Top warehouse unitizing trends

These aren't your grandfather's stretch wrappers. Here's how new film materials, equipment updates and shifting customer demands are reshaping unitizing in the warehouse.

BY **BRIDGET McCREA**, EDITOR AT LARGE

Much attention, effort and investment are being poured into warehouse automation right now, but those advanced systems don't operate in a vacuum. They rely on core materials handling to keep product moving through the facility. Unitizing sits smack in the middle of that ecosystem. Everything from robotic palletizers to automated storage and retrieval systems (AS/RS) and goods-to-person technology need stable, consistent and well-built unit loads.

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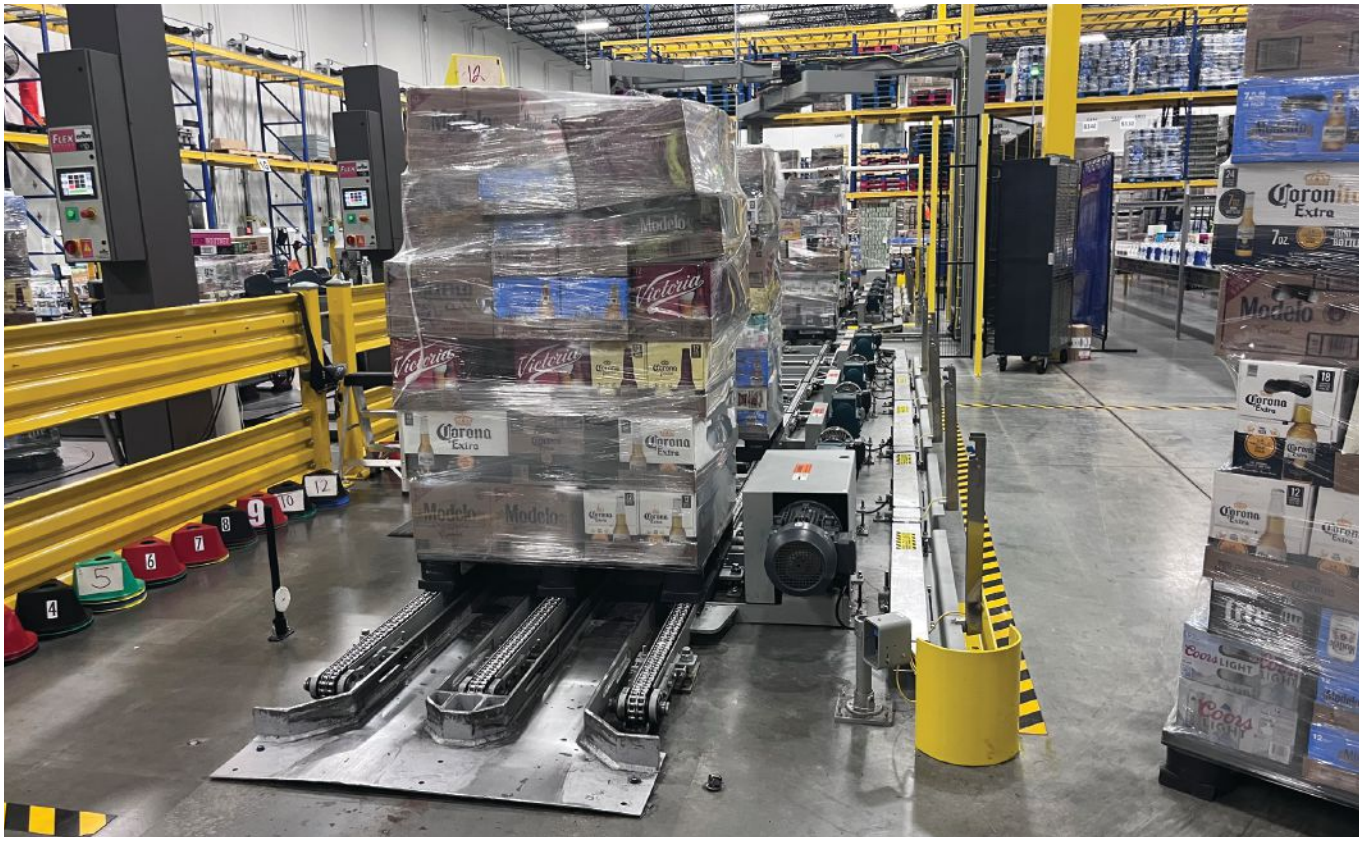

