55,000 seats and replaces the old national stadium, which was demolished in 2010. It is a visionary dome construction, coated with ultra-light ETFE material. The national stadium is part of the Singapore Sports Hub, a gigantic, 35-hectare large sports, leisure and entertainment centre. It is currently being built on the banks of the Kallang bay, which is a first-rate harbour area of Singapore. The futuristic national stadium forms the centre of the new Sports Hub, setting new standards in all areas of modern architecture. The spectator stands, for example, are mobile, and an energy-efficient air-conditioning concept supplies each of the 55,000 seats with fresh air. At the same time, the required energy is only 15% of the energy required by a conventional fully air-conditioned stadium.

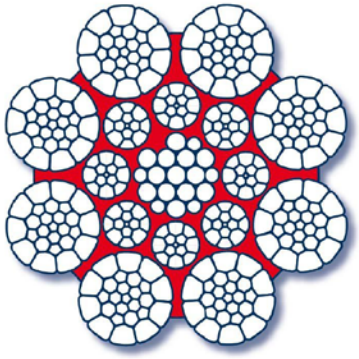
However, the centrepiece of the new national stadium is the complex, mobile roof construction. The roof dome can be opened or closed as required, is weather-resistant and efficiently provides shade for athletes and spectators

Blake Chandler
WireCo WorldGroup
Senior Vice President Sales

As many of you leave for your well-deserved holidays, I would like to thank you for your continued trust in our organization. As I hoped you have noticed, we've been pushing ourselves by taking major steps to improve our services. Guided by your feedback, these changes have allowed us to put our customers first, move faster, and ensure that we are getting things right the first time. Quick reaction, flexibility and reliability are today's success parameters, and at CASAR our dedicated employees are working hard to accomplish this task daily. As always, I invite you to contact me to learn more about our plans for the future and any steps we can take to help you improve your business.

Sincerely

yours



Sectional view of CASAR Paraplast

alike. With a span of 315m, it is the largest roof dome of a sports arena in the world. The two mobile roof segments with a total surface area of 20,000m² are moved by special wire ropes produced by the CASAR Company. The sophisticated application, combined with the extreme climatic conditions typical for regions near the equator, is also a complex task for us as a rope manufacturer. In addition, a life-span of 60 years with ease of maintenance was required. All these requirements ultimately led to a modified CASAR Paraplast rope construction. Thanks to its double-parallel make, CASAR Paraplast offers high flexibility, and the core sheathed in plastic ensures both a long lifespan and the necessary running smoothness. The compacted outer strands ensure high breaking resistance and good sitting conditions of the rope on the drum. In addition, a special surface coating of the wires in combination with a special lubricant provides effective corrosion protection and ease of maintenance.

A total of 16 CASAR Paraplast ropes with a diameter of 50mm and a total length of 1020m move the roof and can open and close it in only 20 minutes. The ropes are attached to the roof construction with Open spelter sockets. Following a comprehensive lifespan calculation by Günter Knerr, Head of our Technical Service for Europe, the required life-span of 60 years was verified and confirmed.

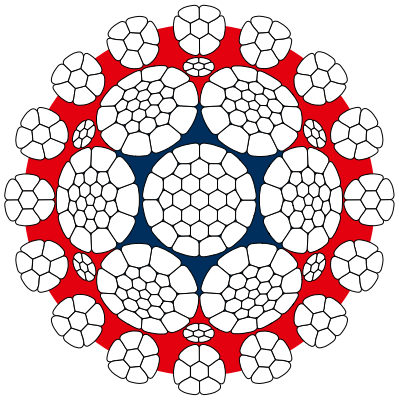
CASAR Doublefit –

Novel rope design for the most challenging applications

Even though the rope market offers many different rotation-resistant products for crane applications, there is always room for improvement. Particularly for heavy-load applications, which unite the requirements for highest breaking strengths, best spooling behaviour for multilayer spooling and highest rotational stability, the perfect product still seems to be missing. Although good rope constructions already existed on the market, there has been none that combined all these different characteristics.

The CASAR rope specialists in Germany have taken on this challenge and developed a rope, which comes very close to fulfilling this goal. Two of these requirements could already be met by compacting the strands and swaging the core rope as well as the closed rope. The very round and smooth surface provides the required spooling behaviour for multilayer spooling, and the high filling factor guarantees high breaking strength. These high breaking strengths are achieved with standard nominal wire strengths according to the applicable standard. The plastic sheathing surrounding the steel inlay securely keeps the lubricant inside while preventing penetration of dirt and humidity.

The new design is of particular importance for the improved spooling behaviour for multilayer spooling. The smooth rope surface not only prevents the occurrence of interlockings, which could damage the outer strands but also negative impressions on the rollers and drums. Compared to ropes with a lower minimum breaking strength, the stronger doublefit allows for a smaller dimensioning of sheaves and drums, significantly increasing the payload of the crane.



