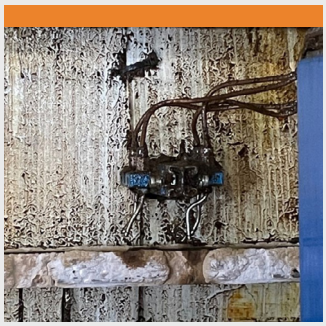
RotaLube Keeps **Plasterboard Dryer Clear of Dust** with Precision Lubrication

Case Study

Challenge

Our customer encountered challenges stemming from inadequately lubricated chain, leading to diminished flexibility and uneven wear. Consequently, the chains operated at higher amperage levels, precipitating prolonged downtime, significant production losses, and excessive lubrication wastage. The manufacturing of plasterboard demands utmost precision, where even a mere 1% elongation in production machinery chains can result in substantial downtime and associated costs. The operational environment within these facilities poses significant challenges, with fluctuating temperatures and dust-laden atmospheres compromising the efficacy of chain lubrication. The plant's operating conditions meant that the machine's conventional oil-spit lubrication system was ineffective because the lubricant was applied all over the complete chain and not directly onto the chain pins. This resulted in the lubricant being absorbed by build-ups of contamination on the chain, which prevented the lubricant from penetrating the chain roller and pins.

- Initially attempted to address the issue by extending the lubrication intervals, resulting in excessive volumes of lubricant being applied to the chains.
- Subsequently, replaced the oil-drip system with a brush-based lubricating system. However, this endeavour proved ineffective as the brush-based system quickly accumulated dust.



The images display the indentification stage including the ineffective oil-spit lubrication system, that resulted in build-up of contamination on the chain.

Identification

To prevent high-temperature oils with esters from affecting the seals, Heavy Duty Rotalubes with bronze sprockets, steel central shafts, and Viton seals were recommended.

To avoid blockages in the dusty environment, the Rotalubes featured slightly larger outlets.

Designed to apply small amounts of oil precisely to the correct place on the pin, this setup minimised the risk of coating the entire chain with oil, thereby reducing the likelihood of dust attraction.

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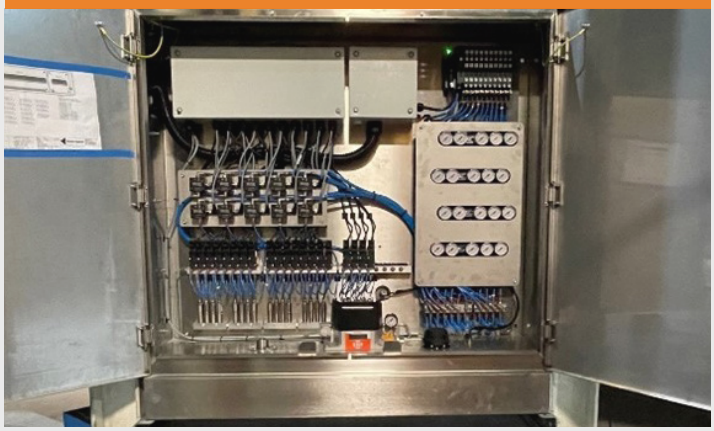

Solution

Following a comprehensive analysis of the situation, we engaged in consultations with the company, highlighting the importance of implementing a lubrication system that protects the chain against wear and shock loads. Subsequently, we proposed the implementation of a RotaLube system.

This entailed the provision of ten RotaLube's, each allocated to a respective deck, along with a progressive metered lubrication system. The system facilitated the distribution of lubricant from a pump situated outside the machinery guard to ten Bronze RotaLube's. These units ensured uniform delivery of oil to each RotaLube, which in turn precisely lubricated the chain links on both sides at the required intervals, irrespective of chain speed or elongation.

Results

The company experienced an immediate enhancement with reduced and consistent amp readings across each deck/chain following the adoption of the RotaLube system. Notably, oil consumption significantly decreased, leading to fewer unscheduled maintenance halts, as chain stretching stopped. This resulted in an annual reduction in lubricant expenditure amounting to £10,500, and that's not considering the costs of unscheduled maintenance and chain replacement.

Subsequently, in 2023, after eight years of observing the RotaLube system's efficacy, the company opted to invest in and install a new RotaLube Chain Lubrication System, recognised as one of the most innovative systems globally. Installed in late 2023, this system swiftly contributed to a further 20% decrease in lubricant usage.

- Nearly £1 million saved over 12 years as a result of RotaLube's lubrication system.
- Reduced unscheduled maintenance stops due to the elimination of chain stretching.
- Lubricant consumption was reduced by £10,500 per year.

Plasterboard Dryer

Plasterboard dryers are integral to the manufacturing process, tasked with removing moisture from gypsum cores to ensure the quality of plasterboards. These dryers typically employ a conveyor system with roller chains to transport wet plasterboards through a drying chamber.

The drying process is crucial as it determines the final strength, durability, and dimensional stability of the plasterboards. Reliable roller chains are essential components of plasterboard dryers, ensuring smooth and consistent movement of the boards throughout the drying cycle.