



Customer Case:

Smart roll flow at APRIL Fine Paper mill in Xinhui, China

APRIL Fine Paper (Guangdong) Co. Ltd, which is part of Asia Pacific Resources International Holdings Ltd (APRIL), started up a new fine paper machine at its Xinhui plant in July 2012. The annual production capacity of the new 8.65 m wide production line will be 450,000 tonnes per year. At the same time, a new converting plant with shipping facilities for both rolls and pallets was constructed.

A fully automated Intermediate Roll Storage (IRS) system is fitted between the paper production and converting, the purpose of which is to offer an unmanned, flexible sorting buffer between the main production processes. The selected solution was Psmel's TransRoll® rack storage system.

The challenge and alternative solutions

From the start, it was clear that effective, centralized Intermediate Roll Storage (IRS) was needed to ensure free and well-controlled material flow between Xinhui's state-of-the-art paper production line, converting plant and direct hot load shipping. Without an effective IRS solution, the production line could easily become bottlenecked.

A clamp truck-operated IRS was eliminated at an early stage of the feasibility study because with all the machinery and floor space it requires, this was not the optimal solution. Fire safety was the limiting factor for an overhead crane storage concept. Of traditional IRS solutions, the high-rise AS/RS (Automated Storage and Retrieval System) rack storage solution would be the most competitive solution for paper mills' roll handling needs.

Psmel's unique TransRoll® technology is a fourth-generation solution for the buffering and storing needs of paper mills and converting plants. Its deep channel technology has been developed especially for the needs of the paper industry based on traditional AS/RS systems.

The selected Psmel TransRoll® system

In the APRIL Xinhui mill, one of the biggest advantages of the selected rack concept was the simplified mill layout that it offered. Straight conveyor lines lead directly from the winder decks to the IRS intake sorting as well as to sheeters and roll shipping. The rolls are handled in a horizontal position all the way from the entry pick-up to delivery with the TransRoll sorter vehicle's cradle, and in storage the rolls lie on their sides on V-shaped storage channel beams.

With this rack storage system, fire safety is superior to alternative concepts. The water sprinkler system is built into the rack, which enables uniquely precise fire extinguishing with standard sprinkler nozzles. This can't be done in storage systems where sprinkler nozzles have to be installed high on the ceiling structures 15 meters or more above the floor.

Expectations met

The TransRoll® concept was selected after a thorough evaluation process to best suit the Xinhui mill's needs. It offers the simplest mill layout with clearly less equipment than alternative solutions require. It can handle rolls without limitations on roll dimensions or packing variants. The rolls can be unwrapped, partially wrapped or fully wrapped because the rolls are handled in horizontal position all the time.

At the APRIL Xinhui mill, the TransRoll® system has made controlling production easy, which results in higher productivity due to better overall process efficiency. •