



# Lockout/Tagout Guide

Learn what Lockout/Tagout is, when to use it, and how the control of hazardous energy keeps workers safe in your facility.

## Lockout/Tagout: The Control of Hazardous Energy

Lockout/Tagout programs adhere to OSHA standard 1910.147, “The control of hazardous energy.” This is a safety strategy that eliminates all existing energy and potential energy from a piece of equipment or machinery before it is serviced. It ensures that there is no accidental release of energy (such as a power start-up) while a worker is conducting maintenance or is otherwise required to be in or near dangerous areas. Lockout/Tagout reduces the risk of injury or death; OSHA reports that compliance with the standard helps prevent approximately 120 workplace deaths and around 50,000 additional injuries each year.

There are specific procedures that can be followed for safely de-energizing equipment. Workers should:

- **Disconnect all sources of energy (including backup power sources such as batteries)**
- **Ensure that any stored energy has been released**
- **Place a physical lock on the source of energy to prevent it from being restored during maintenance**
- **Add a tag to this lock to visually communicate that the equipment is temporarily out of service and should not be turned back on**



In 1989, OSHA made the Lockout/Tagout procedure mandatory for all companies operating in the United States. It doesn't matter how large or small your company is; if you have machinery that presents potential injury or death due to accidental startup, you need to develop a Lockout/Tagout program for each piece of equipment in your facility.

Programs will vary according to industry, and should be unique according to the specific machinery involved. With a comprehensive Lockout/Tagout program for the machinery in your facility, you can make sure that workers are able to perform maintenance/service tasks comfortably and without fear of getting hurt.

Important note: In Lockout/Tagout, the individual who is actually conducting the work is responsible for their own safety. For example, if you are performing maintenance on electrical equipment, you are responsible for eliminating energy, locking out energy sources, and removing those locks once you're finished. No one else can perform these actions. In cases where more than one employee is working on a machine, each worker can take off only their specific lock/tag when their own work is completed.

### The Difference Between “Lockout” and “Tagout”



#### Lockout

“Lockout” utilizes physical locks to prevent employees from turning equipment back on or otherwise activating energy. These locks can be either key or combination type, but they should be standardized in color, shape, and size throughout a facility. As an example, a lockout box device can be set around an electrical plug then locked so a cord cannot be plugged in.

#### Tagout:

“Tagout” involves the use of tags as a type of visual communication to inform workers of servicing on equipment. These are prominent warning devices that are securely fastened to locks, plugs, breakers, and others in a location where they can be easily seen. Lockout/Tagout tags should also be standardized, and need to contain information such as the name of the worker who applied the tag, the date, and the reason for the equipment’s shutoff.

## Is one method more ideal and effective?

Yes. OSHA acknowledges that lockout provides better levels of safety and is more likely to guarantee the prevention of energy release. This is because lockout physically prohibits workers from accessing power cords, electrical panels, and other types of energy sources. If just tags are being used, the employer must demonstrate that these tags are able to provide full levels of protection.

Tagout is intended to enhance the safety measures of lockout by providing communication to employees. When someone sees that they are physically prevented from activating machinery, the tag will let them know why, to prevent any confusion. When used together, Lockout/Tagout ensures that workers stay informed and safe.

## When to Use Lockout/Tagout

There are certain situations that require Lockout/Tagout procedures. Most commonly, Lockout/Tagout is needed as equipment is being maintained or serviced. However, many injuries and fatalities occur in other circumstances when equipment should be completely disconnected from energy sources, and workers forget or disregard established Lockout/Tagout procedures.

Lockout/Tagout needs to occur anytime workers put any part of themselves near a machine's dangerous zones. In the past, workers have been injured when they have been cleaning vehicles that were not turned off or secured, or when they have attempted to clear jams or debris from machinery such as saws. Many incidents have occurred simply due to miscommunication, when a coworker unknowingly restored power or energy to a hazardous area that had not been cleared.

