

Taking cranes out of the loop

German crane electrical system supplier Paul Vahle, has developed an alternative to traditional hanging cable loops, based on contact-less data transfer, that it believes offers a number of significant advantages for container crane operators. In particular the company suggests that the combination of its SMG contact-less communication system and its U35 conductor rail has created an extremely reliable and almost maintenance free solution.

Through the SMG and U35 combination, the crane trolley receives both communication signals and electrical energy. Up to now, the transfer of data and power has been achieved on quayside ship-to-shore container cranes primarily through the use of festoon systems.

However, according to Vahle, there are significant problems with this relatively old technology. Due to mechanical stress, the festoon cables have to be replaced approximately every three years and trolley speed is relatively limited.

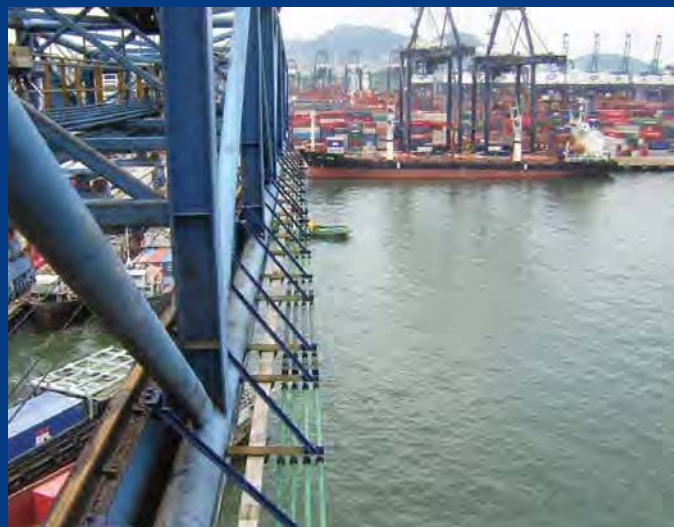
The combination of the two new technologies by Vahle has, the company contends, solved these problems. The U35 conductor rail provides the trolley with power and the SMG gives all the necessary control signals, as well as video, voice and emergency stop communications. As a result, the crane's trolley can move much faster, with speeds up to 600 m/min in theory.

There are other benefits as well. Since there are no cable loops from a festoon system, container stacking levels can be increased by up to 3 m. This is a big advantage especially for those container ports where available space is limited, Vahle points out. Another key advantage highlighted by Vahle is that maintenance costs, downtime and wear are minimised, as only the carbon brushes of the U35 collecting trolleys need to be replaced. This is required only around every 15,000km, which can, depending on crane use, mean a service gap of several years.

There is also a significant reduction in mechanical stress levels, and moving parts, compared with the festoon approach, and this leads to greater reliability.

Furthermore, the system's lower weight allows the crane to have a higher load capacity, while the absence of a cable storage area simplifies crane construction. Vahle also points out that its system is less likely to be affected by environmental factors, such as wind, ice and rain.

The new concept has so far proven its reliability in a number of container ports.



Vahle has undertaken a retrofit of its SMG/U35 system on a quayside gantry crane at HIT, in Hong Kong

The first container crane system with the SMG/U35 combination was delivered in 2001 to a new crane built by Kranservice Rheinberg for the Tees & Hartlepool Port Authority, UK. According to Vahle, "No complaints or

since been moved and is now operating in the HuiZhou river terminal in mainland China which also belongs to the Hutchison group. This crane has been operating well since the upgrade and it has still not been necessary to replace the carbon brushes, despite the fact that the crane is now being operated more intensively than it had been at HIT.

The most recent project undertaken by Vahle also involves a crane refurbishment, this time at the Shanghai Pudong International Container Terminals (SPICT) facility, where a rope driven ship-to-shore crane, originally built by Shanghai Port Machinery Plant, has been upgraded with the fitting of a SMG and 4 pole U35/230AE aluminium stainless steel conductor rail. This super-post-Panamax gantry crane is expected to re-enter service by the end of March 2007. ■

Another key advantage highlighted by Vahle is that maintenance costs, downtime and wear are minimised