CASE STUDY

Automated Cathode Refurbishment & Handling System

EPCM

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PROJECT OVERVIEW

A prominent player in the mining industry, required two Build, Own, Operate, and Maintain (BOOM) systems to enhance their cathode processing operations. The first system involved an automated cathode refurbishment line, and the second system included a robotic cell for handling cathodes. EPCM Group was selected to design, supply, and maintain these systems, ensuring improved efficiency and reliability in their operations.

CLIENT

Global leader in copper mining

PROJECT SCOPE

EPCM Group was tasked with providing two BOOM systems:

Automated Cathode Refurbishment Line

- Design and supply of a 6-robot cell.
- Vision inspection of cathodes.
- Surface conditioning.
- Edge strip removal.
- Solution line protection.
- Verticality correction.
- Difficult copper stripping.

Robotic Handling Cell

- Automatic removal of cathodes from the reject conveyor.
- Loading of refurbished cathodes back into the cathode stripping machine.

SOLUTION

EPCM Group delivered a comprehensive BOOM solution encompassing the following components:

Automated Cathode Refurbishment Line

- **Design:** Customization of the refurbishment line to meet specific operational requirements.
- **Robotic Cells:** Six robotic cells equipped with advanced vision systems for precise inspection and processing of cathodes.
- **Surface Conditioning and Edge Strip Removal:** Specialized units for conditioning the surface of cathodes and removing edge strips to ensure high-quality output.
- **Solution Line Protection and Verticality Correction:** Mechanisms to protect the solution line and correct the verticality of cathodes.
- **Difficult Copper Stripping:** Advanced techniques for stripping copper from cathodes with complex surfaces.

Robotic Handling Cell

- **Automatic Removal:** Robotic cell designed to efficiently remove cathodes from the reject conveyor.
- **Loading Refurbished Cathodes:** System for loading refurbished cathodes back into the cathode stripping machine, ensuring seamless integration with existing operations.

IMPLEMENTATION

The BOOM systems were installed and commissioned at the client site, incorporating the following key components:

Robotic Cells

- State-of-the-art robotic technology was integrated into the refurbishment line, enabling precise vision inspection, surface conditioning, and other processes.

Handling Systems

- Automated systems were set up to handle the removal and loading of cathodes, ensuring smooth and efficient operation.

RESULTS

Since the implementation of the BOOM systems, the client has experienced numerous benefits, including:

Enhanced Efficiency

- The automated refurbishment line and handling cell significantly reduced the time required for processing cathodes, leading to increased throughput.

Cost Savings

- Automation reduced labor costs and minimized the risk of human error, contributing to substantial cost savings.

Improved Quality

- The vision inspection and surface conditioning systems ensured consistent and high-quality output of refurbished cathodes.

Operational Reliability

- The BOOM systems provided reliable and continuous operation, minimizing downtime and maximizing productivity.

CONCLUSION

The BOOM project executed by EPCM Group has successfully transformed the cathode processing operations. The implementation of automated systems has led to enhanced efficiency, cost savings, improved quality, and operational reliability. This project highlights EPCM Group's expertise in delivering innovative solutions that meet the specific needs of its clients.

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