

Crane Safety Systems



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Cameras focused on safety

ALTHOUGH Brisbane-based LSM Technologies was new to the recent CICA national crane conference, the company and its founder Peter Woodford have been around products that improve the safety and assist in the maintenance of equipment for many years. In fact, the LSM of the company name stands for lubrication, safety, maintenance, and the focus is on how products and systems addressing these areas can improve productivity and other outcomes for users.

LSM is currently introducing the Orlaco camera monitoring systems to the Australian crane industry. The Orlaco name is not widely known to the crane industry in Australia but some of the best-known crane brands fit Orlaco cameras as OEM equipment.

Crane cameras are commonplace in Europe and operators who have become used to them often complain of increased stress levels when they are allocated to a machine without a camera over the load.

On a mobile crane, the camera focus is on three areas: carrier blind spots (rear and side cameras), the winch drums and rear corners (during slew) on the upper, and the load. While some cranes in Australia have cameras that cover the first two areas, the use of cameras covering the load has largely been ignored.

However, Woodford believes this area has the greatest potential for productivity improvement, particularly in blind lifting. In Europe, load cameras are routinely fitted to both telescopic and lattice boom cranes, and to both luffing and hammerhead tower cranes.

On hammerhead tower cranes, the camera travels on the trolley. Adjustments to the installation can cater for the use of fly jibs, so that the camera view continues to cover the hook. A tower crane can also be fitted with a rear camera to monitor the movement of the counter-jib on congested sites.

Although multiple cameras are generally fitted to a crane, this does not mean a multitude of viewing screens are fitted. When a mobile crane is travelling, the rear and side views from the carrier are the most relevant, and the operator can toggle between views depending on which is most relevant.

When the crane is in operation, the load and winch views are the most relevant. These can either be displayed on separate screens or on a single screen, with toggling between views, depending on the owner's preference. The view of the rear corners of the upper could also be displayed during slewing close to structures.

While the Orlaco cameras provide a good colour image even in low light situations, infrared imaging can be used at night, providing a clear black and white image.



Load cameras are routinely fitted to tower cranes in Europe

The cameras are designed to operate in a wide range of temperatures, and to withstand shock, high-pressure water blasts and other construction hazards. While the cameras do not last forever, Orlaco equipment has been operating reliably in harsh mining applications with more than 30,000 operating hours under the belt.

Woodford points to the ISO 5006/16001 for Operator Visibility as providing guidance on the mitigation of risk related to operator visibility, whether it relates to (V2V) vehicle to vehicle incidents, (V2P) vehicle to person incidents, or (V2I) vehicle to infrastructure incidents. Operator Visibility requirements are also mentioned in the EN13000 Standard. Woodford believes that Australian owners following these standards can demonstrate effective risk management to occupational health and safety authorities as well as their insurers, should an incident occur.

He suggests owners undertake a risk assessment to determine where lack of visibility poses the greatest risks before looking at other alternative technology solutions, and believes that technology solutions should be accompanied by procedural solutions that assist in mitigating risk.

Woodford strongly advocates visual aids such as mirrors and CCTV systems (specified in the ISO 6005/1600 Standards) as the primary aid in reducing risk, pointing to their self-sufficiency, cost-effectiveness, reliability and

ease of interpretation. While he suggests these can be supplemented by proximity detection and warning systems, Woodford believes visual aids should always be the primary solution.

He says collision avoidance systems are costly, can be unreliable, and have minimal value in situations where multiple items of equipment must work in close proximity.

LCR Group is the first company in Australia to install an Orlaco load camera supplied by LSM Technologies. This was done at the instigation of the client, and the installation was on a Favelle Favco 440D tower crane working on a Brisbane project.

There was some initial reluctance based on poor experience of other remote camera systems, but LSM Technologies demonstrated the Orlaco system and the clarity of its zoom images to LCR Group staff, and this was sufficient for them to agree to fit a system.

The project has a high number of blind lifts, and a load camera has considerable potential benefits in these circumstances.

Two tower cranes are being used for similar lifts on the project and having one with a camera and one without allows comparisons to be made in evaluating the benefits of the load camera.

The reaction to the Orlaco system has been positive, and the initial scepticism has been replaced with positive acceptance.

– Greg Keane