

EUROPORTS GROUP BV / NOTRA OY

automated pulp handling system that eliminates the risk of personnel being struck by fork lifts, being exposed to eye, limb or facial cuts as well as associated musculoskeletal risks during pulp bale transportation wire removal

the challenge

We handle paper pulp in several of our locations; loading/unloading from sea going vessels and other modes of transportation (barges, trucks and trains). This paper pulp is transported in bales of approximately 200 kg each. These bales are in turn bundled into packages of 8 (2 by 4) bales, kept together by several thick metal wires with which these packages are lifted in and out of the vessel. The imported pulp is transported by truck to the nearby paper factory of the client for use in their production process.

The factory does not have the equipment onsite to remove the heavy lifting wires and turn the bales in the correct orientation to enter the production line. For this reason and per customer demand, the heavy lifting wires are removed, the bales rotated on to their side and repacked with smaller, lighter wires that will merely keep the bales together and are not needed for lifting purposes.

Previously, this re-wiring was done manually. The cutting of the heavy lifting wires involved risk of wire-ends causing cutting injuries to arms, legs or face. Despite safety goggles being mandatory, in the worst case there was risk to operators' eyes. Operationally, wire removal required the assistance of a forklift which needed to be in close proximity to the employees removing the wires. This added person-machine interface risks to the mix. Finally, the whole process and especially the re-wiring at the end, was a strenuous and demanding activity for the personnel involved giving rise to manual handling risk..

the innovation

The newly introduced automated pulp handling system features a robotic arm that removes the existing wiring for sea transport. The robot operates within a fully fenced and protected area, ensuring a clear separation between personnel and machinery. The system is equipped with automatic shutdown protection, which activates in case of any breach, further enhancing safety and preventing unintended human-machine interaction.

The robot removes lifting wires from pulp bales and rolls them into bundles for metal recycling. It also inspects the integrity of the strapping wires on the individual bales using a dedicated program and finally rotates the pulp units into a horizontal position for further processing, i.e. automated re-wiring. The entire process is overseen by an operator outside the fenced area who ensures a smooth and safe operation.

how it was implemented

The machine was constructed on site, the supplier working closely together with Euroports' local technical and operational team to design the process in line with the operational demands. The local team in turn coordinated with the customers needing this add-on service,

to gain a good understanding of the exact needs and requirements as well as the correct dimensions, weight and other specifications (like wire thickness, positions, etc.).

Following initial construction, a test phase commenced, where problems created by deviations in real life bale configurations were identified and subsequently solved.



what was the result

With intact pulp units, the system can process up to 60 units per hour, requiring only a device operator and a machine driver to move the bales to the line and into storage. Previously, the manual operation required 3 employees, a lot of physical and high risk work. By handling

lifting and strapping wires already at the port, the process becomes faster and easier for our customers at the paper mills. The automation also reduces the risk of injuries associated with manual wire cutting and handling, further improving occupational health & safety for our stevedores.

conclusion

This innovation enables Euroports to carry out modification and repair work on pulp units from all pulp mills safely, efficiently, and cost-effectively.

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EUROPORTS



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