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world of rope

Giant Chinese telescope FAST starts operation

Are we alone in the universe? All of us have asked ourselves this question at least once in our lifetimes. Since 25/09/2016, science has had at its disposal a powerful tool with the help of which it will one day be able to definitively answer this question.

This is the Five-hundred-Meter Aperture Spherical Radio Telescope, or FAST for short, which has been set up in a natural depression near to Pingtang in the south-western province of Guizhou in China. FAST has a diameter of 520 metres and is therefore the largest radio telescope with a spherical primary reflector in the world. It thus supersedes the radio telescope that was built in Arecibo, Puerto Rico in 1963 which, with a diameter of 305 metres, has an overall surface almost two-thirds smaller. Indeed, there is an even bigger radio telescope in the world, the Ratan 600 in Russia;

Andreas Schmeiss
WireCo WorldGroup
VP Global Cranes

Dear Customers,

Perhaps things for you were similar to what our company experienced in the last year, during which we found business trends to be anything but consistent. Moreover, the many ups and downs in the markets and the current framework conditions, such as Brexit, the presidential elections in the USA, and the conflicts in the Middle East, have certainly not helped to create any stability. However, I do think there were and are some rays of hope. We are witnessing a stable market in Central Europe, which sets positive impulses for other areas too. Within CASAR, we have spent our time fruitfully in developing new products and optimising the existing rope programme, always with a view to improving the added value for customers. Read about how this works in our newsletter. We would also be happy to offer you our support. Just contact us!

Yours sincerely,

Andreas Schmeiss
Andreas Schmeiss
VP Global Cranes

however, its reflector is not a dish but a ring made of reflector panels with a diameter of 576 metres. In contrast, FAST's primary mirror is made up of 4,450 triangular elements placed inside a cable mesh. The reflector is the equivalent of some 30 football pitches.

The valley in which the gigantic reflector is embedded is framed by six 120-metre high pylons. Each of these pylons is equipped with 46 mm CASAR Superplast8 ropes that span the reflector, in order to hold the receiver in the centre at a height of 140 metres. A total of 3,226 metres of steel rope were supplied.

The steel ropes move the receiver up and down via 6 elevator winches for maintenance work and for focusing. The customer wanted the steel ropes to have a service life of 5 years. Twenty hoisting cycles are expected every day, and over the whole period of operation, a total of 36,500 hoisting cycles are anticipated. One of these ropes also serves as a suspension rope for the data cable. Naturally the targets that have been set for this 160 million EURO mega-project are highly ambitious. The aim of the observatory in China is to study far-distant pulsars – rapidly rotating neutron stars. In addition, data will be collected about molecules in interstellar space and gravitational waves will be researched. Moreover, FAST will be used on the Seti (Search for Extraterrestrial Intelligence) project to look for signs of extraterrestrial life.

World's largest ship lift starts operating at Three Gorges Dam

Mid-September 2016 and the date had finally arrived: the start of the ship lift's operating test finally brought the total of 23 years of construction work on the Three Gorges Dam to a conclusion. Often somewhat casually described as simply 'the world's largest lift', this ship's lift is the ultimate in structural superlatives and is in itself an engineering masterpiece. At 169 metres high and weighing 15,500 tonnes, this is the biggest ship lift in the world. The water basin is 120 m long, 18 m wide and 3.5 m deep. Some 6 million tonnes of goods are to be transported using the lift every year. Depending on the size of the ship, it may take between 40 minutes and 3 hours to pass through the lift.

The start of test operations signified the end of an era for CASAR. Since the ship's lift project began in 2004, we and our partners at Pfeifer are also approaching the end of 12 years of intensive collaboration. We deliberately chose to accompany the project from start to finish, because we see ourselves not only as a rope supplier alone, but as being in a position to contribute valuable know-how, which we have already mastered in countless other ship's lift and lifting bridge projects.

The advice and support we offer customers, even once the ropes have been delivered, is particularly highly valued and appreciated. The combination of technical advice and calculations, together with a special product, was the winning mix that finally clinched the contract in favour of CASAR. In total, almost 40,000 m CASAR Superplast8 with a diameter of 74 mm was produced and supplied for this ship's lift. It is the first ship lift worldwide that uses a rope with 10 outer strands. At the end of the day, the more rounded surface, the better support ratio to the Ø5 m rope sheaves, the high amount of flexibility and the bending behaviour of Superplast8 in comparison to the standard 8-strand rope constructions were the deciding factor for the customer. This special product and its positive properties were also why a lifetime guarantee of 50 years (subject to specified conditions) was given.

Delivery of the rope was completed on schedule at the end of 2012 so that the installation of the ropes could begin in 2013. During the installation work, Günter Knerr, Head of Customer Technical Services, was in permanent contact with the installation team on site and also visited the building site on multiple occasions to offer practical support as well. There were a total of 262 ropes to install on two-channel deflection rollers. The originally planned installation procedure from above proved not very productive and was too time-consuming. The decision was therefore taken to assemble from below, because this would reduce the required installation