framatome

Crane Hook Tracking System

Save time, reduce dose and prevent human error during movement of critical loads with accurate crane hook positioning, exclusion zones, cone of influence protection, and remote monitoring technology.

Challenge

Precise crane hook alignment and positioning poses multiple challenges for utilities. Mitigating the risk of inaccurate hook position and subsequent potential damage to plant components is imperative, but upgrading the crane controls to improve positioning accuracy can come at a high cost. During critical lifts, incorrect positioning can also result in significant impacts to schedule and dose rates.

Solution

Framatome's Crane Hook Tracking System (CHTS) utilizes LiDAR (light detection and ranging) technology, point cloud mapping and real-time 3D spatial localization, resulting in highly accurate crane positioning. This cutting-edge positioning system remotely monitors crane hook positioning while performing critical lift activities, with added benefits of saving positions for location repeatability and the creation of exclusion zones.

The Framatome CHTS can be installed quickly and does not require plant modification. A network of wireless mesh network nodes accurately provides real-time on-screen crane hook tracking, eliminating the need to visually verify marks from atop the crane structure. The Framatome graphical user interface (GUI) is then integrated with associated floor plans to provide positioning parameters that include operator aids for crane axis direction. The GUI also includes visual location indicators for angle and distance to destination. After identifying correct lift placement and lifting locations, the user can capture positions in real-time using the "save current location" function. Multiple positions can be stored, and achieving location repeatability using real-time position feedback greatly increases the efficiency of crane movements. The Framatome GUI also allows for the creation of exclusion zones that, when entered by the crane, will create audible and visual alerts.

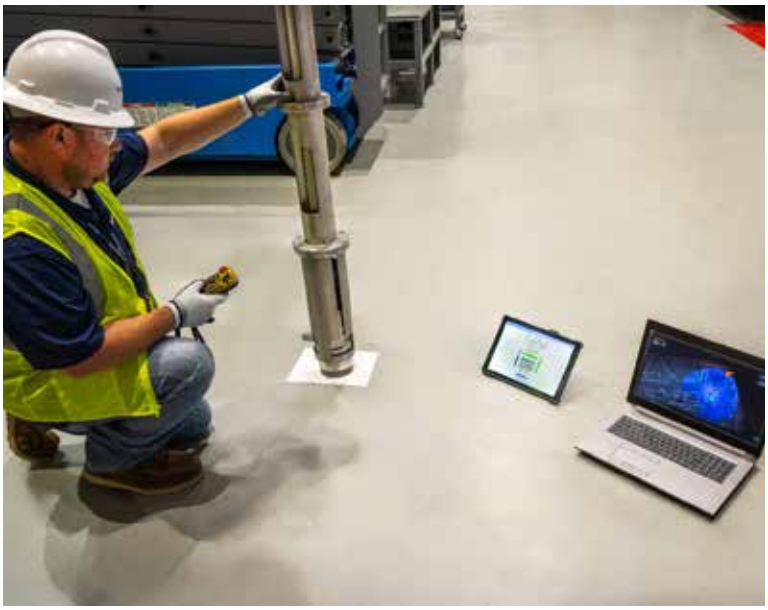
Results from use of the Framatome CHTS are immediate: increased safety, fewer chances for human error, reduction of dose and continuous schedule savings that will lead to return on investment in less than one year.

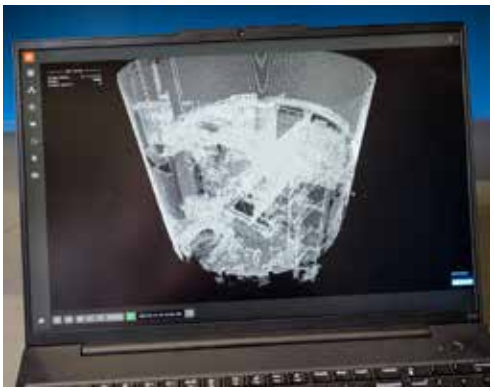
Customer benefits

- Saves time and reduces schedule with ease of installation and use
- Saves cost by not requiring permanent plant modification
- Eliminates the need for monitoring crane match marks
- Reduces schedule/dose required for critical high-rad lifts
- Reduces risk of human error associated with accurate load positioning
- Provides real-time feedback to operator to allow avoidance of exclusion zones
- Improves operator confidence with location repeatability

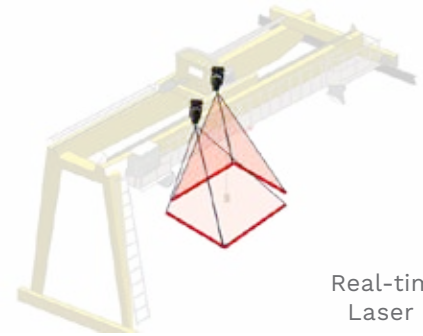
Features

- Light Detection and Ranging (LiDAR), a remote sensing technology that uses laser light to measure distances to objects, is the only instrumentation needed when mounted on the crane
- Real-time, on-screen tracking
- Accuracy within 2 cm on X, Y, Z axes
- Incorporates exclusion zones for protection of personnel and plant equipment
- Display capabilities at operator control box
- Software system capabilities highly evolved (similar autonomous mode)
- Real-time cone of influence laser boundary protection (no more rope boundaries)
- Live hook tracking to be used for future heavy lift training and readiness challenges





Containment Mapping



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