WORKSAFE
NEW ZEALAND | MAHI HAUMARU AOTEAROA

FACT SHEET

GUARDING OF CONVEYORS

Conveyor systems are a popular way of handling materials. There are numerous varieties of conveyors such as flat belt, chain and screw or power roller. Most operate on the same basic principles and have similar significant hazards.

FIGURE 1: CONVEYORS

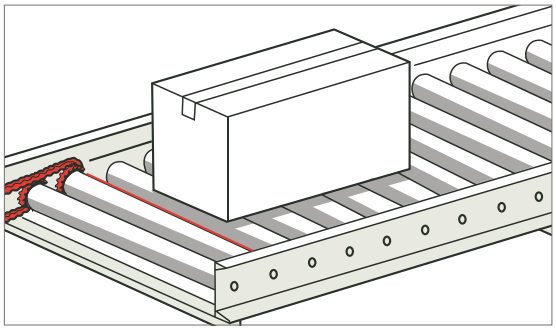


FIGURE 2: CONVEYORS

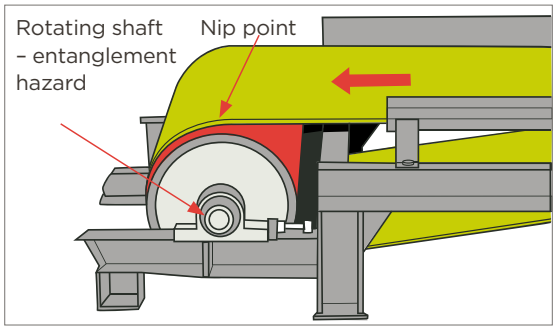
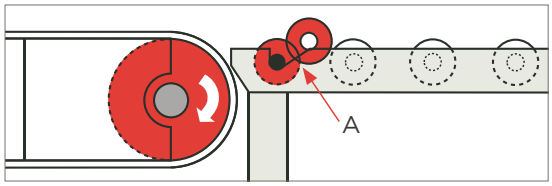


FIGURE 3: POP OUT ROLLER



A pop out roller (A) at the gap between a powered conveyor and an idle roller conveyor allows a hand or arm to push the idle roller and avoid entrapment.

PPE:

The required PPE depends on the product on the conveyor, but may include:

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Hazard	Harm	Controls
A. Discharge plate/ roller B. Pulleys C. Idler pulleys D. Conveyor frame, or between the belt pulley and conveyor frame E. Projecting shafting F. Belt cleats and belt fasteners	> Trapped hands – potential cut or crush injuries > Serious injury from entanglement	> FIX guards, including interlocked guards. > INSTALL fencing around pulleys to isolate hazards. > INSTALL pop-out rollers to relieve trapping hazards where powered conveyors transfer goods to conveyors of idle rollers. > Stop/start control switches MUST be in reach of the operator, including emergency stops. > When belt conveyors are out of sight of the control start position, audible and visible warnings MUST occur before movement. > NEVER ride on, or cross, conveyors. > EQUIP crossovers with stairs and handrails. > NEVER WEAR ties, loose clothing or gloves. > DO NOT use conveyors with internal combustion engines UNLESS adequately ventilated.

Most serious accidents and fatalities involving conveyors result from inadequate guarding, between the conveyor belt and:

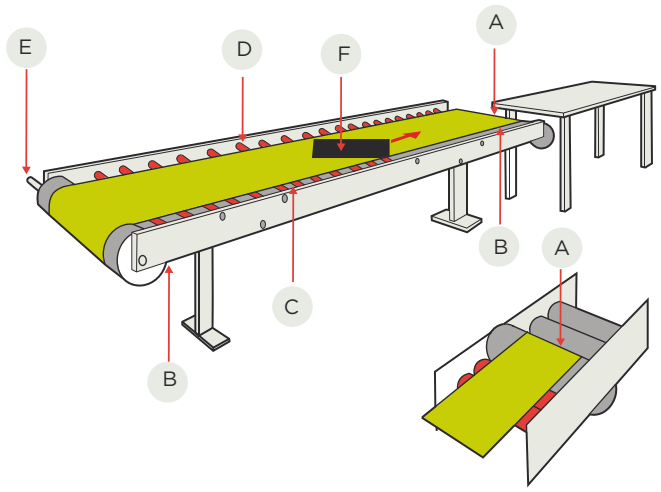
GUARDING & FENCING FOR PULLEYS

Idler pulley: idler roller that supports the empty side of the belt. To prevent nips, use fencing between the conveyor belt and the idler pulleys to guard both sides of the conveyor.

