Street Cranexpress.

CASE STUDY

10-tonne Wire Rope Hoist Refurb

Introduction

Located at the Lopulco Mill Pit, this 10-tonne wire rope hoist, originally manufactured in the 1970s, had served its purpose for decades. However, due to the obsolescence of several critical components a comprehensive modernisation was required to remain operational. A replacement hoist was considered but deemed impractical due to building constraints. Street Cranexpress therefore undertook the task of revitalising this ageing piece of equipment, blending modern technology with legacy engineering to extend its service life.

Project Background

The hoist was powered by two direct online alternating current motors, providing both fast and slow speeds, with a magnetic clutch facilitating the transition between them. However, the clutch had become obsolete, rendering the system unreliable and prompting a thorough evaluation of the hoist. Due to the absence of suitable replacement parts, a complete refurbishment was proposed by Street Cranexpress, which involved dismantling, assessing, and upgrading the key components of the hoist.

Refurbishment Proposal

Street Cranexpress recommended transporting the 10-tonne wire rope hoist to their workshop in Sheffield for detailed inspection, stripping, and modernisation.

The plan included:

- **Component Replacement and Overhaul:** A comprehensive examination of key components, including bearings, carriage wheels, and motors, was required to assess their condition. Any parts that were worn or outdated would be replaced or refurbished.
- **Motor and Clutch Replacement:** The damaged magnetic clutch and hoist pony motor were to be removed. The primary hoist motor was sent to a specialist for refurbishment, after which it would be reintegrated into the system.
- **Variable Speed Drive (VSD) Integration:** In place of the obsolete clutch, a Variable Speed Drive (provided by bxh) was proposed to manage the speed transitions. This modern solution would eliminate the need for separate motors for fast and slow speeds, streamlining the hoist's operations.
- **Wire Rope Replacement:** For safety and reliability, the existing wire rope would be replaced with a new one.

The Refurbishment Process

Once the hoist was transported to the Sheffield workshop, it was disassembled for a detailed evaluation. Every component was thoroughly inspected, with a particular focus on:

- **Bearings and Wheels:** The bearings and carriage wheels, critical to smooth operation, were found to be worn and required replacement.
- **Cross Travel Motor:** The cross-travel motor was sent to a local rewind company for a full refurbishment, which included stripping, rewinding, and replacing the bearings to restore it to peak operational condition.
- **Control Panel Upgrade:** The original control panel components were outdated and incompatible with modern crane systems. Street Cranexpress designed and built a new control panel, incorporating advanced electrical components to accommodate the Variable Speed Drive. Due to spatial restrictions at the site, the panel's design had to be modified, resulting in a longer, more compact configuration.

Outcome

Upon completion of the refurbishment, the 10-tonne wire rope hoist was reassembled and thoroughly tested. The integration of the Variable Speed Drive enabled smoother transitions between fast and slow speeds, eliminating the need for a complex clutch system. The newly replaced wire rope, bearings, and control panel enhanced both the safety and efficiency of the hoist.

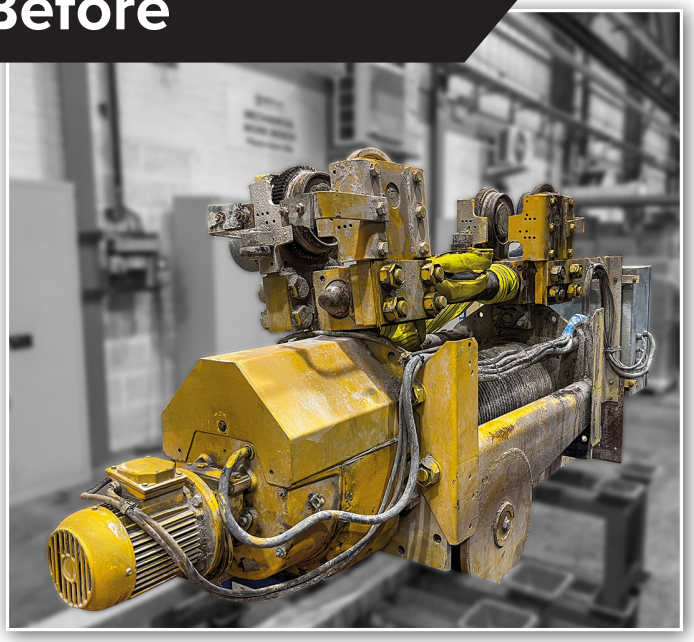
The hoist was then transported back to the Saint-Gobain site, where it was reinstalled and returned to service. The successful refurbishment extended the operational lifespan of the hoist and significantly improved its reliability, ensuring that it could continue to meet the demands of the mill for years to come.

Conclusion

This project highlights Street Cranexpress' expertise in breathing new life into ageing industrial equipment. By combining innovative engineering solutions with a deep understanding of legacy machinery, the team were able to deliver a successful refurbishment that extended the life of a critical piece of equipment. The introduction of modern technologies, such as the Variable Speed Drive, provided a more efficient and reliable system, while the careful redesign of the control panel demonstrated adaptability to site-specific challenges.

The refurbishment of the hoist highlights the importance of proactive maintenance and modernisation in industrial settings. Through the expertise of Street Cranexpress, the hoist was transformed into a more robust, efficient, and future-ready asset, showcasing the potential for legacy equipment to be effectively integrated with modern operational requirements.

Before



After