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A comprehensive Lockout/Tagout program should include visual communication such as wall signs, posters, and labels that remind workers to stay safe and always de-energize before entering or going near dangerous equipment. Workers should also be warned of areas that require Lockout/Tagout procedures before entering or exiting. These reminders can help establish a daily mindset that considers Lockout/Tagout in all situations, not just during times of maintenance.

## Types of Hazardous Energy

As you establish communication for Lockout/Tagout, it's important to include detailed instructions on the type of energy or power for each piece of equipment, and how to eliminate it. The Lockout/Tagout process is unique for every kind of machine, and some of them have multiple sources of energy.



Make sure all employees understand which types of hazardous energy are present:

- **Electrical energy, the most common source of energy. It may come from an electrical cable, or from a battery backup system. Lockout/Tagout is an integral aspect to electrical safety and protecting workers from injurious events such as arc flash.**
- **Hydraulic energy, force that is created by oil under pressure. This energy allows movement.**
- **Pneumatic energy, which is similar to hydraulic but formed using pressurized air. Some machines use pressure tanks to build up energy.**
- **Kinetic energy, motion of an object. Even though power is removed, a machine may still be susceptible to motion and gravity. Kinetic energy is critical to Lockout/Tagout.**
- **Thermal energy, energy in the form of heat. Even if it's not intended to activate a machine, thermal energy should be considered to prevent burn injuries.**
- **Chemical energy. Chemical reactions can store and release energy. For example, a reaction may cause a change in pressure or temperature, such as the burning of gasoline in internal combustion engines.**
- **Steam, an effective source of energy still used in many industries.**

In many cases, the best way to ensure all energy is eliminated from a machine is to implement checklists. Having a step-by-step list helps workers complete everything correctly in the proper order, which is especially critical if a machine involves multiple energy sources and hence a complicated Lockout/Tagout procedure.

## **Steps to an Effective Lockout/Tagout Program**

Lockout/Tagout programs will vary by facility and by machine. Your company may have several different Lockout/Tagout procedures, and it's important to tailor these procedures to the unique needs of the situation. There are however some general steps to take to make sure that Lockout/Tagout is conducted effectively. You may use these as a starting point for your own specific instructions in your facility.

Keep in mind that these are the minimum requirements of an energy control program. For complete OSHA compliance, a facility should evaluate its own situation and fully address the specific hazards that are present through detailed procedures, training, and periodic evaluation.

## Lockout/Tagout Training

### De-energization

- **Adhere to an established Lockout/Tagout procedure for each machine. This written procedure should have already determined every possible energy source present, exactly how these should be removed, and the safest way to conduct removal. It should also address exactly how Lockout/Tagout devices should be placed and include information on how to prevent the risk of restored energy.**
- **Ensure all energy is released. Disconnect the machine from its main energy source, as well as all other sources. You may have to take extra steps to release any stored/residual energy, and to secure moving parts.**
- **Complete Lockout/Tagout duties. Apply appropriate Lockout devices to all energy sources. The written Lockout/Tagout procedure should establish which devices a worker needs, and it is the responsibility of the employer to provide these devices. Attach a tag with the necessary information. If there is more than one person conducting maintenance, it is essential to have one tag for each individual.**
- **Provide visual communication to notify all employees. All workers who work with or around a machine should be notified of scheduled maintenance, and trained to understand what lockout devices and tags mean. You may further set up safety tape, warning signs, and Lockout/Tagout labels to visually remind workers to stay clear until work is completed.**
- **Check the maintenance checklist. Ensure that each item on the maintenance/servicing checklist has been completed, and that the maintenance team did not leave any tools, parts, or other items behind.**