Tail pulley: the terminal pulley at the loading end of the conveyor. Guard between the conveyor belt and the tail pulley for the in-running nip on the return run of the belt, considering nips between the pulley, and/or the belt and the framework of the conveyor. Firm fencing is preferred for full isolation.

Head pulley: the terminal pulley at the discharge end of the conveyor. The in-running nips between the belts and head pulleys require fencing that encloses dangerous parts with rigid guards that prevent reach into the conveyor from any angle, including underneath.

FIGURE 4: DANGEROUS PARTS OF CONVEYORS



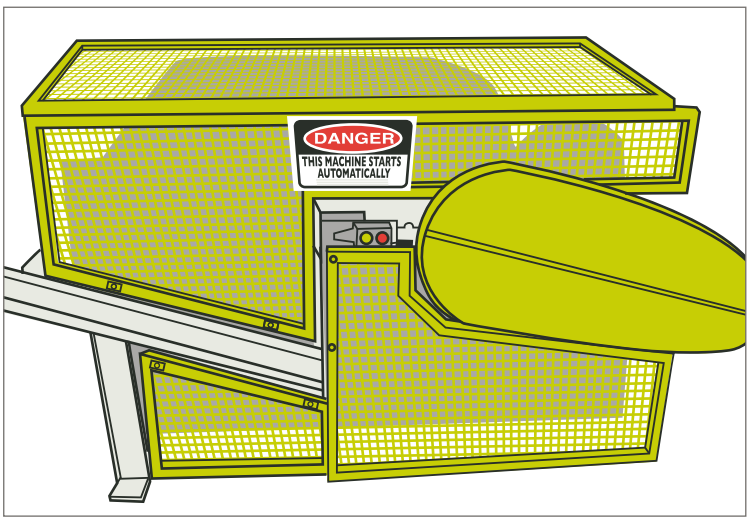
Slips, trips and falls	> Contact or impact injuries > Cuts > Bruising	> KEEP up-to-date housekeeping procedures. > KEEP the area around shears clear of slip and trip hazards. > PROVIDE non-slip surfaces for treads and steps.

TASK – MAINTENANCE, CLEANING & REPAIRS

Hazard	Harm	Controls
Contact or entanglement from unexpected movement	> Trapping > Crush or cut injuries	> PROVIDE safe conditions for maintenance, cleaning and repairs, including: ✓ guarding ✓ lock-out mechanisms ✓ training > USE scrapers, brooms, or brushes with long handles for cleaning around and underneath conveyors. > DO NOT clean or clear conveyors unless the conveyor is stopped and interlock systems are in place.

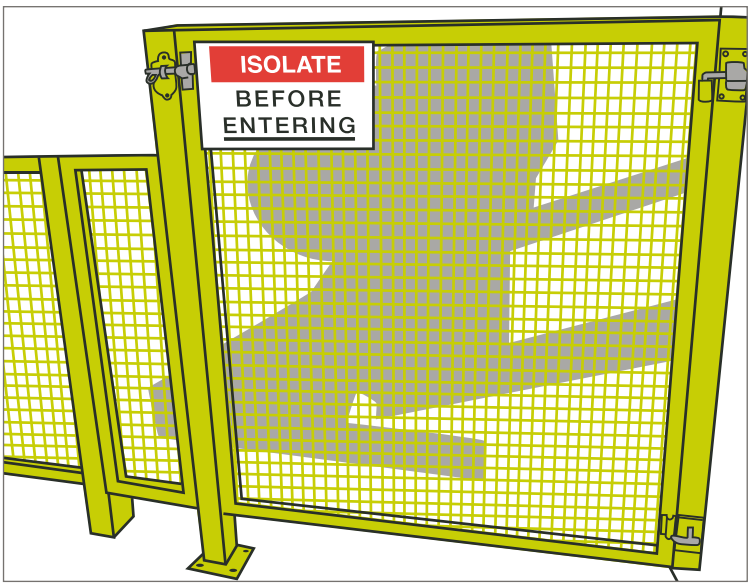
Tensioning, tracking, lubrication and other maintenance are usually done while the conveyor is moving. To reduce the risk of injury, rods and nuts should stick out beyond the guard end, or access made possible by a small slot in the side of the guard. Consider grouping the lubrication points for access outside the guards. Instructions MUST BE provided in a language that operators can understand.

FIGURE 5: GUARDS LOCKED BY BOLTS THAT REQUIRED A TOOL TO OPEN



These guards are acceptable only if access is not required more than once per shift. If more frequent access is required, the guards MUST be interlocked to the power control.

FIGURE 6: GUARDS LOCKED BY BOLTS THAT REQUIRED A TOOL TO OPEN



References, current standards and further information can be found on the Safe Use of Machinery project page at: **www.worksafe.govt.nz**

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