

Liebherr puts innovative system into operation for final painting of crawler cranes

- Liebherr increases capacity for the final painting of crawler crane components
- Environmental protection and occupational safety were important criteria in the design
- High requirements regarding paint application

Ehingen / Donau (Germany), 05 July 2017 – Liebherr-Werk Ehingen GmbH is currently putting a new system for the final painting of large crawler crane components into operation. This system corresponds to the latest requirements regarding environmental protection, occupational safety and paint application. Highly effective filters and systems for heat recovery are utilised here. Occupational safety and ergonomics are optimised by mobile work platforms and height securing devices. Liebherr has invested in the state-of-the-art for the technical application and process of paint coating along with the process data logging.

Liebherr has continuously extended its portfolio of crawler cranes in the past few years. The higher number of cranes produced as well as the larger components called for a major increase in painting capacity. A new painting hall was therefore established, in which the complete painting process can be carried out. A standard workflow was already defined during the planning: After testing the prime-coated crawler crane on the acceptance grounds, the individual components are cleaned and masked in the new painting hall. In other words, components that are not meant to be painted, for instance the sensor system, are masked. This is followed by final painting and drying in four painting boxes. Manufacturing is then realised in a special area of the factory.

Division Manage Thomas Nüssle explains: "The time intervals have shifted in recent years. The actual painting still takes only about a third of the entire work process. The preparation and completion meanwhile takes up significantly more resources in terms of time and space, which means we need more floor space for these activities. We needed to consider this together with rationalisation measures as early as the planning phase."

Thomas Nüssle cites a further challenge when planning the new painting system: "A positive factor is that less substances harmful to health are present in the paints on account of current regulations. Yet, at the same time, these paints are more difficult to work with. We've therefore invested a great deal in the technical system for paint application." To prevent deposits from accumulating in the tanks and lines, the paint is conveyed at low pressure in a ring line in the new system. The pressure is not increased until the painting cabin, where additionally installed high-pressure pumps are used for this – which means a tremendous painting quality can be realised with a constant pressure of about 160 bar.

Environmental protection was in focus when designing the new painting system. Filters with 3-fold structure are used in the four painting boxes. A noteworthy fact: the air dissipated to the environment is even cleaner than the fresh air supplied in a modern passive house. The new painting system also requires less energy supply than conventional systems, as about 70 percent of the heat is recovered with a highly effective process of heat recovery.

Improved ergonomics and occupational safety were also important criteria in the planning. Thus stationary work platforms adjustable in three axes are installed in the new system, which the workers can use to move to optimal painting positions. In addition, the employees are secured with high securing devices. This is important because the components are sometimes very large and the employees work at considerable heights.

In the new system, Liebherr is working with a 3-component system for the first time. Here up to 10 percent of the top coat to be applied later is added to the filler. In this way, colour hues with poor coverage achieve a better covering capacity, thereby saving material and time.

The new painting system also offers the option of preserving components in a separate painting box with a special layer for extreme environments, such as salt water in the sea.

Captions

liebherr-lwe-paintshop-hall-14-01.jpg

Large lattice sections of crawler cranes undergo final painting in painting boxes integrated in the new painting hall.

liebherr-lwe-paintshop-hall-14-02.jpg

The work platforms installed in the painting boxes improve the ergonomics and occupational safety during painting.

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