Machine Guarding Stats & Facts

DID YOU KNOW?

Machine guarding once again made OSHA’s top ten list of most-frequently violated standards for fiscal year 2019. Coming in at number eight, OSHA’s machine guarding standard 1910.212 was cited for violations 1,743 times in 2019, compared to 1,972 citations in 2018.

Total penalties in 2019 equaled $11,335,996. $11 million may not seem like much when you consider that in 2015 there were 2,644 amputations, according to the Bureau of Labor Statistics. Between 1992 and 1999, there was an average of more than 11,000 amputations every year. Many times, the loss of a finger, hand or arm results from machinery operations, and often the lack of proper guarding, or inadequate guarding.

Hazardous industries

Amputations, often resulting from the absence or misuse of machine guarding, are most like to occur in these industries, according to OSHA:

- Food manufacturing
- Animal slaughtering
- Meat processing
- Poultry processing
- Bakeries
- Sawmills
- Wood window and doors manufacturing
- Box manufacturing
- Printing operations
- Various machinery and equipment manufacturing

Sources of amputations

According to OSHA, the most common sources of amputations are:

- Agricultural, garden machinery, bailers
- Aerial list platforms
- Benders, rollers and shapers,
- Casting machinery
- Conveyors
- Stationary drills
- Food and beverage processing
- Grinders, abraders and meat grinders
- Material machinery
- Metal, woodworking and special material machinery

- Milling machines

In addition to potentially life-altering amputations, the lack, inadequacy or misuse of machine guards can result in lacerations, crushing injuries and abrasions. Inadequate machine guarding results in approximately 800 deaths every year.

Types of safeguards

There are five general types of machine safeguards:

Guards – these are physical barriers that prevent contact. They can be fixed, interlocked, adjustable, or self-adjusting.

Devices – these limit or prevent access to the hazardous area. These can be presence-sensing devices, pullback or restraint straps, safety trip controls, two-hand controls, or gates.

Automated Feeding and Ejection Mechanisms – These eliminate the operator's exposure to the point of operation while handling stock (materials).

Machine Location or Distance – this method removes the hazard from the operator's work area.

Miscellaneous Aids – these methods can be used to protect both operators and people in the immediate vicinity of operating machinery. Examples include shields to contain chips, sparks, sprays or other forms of flying debris; holding tools that an operator can use to handle materials going into the point of operation; and awareness barriers to warn people about hazards in the area.

Machinery hazards

The three basic types of hazardous mechanical motions and actions are:

Hazardous Motions – including rotating machine parts, reciprocating motions (sliding parts or up/down motions), and transverse motions (materials moving in a continuous line);

Points of Operation – the areas where the machine cuts, shapes, bores, or bends the stock being fed through it;

Pinch Points and Shear Points – the area where a part of the body or clothing could be caught between a moving part and a stationary object. This would include power transmission apparatuses such as flywheels, pulleys, belts, chains, couplings, spindles, cams, gears, connecting rods and other machine components that transmit energy.