

At the Dubois, Pa., converting plant, an automatic shrink-wrap packaging line is helping protect products, reduce material costs, and improve efficiencies

Weyerhaeuser Protects Products with Shrink-Wrap Packaging Technology

By **IRFAN OEZDEMIR**

To improve competitiveness, many paper companies and mills are looking for ways to optimize aging manufacturing systems. To do so, it is critical for companies to find feasible opportunities for investment in their supply chain with a high ROI and a short payback time.

Changing the packaging systems at the end of manufacturing lines can prove a rational investment, and several global companies have exchanged their old packaging systems for a new alternative film wrapping system. Such is the case with Weyerhaeuser Company's paper converting plant in DuBois, Pa., which has installed fully automatic shrink packaging lines from MSK Coverttech. This film wrapping technology can be used with different types of paper products, such as folio size paper, cut size paper, paper rolls, and other paper products on pallets.

The Dubois plant's fully automatic shrink-wrapping machine securely packages up to 60 paper pallets per hour.



Shrink technology has been used in the paper industry since the beginning of the 1990s (see sidebar). For example, MSK has implemented more than 3,000 shrink packaging machines throughout the world. Besides Weyerhaeuser, other leading manufacturers in North America, Europe, Asia, and Africa such as Sappi, International Paper, UPM, Mondi and others are using MSK ClearView packaging technology.

Customizing the Packaging System

Weyerhaeuser wanted to find an effective packaging solution for its Dubois facility that would provide improved product protection, reduced costs, and enhanced marketing opportunities. In its search for such a system, the company asked MSK Coverttech to develop a proposal for using shrink-wrap packaging technology with folio-size paper on pallets. Weyerhaeuser then chose to work with the supplier on development of a customized system.

To customize such a system, the supplier utilized research and tests combined with extensive meetings with Weyerhaeuser. Based on Weyerhaeuser's specifications, the supplier recommended its MSK Flowtech product, a fully automatic pass-through shrink-wrapping machine designed to handle 60 pallets per hour for the Dubois plant. (In other applications, the system design has supported more than 100 pallets per hour.) For Dubois, the Flowtech system was then designed and programmed to cover the different pallet sizes and pallet configurations at the plant through integration of information tracking within the system.

The system also included the trademarked MSK ClearView packaging technology. In contrast to conventional packaging methods, this technology ensures that the surface of the film after shrinking is of a high quality that permits an optimum display effect.

Shrink-Wrapping at Dubois

Weyerhaeuser currently uses shrink-wrap packaging lines at Dubois and three other North American plants. The packaging system for Dubois includes conveyor handling systems that transport pallets from two in-feed lines to the main packaging line.

On the main packaging line, the pallet with its product is

alternative packaging

The evolution of shrink film in load-securing applications

Shrink film was developed in the mid-1960s in a BASF lab as part of research geared at development of non-shrinking plastics. Within a few years, the shrinking polyethylene film developed by this research became the second most popular way of securing load units after steel tape.

Shrink film is a pure polyethylene product. Over time, it has evolved in linear high-density and linear low-density options, which were then advanced for bi-oriented shrinking, meaning that horizontal and vertical stretching can be controlled by film producers for specific applications.

Today, shrink film is a cost-efficient mass-produced good

available from several manufacturers at a standard price. Shrink film is manufactured as tube in film extrusion lines with tubular dies and processed to a hood or lacerated as flat film.

By warming the shrink film with hot air during film production, stretched molecules are brought to a "swimming" state. Thanks to a so-called "memory effect," the molecules realign themselves to their original constellation. By this procedure, the film "shrinks", fitting itself to the outlines of the load and building up a load securing tension when cooling, without shrinking considerably afterwards.

centered before entering the film wrapping station. This station reads product-specific data using a bar code scanner and then prepares and applies the appropriate film size around the pallet.

As the pallet passes through the film curtain and is shrink-wrapped, the shrink machine uses an encapsulated heating system. This indirect heating system offers high safety standards and enables the use of thinner films while still maintaining load stability.

After shrink-wrapping, a robotic labeler prints and applies labels on two sides of the pallet, which is then conveyed to the discharge stations.

Wrapped pallets are protected against environmental factors and offer a neat display effect.



The pallet carrying folio-size paper has been wrapped on the top, bottom, and all four sides. Since each pallet is automatically identified by the system, the film wrapping and shrinking process has been done individually for each different pallet type by using the information tracking, which keeps film costs to a minimum.

Film rolls are the only packaging material required, and the system can process film rolls of up to 40-in. diameters or 2,200 lbs. Having such large film rolls keeps the number of film changes to a minimum. Thanks to horizontally placed film rolls, this change process is very easy as opposed to vertically placed film rolls.

Reaping Multiple Benefits

Rob Bailey, plant manager at Weyerhaeuser Dubois, reports a variety of benefits from the automated shrink-wrap packaging line. Bailey says the system is able to meet challenging industry requirements, such as "a wide product spectrum, 24/7 production, user-friendly operation, and smaller maintenance crews."

Bailey also notes that the automated system has reduced packaging material costs and has improved operating efficiencies.

"Using the new packaging material, just PE film rolls, we gained more space in our production facility by reducing the storage area needed for packaging materials," Bailey describes. "Also, six-sided wrapping improves pallet stability, and the product is protected against dust and humidity. The final package has a neater, cleaner appearance, which helps with marketing. Last, but not least, our customers have less material to unwrap and dispose of."

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