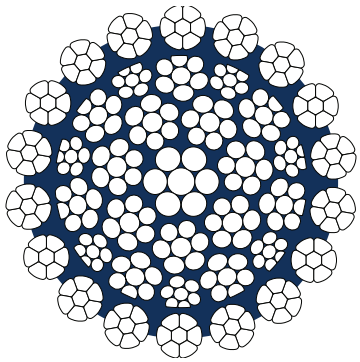
resistant to torsion due to 18 outer strands and a tightened core rope laid in the opposite direction. The torque of the individual strands seem to be opposite in operation. Special wire ropes by CASAR take this physical law into account to the extent that the torques of the internal and the external strands compensate each other even in a high lift range. Many users also value the good handling of this flexible rope construction as well as the excellent coiling on multiple-layer drums.

A PARAFIT with a diameter of 30 mm and a length of 330 m is used for the luffing gear. The double parallel quality of the rope and the swaging process carried out after the closing of the rope achieves extremely high breaking resistance. In addition, the smooth surface offers great benefits for coiling and, combined with the strong compression in the rope, also maximum protection against cross-section deformation. The excellent product features are complemented with the plastic-coated rope core, which increases the rope's stability, absorbs shocks and also protects the rope's interior against moisture and penetrating soiling. This hammered rope offers optimal features specifically for retracting winches.

Ricardo Alba, construction manager for Terex rotating tower cranes, was very pleased with the running tests, and the first cranes will soon be shipped to the world's major building sites.

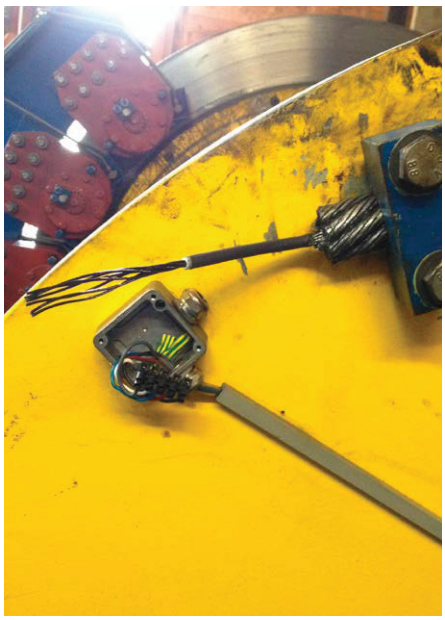


Sectional view of CASAR Eurolift

DUROPLAST controls and pulls Swiss haul cable car

In June 2014, Günter Knerr, Director of technical customer support Europe, and Marc Bode, a sales employee responsible for Austria and Switzerland, attended the installation of the first CASAR Duroplast whose interior is permeated with an electric conductor. The rope is designed to move fixed-track cable cars in the lower third of the supply tunnel of the storage power plant Salanfe. This tunnel connects the reservoir 1,925 m above mean sea level with the power plant Miéville 1,472 m below. The reservoir has a capacity of 40 million m³ of water, the power plant a performance of 70 MW. The pressure pipe and therefore the tunnel have a gradient of up to 95%. The electric conductor inside of the rope ensures the transmission of control and communication signals from the winch control room to the cable car.

The previous rope that had been installed in 2000 and was recently removed, is a CASAR Turboplast permeated with 1+6 copper conductors. The customer was very satisfied with the achieved operating life of 13 years. The CASAR Turboplast had to be taken down finally because of wire breakage in the crossover zone on the drum. Even high-quality coiling systems cannot prevent a rope from being thrown to the side by half a rope diameter during each drum rotation. In these so-called crossover zones, the individual rope windings rub against each other, which may cause wire breakage. By changing from CASAR Turboplast to CASAR Duroplast, we are now trying to constructively influence the ropes' operating life by increasing abrasion resistance. The conversion from Turboplast to Duroplast means



a change from a 8x26 Warrington-Seale construction to a 8x17 Seale construction. Seale constructions feature especially thick wires in the outer strands and are therefore resistant to external damage/abrasion.
Regular maintenance and repair, specifically relubrication, decrease abrasion by reducing the abrasion coefficient. In addition, moving the rope on the drum can extend the operating life. The crossover zones are always quite short damaged zones followed by long undamaged zones, the so-called parallel zones. By cutting the rope by around 1/3 of the drum circumference before the discard state in the crossover zones is reached, we relocate the previous crossover zones to the uncritical parallel zones and undamaged rope zones to the crossover zone.

Duroplast was installed in the lower section which connects the power plant in Miéville (452 m above mean sea level) with the so-called window IV at 1569 m. It is one of the most steep and challenging sections as 1077 metres in height must be overcome. When empty, the hoist weighs 3 tons and can transport a payload of up to 10 tons or 21 persons. The rope winch is located in a tunnel built obliquely to the actual rail line. The rope is moved down from the drum over a deflecting pully onto the rail level. From the deflecting pully, the rope moves slightly upwards over rollers and then over the peak of the line, after which it goes steeply downhill. Rollers arranged in equal distances from each other along the route lead the rope and prevent contact with the ground and slack rope.

A special connection at the end finally links the rope with the hoist. The complete know-how of CASAR was required here as well as the conductor had to be guided hrough the grouted connection in order to transmit the control and communication signals from the winch control room to the cable car.