



Fall Protection and Training

New Tech Improves the Way to Keep Workers Safe at Height

Matt Morgan | Feb 01, 2024

Fall safety is one of the manufacturing industry's biggest compliance concerns of our time. General fall-protection violations have been the most frequently cited and heavily fined by the Occupational Safety and Health Administration (OSHA) for the last 13 years.

It's not always a lack of safety equipment or training that's to blame. Sometimes, falls happen because of human error on the job. Manufacturing facilities are busy places, with the drive for operational efficiencies speeding up the pace of work.

Adding to the **fall-protection issue** is a movement in warehouses and manufacturing facilities where workers are going to heights, frequently on partially guarded platforms, to pick materials from shelves, rather than staying at ground level and using a conventional counterbalance forklift to access materials overhead.

Fall-protection compliance relies on workers to **take deliberate steps** that unfortunately can be missed in a fast-paced facility. For example, order picker operators might simply forget to connect their self-retracting lifeline to their full-body harness, potentially exposing them to a dangerous **fall hazard**.

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Don Medeiros
3M

"Order picker operators are repeatedly loading up product at height, going down and bringing it to shipping areas. Then they often get off the machine and perhaps get back on. This typically happens multiple times during a shift," says Don Medeiros, a senior application engineering specialist at **3M** who serves in the company's global technical support for **fall protection**.

These multiple on-off events, as Medeiros calls them, increase the risk of a person forgetting to hook up and falling at height. "Warehouses are getting larger and larger," he says. "Customer demands are only

increasing. The industry wants workers to maintain a swift pace. But you can't forget safety, of course."

The challenge, Medeiros says, is to improve worker safety without necessarily having to compromise on productivity.

Read more: FAQs for ANSI/ASSP Z359.14-2021 Safety Requirements for Self-Retracting Devices

Electronic Assistance in Fall Protection

Self-retracting lifelines have been protecting workers from falls at height for more than 60 years, and only recently has the technology substantially changed.

Today's tech is making it easier for workers to stay compliant with fall protection. Newer fall-protection gear provides electronic assistance including can't-miss visual cues for the operator and in some cases equipment limitations when a worker isn't tied off correctly.

The 3M™ DBI-SALA® Nano-Lok™ Connected Order Picker SRL System, for example, starts with a self-retracting lifeline that mounts to an order picker truck's fixed overhead guard and features a speed-sensing brake system, abrasion-resistant webbing and a high-capacity energy absorber.



Photo courtesy of 3M

Technology enters the kit with a carabiner-style hook on the end of the SRL. When the hook is connected to the worker's metallic harness D-ring, battery-powered circuitry inside detects the connection and sends a signal via Bluetooth to the overhead sensor box on the truck.

At the same time, the sensor box detects the presence of a worker on the platform, separate from any products that might be there. "Taking in that information and distinguishing person from box is a huge thing, especially for the kinds of applications we're talking about," Medeiros says.

Once the SRL hook's connection to the worker's harness D-ring is confirmed, the system sends a signal to a pair of LED light strips to turn them from red to green.

"It's instantaneous," Medeiros says. "As soon as the operator connects, the system understands that they are safe and it gives them a green light. You're good to go. It remains green to give them awareness: 'Yeah, I'm still safe. The system is still functioning.' It's showing system health and tie-off status 100 percent of the time while the worker is operating."

Read more: Self-Retracting Lifelines

Medeiros says this continual tie-off status is important because sometimes the hookup behind the person is never completely established. He's seen it happen when workers wear hoodies or have long hair—the person may hear a click but not have a complete connection.

"The system feedback is right in front of you," Medeiros says. "The LED lights are very bright, very obvious, and it will let you know if you're tied off or not."

The bright LEDs let others know the operator's tie-off status, too. "If for some reason the operator is distracted and about to drive off, a fellow co-worker or a manager nearby can say, 'Hey! That's the wrong light color. Make sure you tie off,'" he says. "It's highly visible and conspicuous."

If this isn't enough to grab the operator's attention, the red lights begin flashing, and then flashing faster, followed by an 80-decibel alarm. "It's really, really hard to miss," Medeiros says. "The warning system makes it almost impossible to put yourself in harm's way."

Technology Integrates with Trucks

3M offers a version of the DBI-SALA Nano-Lok Connected Order Picker SRL System that integrates directly with an order picker truck and is compatible with major order picker truck manufacturers.

In addition to the real-time visual and audible alert features, when a worker isn't properly tied off, these truck-integrated SRL systems will send a signal to the truck, and the truck in turn can limit its speed to a crawl and can keep the operator platform below a certain height off the floor.

3M's integrated, connected SRL kits are also compatible with order picker trucks that have telemetry systems and can communicate directly with them via Bluetooth.

"These integrated versions are going to be a huge boon to safety, because they are designed to prevent the operator from going to a height without being protected first," Medeiros says.

These systems deliver on what distribution centers and manufacturing businesses have been asking for, he says. "The new and improved integrated versions are the next step in safety."

How does your business ensure that workers stay safe at height? Let us know in the comments below.

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