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Customer Case:

Advanced roll handling and packing line

International Paper, USA
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International Paper (IP) is one of the leading paper manufacturing companies in the world. Pesmel has supplied a new roll handling and packing line to IP´s Riegelwood, NC mill in the United States. The paper produced in Riegelwoold is fluff pulp and the mill is one of IP´s hardwood and softwood kraft and fluff pulp producers. These pulps are used worldwide to produce printing and writing papers, tissue and toweling, packaging, and absorbent hygiene products. IP´s market pulp division sells two million tons of pulp per year.

The new roll handling and packing line is one key element of the production process, as it is capable to handle, sort and pack rolls with high capacity enabling the production to run continuously without stoppages. In modern mills, the production capacity has reached such heights that it is impossible to continue working in the finishing areas without automated systems.

Currently the general scenario is that there is a new set of rolls entering from the winder into the handling and packaging line in every two and half minutes.

The result is that quality control, sorting, packaging and labelling has to be completed in a certain time. This sets requirements also to the automated system, not to mention to manual working phases. IP has chosen Pesmel's handling and packaging line to solve this challenge.

Pesmel line is placed next to Metso winder. The line ends at the buffer conveyors that are used to feed the storage. From a mechanical perspective, the line looks like a typical handling line with stretch film packing equipment, but it contains applications of the very latest industrial automation available at the market. For example, the sorting and packaging functions are fully automated. The handling and packing line is fully integrated into IP's IT system.

The operator's main task is to monitor the system as the handling and packing line effectively acts as a decision maker.

After the Metso winder has made the slits, Pesmel's system communicates with the mill computer and reads what kind of packages are ordered as well as their quantity (the packet may include 1 to 4 rolls). From there, the handling and packaging line will generate the relevant processes accordingly.

Sorting

In order to add flexibility and efficiency to roll set forming, Pesmel has developed the so called 'pocket system'. After the winder, the rolls enter to Pesmel system and roll sets are formed according to customer orders. As the customer rolls sets are not equal to the sets coming form the winder, the pocket system automatically puts 'on hold' those rolls that belong to another customer order and releases them as the rest of the roll set comes from the winder.

As the sorting function with highly effective software architecture is a part of Pesmel's system, no modifications will be required to the existing winder and Pesmel handling and packaging line can be effectively adapted into existing systems.

Material Flow How ®

Packaging

The packaging functions include two axial and radial stretch film wrapping stations, the total wrapping capacity being ca. 240 packages/hour. Combined axial and radial wrapping ensures a moisture and dust proof package with extended protection for the mantle and the corners of the roll. The corner protection is confirmed with unique film folding function, which folds the stretch film at the roll ends during radial wrapping.

These two Pesmel packaging lines include the automated change of a stretch film roll as the film runs out. This function changes the empty film roll to a new one automatically without presence of an operator and continues the roll wrapping. Maximum pre-loading capacity of 8 pcs of 80 kg film rolls is 640 kg in total in one loading. The film roll storage magazine can be loaded when the wrapping function is running.

Experience improved quality

Pesmel system incorporates machine vision equipment that can be applied to multiple tasks, for example to detect second-rate products and that way to avoid customer reclamations. The machine vision can detect the core hang out and scoped rolls. The core is only permitted to hang out a certain amount and similarly the scope effect of the roll is limited. If these limits are exceeded, the roll will be rejected automatically.

Maintenance

The packaging and handling system has been designed with the maintenance log. This log is able to collect all of the errors that have occurred within the systems and will report them to the high level IT systems of IP. This will enable the maintenance specialists to review matters accordingly and schedule maintenance tasks.

Pesmel has considerable experience in paper roll handling and packing. According to our our philosophy we focus on permanent product development and generate unique innovations, which has resulted that the most modern handling and packing lines are made by Pesmel.