

## **4123:1-3-05 Mechanical power transmission apparatus.**

### (A) Scope.

- (1) This rule provides for the protection of employees from motion hazards associated with equipment used in the mechanical transmission of power on construction sites. Installations to be guarded include sources of mechanical power, the associated and intermediate equipment and the driven machines up to, but excluding, the point of operation. This pertains to revolving, oscillating, reciprocating, or other moving parts such as, but not limited to, belts, brakes, cams, chains, clutches, collars, compressors, counterweights, couplings, cranks, eccentrics, engines, gears, lead screws, motors, power cylinders, pumps, pulleys, shafting, sheaves, spindles, sprockets, turbines and winches.
- (2) This rule shall not be construed as being applicable to power transmission facilities located within the frame of the equipment and where exposure is necessary to its operation or adjustment.

### (B) Reserved.

### (C) Belts, rope and chain drives.

#### (1) Vee belts.

Vee belts and pulleys, where exposed to contact, shall be guarded.

#### (2) Rope and chain drives.

Rope and chain drives and their pulleys, where exposed to contact, shall be guarded.

### (D) Power driven conveyors - chain, bucket, belt and screw.

#### (1) Horizontal overhead, vertical and inclined conveyors.

##### (a) Overhead protection.

Where overhead conveyors carry material with a clearance of seven feet or more above the floor or ground level, and cross designated walkways or roads, or pass over areas where employees are normally at work, a substantial barrier shall be installed to catch falling material.

##### (b) Screw conveyors.

In addition to the requirements of paragraph (D)(1)(a) of this rule, the auger of screw conveyors shall be guarded. Guards shall be solid or of wire mesh, in accordance with appendix I to this rule. Where an electric power source is used guards designed for removal shall be interlocked so that removal will disconnect the power source.

(2) Conveyors exposed to contact.

A stopping device shall be immediately available to disengage conveyors from their source of power, where conveyors are exposed to contact.

(3) Safe means of passage.

Where employees are required to cross over conveyors, a fixed platform equipped with standard guard railing and toeboards shall be provided.

(4) Pinch (shear) points.

Pinch points created by travel of conveyor belts over or around end, drive and snubber, or take-up pulleys shall be guarded or a means shall be provided at the pinch point to disengage the belt from the source of power.

(5) Lockout for repairs and maintenance.

Conveyors shall be locked out or otherwise rendered inoperable, and tagged out with a "Do Not Operate" tag during repairs and when operations is hazardous to employees performing maintenance work.

(E) Shafts.

(1) Revolving shafting.

(a) All revolving shafting and couplings thereof, located seven feet or less above the floor, platform or ground level and exposed to contact shall be guarded.

(b) Ends of shafting, where exposed to contact, shall present a smooth edge and end, and shall not project more than one-half of the diameter of the shaft unless guarded by non-rotating caps or safety sleeves.

(2) Universal joints.

Universal joints where exposed to contact shall be guarded.

(3) Unused keyways.

Unused keyways where exposed to contact shall be filled or covered.

(4) Set screws, keys and other projections.

Set screws, keys and other projections; protruding beyond the surface of revolving parts, where exposed to contact, shall be guarded.

(5) Revolving face plates and chucks.

Revolving face plates and chucks shall be cylindrical with no projecting parts on the rim unless such projecting parts are guarded. This does not apply to those face plates and chucks revolving less than five revolutions per minute.

(F) Gears, sprockets and friction drives.

(1) Set or train of gears.

(a) A set or train of gears is two or more power driven gears that move and intermesh. This does not apply to adjusting gears which do not normally revolve and are not power operated, or to adjusting gears which require access to such gears for manual manipulations.

(b) Guarding.

All or any part of a set or train of gears, exposed to contact, shall be completely guarded or have a band guard around the face of the gear with the side flanges extending inward beyond the root of the teeth. Where there are openings of more than two and one-half inches between arm or through web, the entire gear shall be guarded. Guarding shall be in accordance with appendix I to this rule, and shall be securely fastened in place.

(2) Frictional disc, link belt, and sprocket drives.

Frictional disc, link belt, and sprocket drives shall be guarded.

(G) Machinery control.

(1) Disengaging from source of power.

A stopping device shall be provided at each machine, within easy reach of the operator, for disengaging it from its source of power.

(2) When machines are shut down.

The employer shall furnish and the employees shall use a device to lock the controls in the off position when machines are shut down for repair, adjusting, oiling, or cleaning. On mobile equipment where lockout devices cannot be used

the employer shall furnish and the employee shall use warning tags when machines are shut down for repair, adjusting, oiling, or cleaning.

(3) Mechanical belt shifters.

Tight and loose pulley arrangements shall be equipped with mechanical belt shifters.

(4) Treadles or extensions.

Treadles or extensions for starting machinery shall be located or guarded as to minimize accidental starting tripping of the machinery.

(H) Anchoring and mounting of equipment.

(1) Anchoring.

All stationary machinery shall be securely fastened.

(2) Portable machinery.

Portable machinery mounted upon mobile units shall be securely fastened thereto, and such mobile unit shall be so locked or blocked as to prevent movement or shift while such machine is in operation.

(I) Counterweights.

Counterweights, other than those which are an integral part of machines, shall be guarded by an enclosure guard or secured with a safety chain or wire rope, in addition to the suspending device for the counterweight.

(J) Feed rolls.

Power driven feed rolls, when exposed to contact, shall be guarded at the pinch points.

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