Conveyor Safety & Compliance Game Plan

Take 5 steps to prevent conveyor injuries and OHS violations.

Like many companies, you may use conveyors in your workplace to move materials from one place to another. But while conveyors eliminate the need for manual lifting and carrying, workers can suffer serious or even fatal injuries if they get caught in pinch points or make contact with spools, pulleys, rollers and other moving parts of the conveyor. **Example:** A 25-year-old UK worker sorting clothes hangers on a conveyor got her scarf and hair got caught in the chain and sprocket drive of the belt as she bent over to remove accumulated hangers. She sustained serious throat injuries, lost a substantial part of her hair and broke a finger. She needed several operations and was in the hospital for 3 months. Other hazards posed by conveyors include:

- Amputation or crushing injuries can occur in the areas between fixed and moving objects (aka, confinement or assembly areas);
- Workers may be hit by materials that fall or are ejected from the conveyor system; and
- Energized parts can cause electrical, fire or explosion hazards.

In addition to general machine guarding and lockout/tagout rules, OHS regulations require employers to take additional measures to prevent conveyor injuries. Here’s a gameplan for

complying with these conveyor safety requirements.

5-Step Conveyors Compliance Game Plan

There are 5 basic sets of measures you must take to prevent conveyor injuries and ensure compliance with OHS requirements.

1. Ensure Conveyors Meet General Design & Construction Requirements

As with other forms of hazardous machinery and equipment, employers must ensure that conveyors are properly designed and constructed to ensure their safe use. Four jurisdictions (Federal, BC, Newfoundland, Yukon) require conveyors to meet nongovernmental standards that go beyond OHS requirements, namely, American National Standards Institute/American Society of Mechanical Engineers Standard ANSI/ASME B20.1-1993, *Safety Standards for Conveyors and Related Equipment.* In addition, conveyors must be constructed, designed and installed so as to ensure that:

- There’s sufficient clearance between the material transported and any fixed or moving object,;
- Shearing points between moving and stationary parts are avoided;
- The conveyor can’t feed onto a stopped conveyor.

2. Ensure Proper Guarding of Conveyors

Employers must ensure that moving conveyors are equipped with proper safeguards to prevent workers from making contact with moving parts, energized components, debris, material or objects thrown, material being fed into or removed or any other potential hazard. Such safeguards may include securely fixed barriers barring workers’ access to pinch points and other danger zones and interlocks, sensors or other electronic

devices that turns off the machine upon sensing the presence of a worker.

In addition to these general machine guarding rules, most jurisdictions require additional measures to prevent specific hazards associated with conveyors, including:

- Sheet metal or screen guards installed under or along side an elevated conveyor that’s not entirely enclosed to prevent material from falling onto workers below;
- Guards on accessible nip points of spools and pulleys;
- Guards on the moving parts of a screw-type conveyor;
- Anti-rollback devices on conveyors that carry loads up an incline; and
- Safeguards around the opening of conveyors fed from floor level.

3. Ensure Conveyor Has Proper Emergency Stopping System

A conveyor must have an emergency stopping system, unless guarding prevents access to the conveyor and possible contact with the moving parts. This system should be designed and installed so that it activates if a worker falls onto the conveyor or if a fallen worker on the conveyor moves an arm or leg off to one side of the conveyor. If the system uses a pull wire or pull cords, you must ensure that the wires or cords are clearly visible and readily accessible at the operator’s normal control station and at other appropriate points along the run of conveyor, including designated work stations, loading and unloading stations, and drive and take up sections. Such a system should be activated when:

- The pull wire or cord is pulled in any direction;
- The wire or cord breaks; or
- A single spring in the assembly fails.

OHS regulations also specify that you can’t restart the

conveyor after an emergency stop occurs unless and until you inspect the system and determine that you can operate it safely. You should then manually reset the system before restarting the conveyor.

Strategic Pointer: As an alternative to an emergency stopping system, some jurisdictions, including BC and Yukon, permit workers to wear safety-belts or other effective means of restraint to prevent them from falling onto the conveyor.

4. Take Extra Precautions When Workers Must Cross Over or Under Conveyor Systems

As noted above, OHS regulations require employers to implement additional safeguards for elevated conveyors where falling materials would endanger the workers below. Specifically, an elevated conveyor that passes over a walkway or area where workers may work or pass must have guards or other measures to prevent materials from falling from it. An elevated conveyor may also need to run in a trough that's strong enough to carry the weight of a broken chain, rope, belt or other material that falls from the conveyor. Plus, if workers need to access an elevated conveyor, it should have walkways that have appropriate guardrails.

Safeguards are also required for conveyors that aren't elevated but that workers still need to cross over. There must be adequate facilities enabling workers to cross over safely without risk of falling onto the moving conveyor. Such facilities include bridges that are at least one-metre-wide and have adequate guardrails.

You also need to account for the risk of worker's going under a conveyor that **isn't** elevated, for example, to retrieve a dropped item by ensuring the proper guarding of any pinch points accessible beneath the conveyor. **Example:** An Alberta warehouse worker who went underneath a conveyor to plug in a scale got injured when her hair got entangled in an unguarded

drive shaft. As a result, the employer was convicted of an OHS violation and fined $80,000 [*R. v. Value Drug Mart Associates Ltd*., [2014] ABPC 255 (CanLII)].

5. Implement Safe Procedures for Working on or near Conveyors

Establish, implement and train workers on safety policies and procedures for not only operating but working near conveyors. At a minimum, these rules should:

- Bar workers from standing on the supporting frame of a conveyor while loading or unloading the or when clearing blockages unless the conveyor is stopped and has been locked out;
- Prohibit workers from riding on a conveyor (unless the conveyor is specifically designed and used to transport people);
- Ban workers from wearing loose clothing, long hair, rings, bracelets, necklaces or other jewelry that can get entangled in the moving parts of a conveyor;
- Require workers to remove heavy or bulky articles by hand from a moving conveyor at designated stations only;
- Require workers to cross under a moving conveyor belt only at a walkway or other designated place where they're protected from the conveyor's moving parts and falling materials;
- Require workers to use a walkway or bridge to cross over a conveyor if the belt is moving or is motionless but hasn't been locked out; and
- Allow workers to cross over a conveyor at a location other than a bridge if the belt has been locked out.