The labor shortage is pushing more warehouses toward fully automatic equipment and changing how that equipment gets designed.

The art of consolidating individual items into single, stable loads for storage and transport, unitizing has been handled the same way for decades. That's changing as new film formulations, more connected equipment and smarter load engineering raise the bar on load performance. Put simply, these aren't your grandfather's stretch wrappers.

Here's a look at some of the top trends reshaping the field.

The film got smarter and the equipment had to follow.

For warehouse managers who are investing in new stretch wrapping equipment, film compatibility needs to now be part of the evaluation process.

Traditionally, stretch wrapping film came in one of two gauges: 60 or 80 gauge. But, film manufacturers have since pushed well ahead of equipment makers, developing thinner, stronger formulations of film down to 43 gauge that delivers better hold with less material.

Existing equipment wasn't built to handle the change. "The film industry has really outpaced the equipment industry," says Pat Pownall, director of sales at Orion Stretch Wrappers, which recently spent about five years redesigning its carriage after thinner film began slipping past pre-stretch rollers. A standard 20-inch application used to yield about 16 inches of coverage after neck-down.

The redesigned carriage now averages 18.5 inches. "You're using less film to wrap the same pallet," Pownall explains. "That's been huge for our customers."

30-second film changes don't hold up the whole line.

The labor shortage that hit warehouses during the pandemic never fully reversed, and the unitizing side of the operation is feeling it.

Workers who left found other work and didn't come back, leaving facilities short-handed at the pallet wrapping station and in other areas. That's pushing more warehouses toward fully automatic equipment and changing how that equipment gets designed.

Pownall says Orion responded by building zoned e-stops (emergency stops) into its machines. That way, one film change doesn't have to shut down an entire line. Everything upstream and downstream keeps running while only the wrapping zone stops, he says, turning what used to halt everything back to the palletizer into a 30-second interruption.

This minor change reflects the realities of running a high-throughput facility with fewer people on the floor. As warehouse labor constraints persist, Pownall tells companies to look beyond current headcount when investing in unitizing equipment.

"Don't buy for today," Pownall says. "Buy for three or four or five years from now."

Easier maintenance drives higher uptime.

Maintenance has become a bigger factor in unitizing decisions, especially as warehouses deal with higher turnover and fewer experienced operators on the floor. Equipment that's easier to

maintain and troubleshoot is helping reduce downtime and keep lines running.

Adam Henricks, senior product manager for strapping solutions at Signode, says customers are asking for machines that can guide operators through issues instead of always relying on experienced technicians.

"When machines come with built-in tips and tricks, they can help teach," Henricks says, "versus having somebody stand there [helping] a new employee."

This shift to lower-maintenance unitizing is also being incorporated into machine design and controls. Top-down maintenance systems eliminate the need for ladders and make routine service safer and faster, says Henricks, and onboard diagnostics built into the human-machine interface (HMI) give operators real-time insights into performance and potential issues.

Henricks compares this to plugging into a car for diagnostics. Machines can now detect issues, flag them and guide users toward a fix without guesswork. That reduces reliance on specialized labor and shortens the time it takes to get equipment back up and running.

A sealed hood can provide full five-sided coverage, helping protect loads from moisture and dirt.

Sustainability expands into stretch film.

Stretch film is hard to swap out because it works and everything is built around it. That's why a lot of warehouses have focused on reducing usage rather than changing materials.

