



## PS Safety & Risk Management, LLC

*Providing Safety Solutions for Today's Needs*

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### What are the sources of amputations in the workplace?

Amputations are some of the most serious and debilitating workplace injuries. They are widespread and involve a variety of activities and equipment. Amputations occur most often when workers operate unguarded or inadequately safeguarded mechanical power presses, power press brakes, powered and non-powered conveyors, printing presses, roll-forming and rollbending machines, food slicers, meat grinders, meat-cutting band saws, drill presses, and milling machines as well as shears, grinders, and slitters. These injuries also happen during materials handling activities and when using forklifts and doors as well as trash compactors and powered and non-powered hand tools. Besides normal operation, the following activities involving stationary machines also expose workers to potential amputation hazards: setting up, threading, preparing, adjusting, cleaning, lubricating, and maintaining machines as well as clearing jams.

### What types of machine components are hazardous?

The following types of mechanical components present amputation hazards:

- **Point of operation**—the area of a machine where it performs work on material.
- **Power-transmission apparatuses**—flywheels, pulleys, belts, chains, couplings, spindles, cams, and gears in addition to connecting rods and other machine components that transmit energy.
- **Other moving parts**—machine components that move during machine operation such as reciprocating, rotating, and transverse moving parts as well as auxiliary machine parts.

### What kinds of mechanical motion are hazardous?

All mechanical motion is potentially hazardous. In addition to in-running nip points (“pinch points”)—which occur when two parts move together and at least one moves in a rotary or circular motion that gears, rollers, belt drives, and pulleys generate—the following are the most common types of hazardous mechanical motion:

- **Rotating**—circular movement of couplings, cams, clutches, flywheels, and spindles as well as shaft ends and rotating collars that may grip clothing or otherwise force a body part into a dangerous location.
- **Reciprocating**—back-and-forth or up-and down action that may strike or entrap a worker between a moving part and a fixed object.
- **Transversing**—movement in a straight, continuous line that may strike or catch a worker in a pinch or shear point created between the moving part and a fixed object.
- **Cutting**—action generated during sawing, boring, drilling, milling, slicing, and slitting.
- **Punching**—motion resulting when a machine moves a slide (ram) to stamp or blank metal or other material.

- **Shearing**—movement of a powered slide or knife during metal trimming or shearing.
- **Bending**—action occurring when power is applied to a slide to draw or form metal or other materials.

**Are there any OSHA standards that cover amputation hazards in the workplace?**

Yes. The Occupational Safety and Health Administration (OSHA) has the following standards in Title 29 of the Code of Federal Regulations (CFR) to protect workers from amputations in the workplace:

- 29 CFR Part 1910 Subparts O and P cover machinery and machine guarding.
- 29 CFR 1926 Subpart I covers hand tools and powered tools.
- 29 CFR Part 1928 Subpart D covers agricultural equipment.
- 29 CFR Part 1915 Subparts C, H, and J;
- 29 CFR Part 1917 Subparts B, C, and G; and
- 29 CFR Part 1918 Subparts F, G, and H cover maritime operations.

\*The information in this Safety Meeting Topic was provided by OSHA.

For more information or training needs, contact **PS Safety & Risk Management, Inc.** at (225) 716-0029 or visit us at [www.pssafety.net](http://www.pssafety.net)