Cross-sectional image of CASAR Doublefit

Spooling test on a mobile crane - Excellent spooling behaviour for multilayer spooling

First pulling and bending cycle tests in the development department of WireCo have already shown excellent product characteristics, and first field tests have already started. A 21-mm Doublefit was already successfully tested on a mobile crane. The customer was very happy with the rope performance and the rotational behaviour. Additional application tests will help to confirm this novel rope design. A 60-mm Doublefit, which opens and shuts the lifting gate, was already delivered to a hydropower plant in China. The CASAR Doublefit will soon be installed also as a main boom guy rope at one of the most notable Chinese crane manufacturers. But also for the main lift on mobile and lattice boom crawler cranes, where the combination of good rotational stability, high minimum breaking strength and resistance to the crushing of the rope on the drum is required along with high flexibility and spooling behaviour, this new design is the best choice. Here, too, a field test with a well-known manufacturer is pending; World of Rope will keep you informed.

Great interest in ropes at crane conference in Istanbul

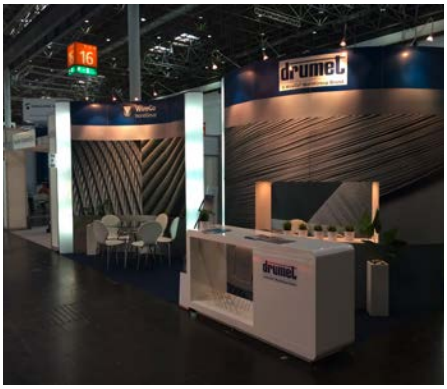
The region in and around Turkey is of increasing importance for the crane and transport industry. Particularly the sectors infrastructure and energy recorded massive growth rates. These activities in road, bridge and tunnel construction are naturally accompanied by the demand for corresponding lifting and transport technology. Thus, the selection of the right rope plays an important role in meeting the requirements for best possible safety, reliability and service life.

In order to inform the companies active in the region about best practices and to initiate an exchange of experiences, the industry publisher KHL organised for the first time a "Crane & Transport Conference Turkey". One of the speakers, Dr Oliver Fries, Vice President Engineering of the WireCo Group, extensively discussed the subject of rope selection, handling and safety. The numerous discussions during the conference were a clear evidence of the great interest in these subjects.

Dr Oliver Fries at the conference in Istanbul

WireCo at the WIRE Düsseldorf

WireCo WorldGroup's Drumet brand has used WIRE fair in Düsseldorf for many years to market itself and its existing large range of products. After another year of great success, the well-established general purpose steel wire ropes faced the interest of many visitors who placed larger orders during the show. The comprehensive product portfolio of WireCo WorldGroup includes 2 renowned special wire manufacturers, Drumet in Poland and Camesa in Mexico. The wires manufactured at these two facilities are used with great success in the production of wire ropes throughout the WireCo group, including in the production of Drumet steel wire ropes, but are also delivered to companies outside WireCo.



WireCo at the CTT Moscow

The construction machine fair, taking place annually in Moscow, attracted numerous industry visitors from Russia and the neighbouring countries also in this year. WireCo demonstrated again its presence in this important market, in which the trend increasingly shifts to high-quality ropes.

The floating crane "Zachary" celebrates its successful comeback – with ropes from Oliveira

At the end of 2008, the LK-600 floating crane with the nickname "Zachary" was launched from the Ukrainian JSC shipyard, pier "Leninskaya kuznitsa". It is a pontoon crane with a maximum lifting capacity of 680t and a maximum lifting height of 75m. It does not have its own drive and may be used on inland waters and near coasts within a radius of 5 miles.

Damage to the crane in 2011 required a complete overhaul of the boom components and the lifting technology. At this occasion, the owner decided to bring the rope selection into sharper focus. The crane was originally equipped with standard ropes according to DIN EN 12385-4, class 6x36 made of conventional outer strands with IWRC. During constructive discussions with the owner, our local WireCo colleagues illustrated the effects of a change from an old fashioned standard rope to a modern 8 strand construction made of compacted strands and with a plastic coated steel core. The increased number of outer strands, which are additionally compacted, lead to improved bearing surface on the drum and the sheaves. Furthermore, the smoother surface significantly reduces occurring indentations during multi-layer spooling. The plastic inlay that covers the steel core stabilizes the rope structure, absorbs dynamic stress and increases the running smoothness.

All these arguments ultimately convinced the customer to select special wire ropes from Oliveira.

The delivered ropes were of the type OLIVEIRA HD8K PPI, with a strength of 1960 N/mm² and a diameter of 42mm. HD8K PPI is a 8x31 Warrington-Seale construction with a steel inlay sheathed in plastic, and galvanised wires to take account of the maritime environment. Two right and two left ropes were each delivered in the lengths of 1070m and 1215m. The required braking strength was not to be under 1300kN; this value, however, was not a real challenge for the OLIVEIRA rope as it could be exceeded by more than 18%.

NEXT ISSUE WILL BE PUBLISHED IN

OCTOBER 2014

PLANNED TOPICS:

- DUROPLAST WITH INTEGRATED SIGNALING CABLE
- CASAR AND THE NEW TEREX CTL 1600 TOWER CRANE
- THE NEW WAREHOUSE IN GOUDA / NL

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