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MARTIN: GUARDING BY LOCATION

COMPANY NEWS



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R Todd Swinderman, PE/ CEO Emeritus and Daniel Marshall, Product Specialist, both at Martin Engineering, look at the case for global standards in conveyor safety.

Safety regulations are rarely arbitrary. They are generally based on a history of reported injuries and fatal accidents caused by a set of circumstances that both regulators and insurers deem dangerous enough to require explicit rules to prevent.

However, rules can vary drastically between countries (and even within countries) to such an extent that the definition of what is safe and unsafe can appear subjective – and in some cases, can present more design and safety issues than the regulation is attempting to remedy. An example is the concept of ‘guarding by location’.

Guarding that is the result of the physical inaccessibility of a particular hazard under normal operating conditions is called guarding by location. Machinery may be safeguarded by location if the distance to dangerous moving parts is greater than the prescribed safety distance, which varies by jurisdiction.

Most people readily accept that conveyors and other machinery require safety guards when positioned near workers or walkways. Guarding by location is the

assumption that when hazards such as a moving conveyor belt are positioned beyond the normal reach of a worker, they don't require a guard. Yet they can still present a serious hazard.

HAZARDS FROM ABOVE

By not requiring a physical barrier, guarding by location creates what can be considered an exception to the general requirements for the guarding of hazards in the workplace. For example, The American Society of Mechanical Engineers (ASME) B20.1-2015 Safety Standard for Conveyors and Related Equipment notes in section 5.9.2(a): "Remoteness from frequent presence of public or employed personnel shall constitute guarding by location."

There are several hazardous locations that are beyond the normal reach of a worker when working or walking under or around elevated conveyors. These hazards are considered to be guarded by

location, often found in or around nip points between the belt and return rollers or drive components such as pulley shafts, couplings, drive belts, gears and chains.

Additional hazards from falling components may be inadvertently ignored if considered guarded by location.

WORKER RISKS

By determining a general safe height for all locations, some workers may be safeguarded while others are not. Taller employees (1.82 m in height or more) can easily suffer an injury reaching up into a moving component that is 2.13m above the ground. Working above machinery that is considered guarded by location exposes workers to increased severity of injury if they slip or fall to a lower level.

A fundamental problem for conveyor designers is the absence of specific global standards. Without uniform standards, equipment that is manufactured in one country to be installed in a second country may not be compliant for transfer or resale in a third country.

The variation on standards from 2.1-3.5m is too much to assure global compliance. Further, using tools and methods that extend a worker's reach while the belt is running is a hazardous activity that can contribute to serious – and possibly fatal – accidents.

GUARDING BEST PRACTICES

Exemptions such as guarding by location do not fully address the dangers explained above. As a result, rules defining the practice become ineffective as a safety measure, especially where belt conveyors are concerned.

Despite its acceptance in various regulations, the practice of calling moving components on conveyors 'guarded' solely because their installation is at least a specific distance from the worker(s) is

outdated as a concept and ineffective in application. It should be discontinued.

The logical solution is to simply install guards and baskets to protect workers from lateral and overhead hazards, while still offering safe and easy access. For maximum risk reduction, all nip points, shear points and moving or rotating components should be guarded, regardless of location or access. Many vendors can fabricate and supply guards of all types to fit virtually any application needed.

All moving or rotating components should be guarded, regardless of location.

PUT AN END TO THE MYTH

Despite its nearly global acceptance as a concept in industrial safety, the practice of guarding by location remains a particular problem for overhead conveyor applications. It's time to accept that as far as conveyors are concerned, guarding by location is a myth. As such, it's a concept that should be abandoned in order to make conveyors – and those who work on and around the equipment – safer.

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