Fall Protection and Training

Fall Protection Systems: A Comprehensive Guide to Tool Tethering

Vanessa Jo Roberts | Jul 11, 2019

The need to tether tools is real. On average, a tool or other object falls on a worker every 10 minutes, seven days a week.

Fall protection is not just about keeping workers safe from potential slips, trips and falls. You also must provide safety gear and establish practices to protect workers from tools and objects that could fall on them.

Every year, according to the Bureau of Labor Statistics, more than 50,000 people are struck by objects on the job. Contact with objects is the No. 2 most common nonfatal injury resulting in days away from work, ***25 years of BLS data*** shows.

Given incident reporting to the Occupational Safety and Health Administration that a “struck by” accident happens 143 times a day every day of the week, 3M estimates that a worker is injured ***every 10 minutes*** by a dropped object.

These incidents turn fatal hundreds of times a year because of the gravity effect. “An eight-pound wrench dropped 200 feet would hit with a force of 2,833 pounds per square inch—the equivalent of a small car hitting a one-square-inch area,” notes Mark Caldwell, former director of fall protection tools for 3M, ***in EHS Today***.

"We call it the three 'Ps': People, productivity, property," says Tomi Jacobson, a fall protection tool marketing manager for ***3M***, in a recent "Stop the Drop" webinar ***hosted on Better MRO***. "Dropped objects are the third cause of deaths on the job after transportation and falls. It can cause a work stoppage. In some cases, it can be the cause of some very costly situations. For example, in the nuclear industry, tools dropped in the wrong vat can cause major damage."

Tool Tethering: Dropped Object Prevention Goes Beyond Construction

While reported “struck by object” incidents are among the fatal four concerns in construction, according to OSHA data, it’s an area of concern for manufacturing and metalworking environments as well, where large equipment and tools are prevalent.

Tethering tools to workers and to ***guardrail systems*** is one of the most effective ways to prevent falling object injuries. The use of tethers for tools and training employees about when and how to use them protects not only the health of your team but also the business's bottom line.

While OSHA 1910.28 requires that businesses protect employees from exposure to falling object hazards, there is no OSHA standard that requires tethers. But last year, the voluntary ***ANSI/ISEA 121*** standard took effect; it provides guidance and details performance criteria for tool and equipment tethering products.

It's also good to know what 121 doesn't cover: It doesn't specify proper use of equipment for workers or specify what needs to be tethered and when it needs to be tethered.

Instead, each tether manufacturer specifies the use of its equipment, ***points out Ergodyne***, which like 3M took part in developing the voluntary standard. And every business using tethers is responsible for specifying when its workers need to tether and what they need to tether.

Need help with fall protection or other compliance-based training? Get an instant quote from the Center for Safety and Environmental Management and MSC.

Dropped Object Prevention Tips: Four Guidelines When Using Tool Tethers

Here are four tips that Caldwell suggests for workers and safety managers when using tethers with tools:

#1: Can you use the tool as you would without the tether?

Check that nothing impedes tool use and adjust the tether accordingly—whether the attachment, the lanyard or the wristband.

#2: Do you have the urge to modify your tool when using the tether?

That can introduce other dangers. Instead, look to products like cinch attachments, D-rings and spins to ensure ideal functionality.

#3: Is the tool heavy—more than 5 pounds?

Tools that weigh more than 5 pounds should be tethered to a fixed structure or an anchor point, not a worker.

#4: Do you know the load rating of your tether and your attachment point?

The tool must always weigh less than the lowest load rating, whether that's the tether or the attachment point.

Dropped Object Prevention Tips: Test the Tolerance of Your Tethers

The new ANSI/ISEA standard also includes a requirement that tether makers use dynamic drop testing for their dropped object solutions.

Before 121, tether makers generally used traditional static testing, which simply uses math calculations to gauge the point at which a tether will break for a given attached weight dropped straight down, explains Nicholas Voss in ***OH&S***. Voss, director of product management for West Coast Corp., is a member of the ISEA committee for dropped object prevention standards.

A dynamic drop test evaluates how "straps or cable, D-rings, carabiners and other parts are stressed and strained in ways that are not perfectly aligned by gravity, motion and dynamic force," Voss notes.

PPE for fall protection can be tricky—especially for harnesses. Read "How to Choose the Right PPE: Fall Protection Harness."

He suggests that safety managers make it a best practice to ask for and evaluate dynamic drop test results when selecting tethers.

"If it was you standing below someone working at height, how would you want their tethers tested?" Voss adds. "If it was me, I'd be sure to ask my DOP supplier to produce their dynamic drop testing certificate before I'd let my teams work at height."

Tool Tethers Might Not Be Enough

"A tool tether night not always be the best solution," says Jacobson. "A tether might not keep a battery from a drill from falling out, which does happen."

What's the solution? Per ***3M***, using the same approach as fall protection helps which means using anchorage, body support and connectors.

"And for anchorage, we suggest anchoring lightweight tools to the body," says Jacobson. "If the tool is under five pounds you can anchor to your wrist, using a D-ring and quick wrap tape which is not the same as electrical tape."

For heavier tools up to 25 pounds, you can use ***tool cinches*** and quick wrap tape.

For more on fall protection: Watch our video from ASSP Safety 2019 detailing the latest evolutions in matting and harnesses to prevent slips, trips and falls. Watch now.