

Packaging Digest

Shrink-wrapped rolls of lace are easier, faster and much less expensive to package for worldwide distribution than when they were shipped in loose-fitting film bags. But first the manufacturers –Liberty Fabrics of NYC- had to find an automatic wrapping system that could handle random roll lengths and diameters feeding in from different stations at its Gordonsville, Va., plant.

Polypack's Model FH-24 LN shrink-wrapping system filled the bill. Installed in May of '86 and operational within a day, it comprises a photocell sensing device that detects the diameter of incoming rolls, a moving carriage with four forming heads that automatically presents the appropriate head to accommodate rolls of different sizes, and a shrink tunnel.

The fabric manufactured at the plant is an elastic lace made from synthetic fibers. It's used by clothing makers such as Lily of France and Bali in fabricating bras and other garments. Distributed domestically, the rolls are also shipped as far as Europe, Asia and Africa, where much lingerie is made.

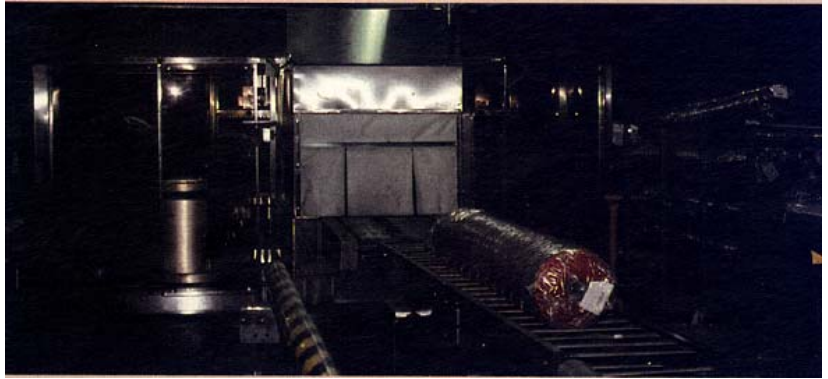
Because it is so sleek, the rolled material can telescope unless tightly packaged. That sometimes occurred, risking damage to the material, when the rolls were shipped in bags of polyethylene film.

Liberty director of engineering Yalcin Ozbey points out other problems with bagging.

Often the bags fit too loosely.

Handlers were constantly tempted to hoist them by grabbing the excess film, which caused some bag to rip. Liberty tried to counteract this by stocking a variety of bag sizes. But since roll sizes vary so much—from 6 to 14in. in dia and 4 to 12 ft L- inventory control and finding enough storage space were difficult.

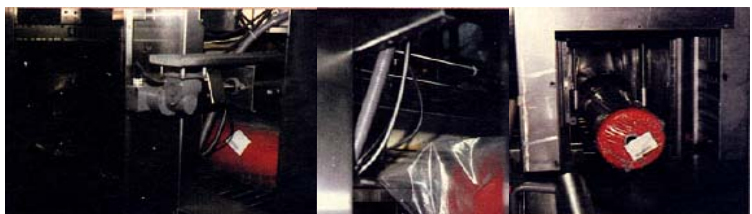
Finally, when the bag was tight enough, it took quite a bit of time for a worker to wriggle the roll into the bag.



Roll of elastic lace fabric, shown exiting shrink tunnel, is tightly wrapped with sturdy PE shrink film to prevent it from telescoping during distribution.

Liberty is free of bagging woes

Rolls of delicate lace to 12ft L safely travel the globe in tight PE shrink-wraps made automatically. Packaging costs drop 30 percent, productivity soars.



Appropriate one of four wrapping heads on moving carriage (above) is automatically selected and presented for random-size rolls

Sealing bar (left) cuts off end of film tube as fabric roll exists wrapper (above).

A flub, then success

An automatic shrink-wrap system seemed capable of remedying the situation. The decision to switch was

made about two years ago. At first, the company tried a machine manufactured in Europe. It had side-seal bars, rather than forming heads, that adjusted to

various roll diameters. However, it didn't work well in Liberty's application. It also wasted film as compared to a system based on forming heads.

After about a year, it was replaced with the Polypack four-head system. "One day we put it in. The next day we turned it on," reports Ozbey. "It was quite impressive from the start." One immediate result was that the new machine required less labor to operate. About four or five workers per shift (the plant runs 'round the clock') were freed for other duties.

In operation, the machine receives rolls of varying lengths and diameters randomly on a single conveyor, to which they are routed from various manufacturing stations in the plant. Just before the rolls enter the shrink-wrapping section of the system, they pass by a number of photocells that are vertically mounted at different heights. Different roll diameters trigger certain predictable photocells.

"For example, if two cells are triggered, we know it's a 6-inch-tall roll," explains Kevin Harris of Polypack. "If three are triggered, it's 9 inches tall. If four, it's 14 inches."

A signal is sent to the forming-head carriage, which responds by automatically shuttling sideways to present the appropriate head for a given roll diameter.

Completely enclosed

Each of the heads is equipped with its own roll of 400 Series centerfolded PE shrink film, 3 mils thick, from Armin. Widths are 12, 15, 20 and 25 in. The film is oriented when it is extrusion/blown by Armin so it shrinks in a traverse direction. This permits total enclosure, with both ends of the fabric roll protected by the sealed film. Telescoping also is prevented.

The film rolls are mounted below the conveyor surface, feeding up and over the product, through a plow and then back down. At this point the web has been formed into a tube, through which the fabric roll advances. The tube ends then are cut and sealed by a sealing bar. Now completely enclosed in the film tube, the fabric roll is conveyed through a 4-ft shrink tunnel-also built by Polypack-and finally removed from the end of the

packaging line to be stored or shipped.

After using the system for more than a year, Ozbey says that he's very satisfied. "We haven't had any downtime or other significant problems with it," he tells PD.

"Our packaging costs are reduced about 30 percent because waste has been eliminated, while we get a better package. Packaging-line productivity is up about 200 percent."

For these reasons, including the labor reduction of four or five people per shift, Ozbey says that his company is planning to buy similar machines for its other three manufacturing plants in the next few months.

*More information is available from:
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