Josh Face, director of manufacturing at Cortec, says that's beginning to change as new materials are introduced. Regulation and cost pressures are also pushing companies to consider more sustainable alternatives.

"We all experience this, from paper straws to compostable coffee cups," says Face. "This is driven by multiple factors including a cultural desire to protect the environment, but also government mandates or taxes that provide a financial incentive to choose more sustainable solutions."

Looking ahead, he expects new options like compostable films to gain more attention as companies work to reduce landfill waste without sacrificing load stability.

Unitizing becomes the new branding tool.

More companies are turning to colored and printed films, especially with stretch hooding, to add branding, improve visibility and in some cases conceal what's on the pallet. Both stretch wrapping and hooding play a role here, but they deliver different results.

"When you have printed stretch wrapping film, you stretch it and therefore any symbol, logo or artwork would get basically torn apart," says Ben Schnelker, sales engineer, petrochemical FPP at Beumer Group. "With the stretch hood, you actually have a sealed film on the top, which means you can add color to your film or print a logo on it."

This strategy goes beyond marketing, of course, and extends into day-to-day operations. A sealed hood can provide full five-sided coverage, helping protect loads from moisture and dirt. Colored or opaque films can also help identify loads, reduce handling errors and limit visibility into high-value shipments.

Connected equipment moves unitizing off the floor.

Warehouse teams no longer have to stand at the wrapper to know what's going on. New unitizing equipment now comes with built-in connectivity that sends performance data, alerts and operating status directly to a phone or dashboard.

Beumer Group has made that standard. "We equip all of our machines with an IoT gateway," says Schnelker. "We can provide our customer with live insights on how the machine is performing, and that information can be sent directly to an employee's or supervisor's mobile device."

This direct connection changes how

unitizing gets managed. For example, maintenance teams can track pallet counts, monitor uptime and catch issues without being on the floor. It also cuts down on manual checks at the machine, which matters in facilities that are already short on labor.

"When you have a direct connection to the equipment, there's no need for so many people to be standing around equipment, watching it work," Schnelker says.

For warehouse managers, the benefit is faster response and the chance to reallocate human labor to more value-added projects. Plus, when problems get flagged sooner, teams can act before they slow down the line. "As more facilities connect unitizing to the rest of their operations," says Schnelker, "having that level of visibility helps get the job done faster, safer and more efficiently."

Better-packed cartons also mean more stable loads, fewer shifts in transit and more product moving per pallet.

Right-sizing drives more efficient palletization.

Warehouse managers are under pressure to reduce shipping costs, and that's pushing more focus onto how pallets are built in the first place. The more densely items are packed into cartons and onto pallets, the less wasted space moves through the network.

That starts at the box level, where Bryan Boatner, chief revenue officer at Ranpak, says companies are looking closely at how they size cartons and build loads. "The more densely you can pack the pallets, the more you can optimize for shipping savings," Boatner points out. "That's certainly something that companies are looking at in the current business climate (i.e., tariffs, rising costs, geopolitical events)."

Carrier pricing also comes into play here, according to Boatner. Dimensional weight rules and rate increases are forcing companies to rethink how much air they ship, for example, and right-sizing options and automation help reduce wasted space. It's about matching carton size to the actual contents and tightening up pallet builds.

Better-packed cartons also mean more stable loads, fewer shifts in transit and more product moving per pallet. These cartons then also help improve pallet stability. Loose or poorly packed boxes shift, Boatner explains, and that movement carries right over to the pallet once it moves through the facility and out onto a truck.

Boatner says more companies are paying closer attention to this and using the right mix of void fill, cushioning and load containment inside the carton. "The more efficiently items are packed and the more solidly the boxes themselves are packed," he says, "the more stable those boxes are going to be once they get on a pallet."

Suppliers say that customers are asking for machines that can guide operators through issues instead of always relying on experienced technicians.