



# Working with Robots: Workplace Safety in the Age of Electric and Semi-Autonomous Vehicles

Insights

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If you think about the effects of autonomous vehicle technology on safety, you will probably think about the well-discussed potential to increase traffic safety. But there are also important effects of the rise of the electric and autonomous vehicle industry on workplace safety.

While the Occupational Safety and Health Act (OSH Act) does not apply to public roadways, it does apply to worksites, including parking lots and related spaces. And the worksites related to the electric and autonomous vehicle industry are increasingly high-tech. Workers at car and truck manufacturing facilities work side by side with robots to assemble vehicles. As vehicles become more and more akin to giant computers—*The Washington Post* recently described the Tesla Model 3 as a “giant iPhone”—so too do the factories where the cars are produced become more automatized.

Working around highly specialized robots presents a number of workplace hazards of which employers should be aware. Even though there are no specific OSHA regulations pertaining to robots, the agency has issued a Technical Manual, OSHA Directive TED 01-00-015 (Jan. 20, 1999), related to robot safety. The National Institute for Occupational Safety and Health (NIOSH) also has issued guidance on preventing robot-related injuries. NIOSH Pub. No. 85-103 (1984).

As OSHA’S Technical Manual provides, accidents related to robots can occur from any number of causes—malfunctions, programming errors, and unauthorized access, to name but a few. Employers should focus on the following areas to minimize the risk of accidents:

## Lock Out / Tag Out

According to OSHA, many accidents involving robots occur not while the robot is operating under normal conditions but when it is being repaired, reprogrammed, or maintained. See OSHA Directive TED 01-00-015 (Jan. 20, 1999). Therefore, ensuring that you have effective lock out / tag out (LOTO) procedures in place to deenergize the equipment before coming into contact with it is crucial to minimizing the risk of injury.

## Machine Guarding

Aside from LOTO, machine guarding is the biggest safety concern for employers who utilize robots in their operations. NIOSH recommends that employers consider the following types of machine guards for robots: physical barriers; motion sensors/lights; adequate clearance distances; remote

guards for robots: physical barriers; motion sensors/lights; adequate clearance distances; remote diagnostic capabilities, so that troubleshooting can be accomplished away from the machine; sufficient illumination; and floor markings showing range of movement. NIOSH Pub. No. 85-103. Employers should consider which forms of guarding are most appropriate and effective for their workplaces based upon the specific robots being used.

## **Training**

Training employees regarding working around industrial robots is critical to lessening the risk of injury. Training should cover LOTO, machine guarding, and all other aspects regarding working near the robot. Supervisors also should ensure that workers are following the company's safety protocols throughout each shift.

## **Conclusion**

As motor vehicles become increasingly sophisticated, including through development of electric and autonomous vehicles, the workplaces where the vehicles are manufactured also are becoming more sophisticated. Vehicle manufacturers are increasingly relying upon highly skilled workers to staff their facilities because of the amount of technology and robotics used at the facilities. Employers should consider the safety effects of this changing workplace and protect their workers accordingly.

If you have questions or concerns regarding workplace safety in the age of electric and semi-autonomous vehicles, contact [Travis Vance](#) or any member of our [Autonomous Vehicles Practice Group](#).

## ***Related People***



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