## Re-energization:

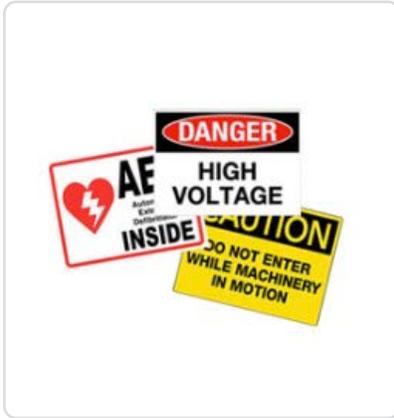
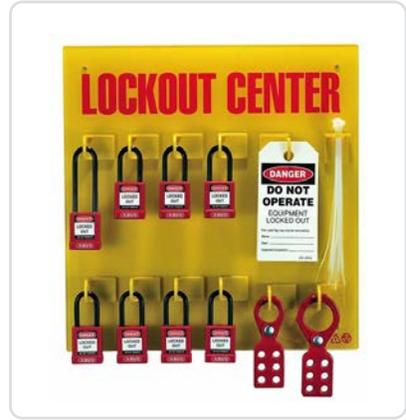
- Check all tags. Ensure that each tag and lock have been removed by the individuals who applied them. Machine operators should prepare to resume responsibility for the machine.
- Confirm that employees are clear. Check in either visually or audibly with each employee in the area to make sure everyone is positioned where they are supposed to be.
- Initiate power-up procedures. Once the checklists, Lockout/Tagout devices, and hazardous areas have been cleared, machine operators may undergo standard power-up procedure.

Each Lockout/Tagout procedure must be documented. These written documents ensure that instructions are easy to follow, and that workers complete tasks in a standardized manner.

According to OSHA 29 CFR 1910.147(c), a written energy control program should address:

- Purpose and scope of the program
- Existing energy sources and hazards
- Personnel authorized to perform Lockout/Tagout
- Lock removal procedures
- Group lockout procedures
- Shift transfer procedures
- Training methods
- Enforcement policies
- Method for auditing/updating procedures
- Coordination with outside contractors

The most important part of a facility's Lockout/Tagout program is the training for employees. OSHA requires that every employee should be educated on the proper use of tags and locks, which types of energy are present, and the correct steps to de-energize specific machinery within the facility.



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Even if workers aren't authorized to perform Lockout/Tagout themselves, they should have a comprehensive understanding of the facility's program and the prohibition related to restarting machines that have been locked out or tagged out. A critical aspect to this is being trained on the limitation of Tagout; tags are simply warning devices and are easier to be removed by a worker who doesn't understand what Lockout/Tagout is.

Unfortunately, Lockout/Tagout negligence is among the most common OSHA violations each year. Don't be fined for a Lockout/Tagout violation; ensure that the control of hazardous energy is executed properly in your facility.

## Evaluation

OSHA requires that employers must conduct annual inspections of their energy control procedure. These regular evaluations should:

- **Review the effectiveness of current procedures**
- **Identify any changes to job assignments or machinery that would require an update to the Lockout/Tagout program**
- **Determine whether employees are properly adhering to the program, and if additional training or enforcement is necessary**
- **Investigate reports of potential issues**
- **Aim for a system of ongoing improvement**

As you evaluate your program, make sure you also maintain your supplies of Lockout/Tagout items. Lockout/Tagout stations (also referred to as Lockout/Tagout centers) include everything you need, and make it simple to implement procedures. A station holds all the essential components: Lockout/Tagout locks, tags, informational booklets, and more. You can put your Lockout/Tagout stations either right next to each machine or in a central location for easy access.

## Tools for Your Lockout/Tagout Program

Creating a successful energy control program means having the right tools for the job. In addition to making Lockout/Tagout more effective, these products also make it easier to follow the steps of your facility's specific procedure.



### **A visual communication system helps workers stay safe.**

Communication is a vital aspect to any Lockout/Tagout program. Make sure your warnings and notices are industrial grade and OSHA compliant with a LabelTac® industrial label printer and Lockout/Tagout supply bundle. With a printer, you can create Lockout/Tagout signs and labels for your entire facility. ANSI compliant Lockout/Tagout supply and perforated tear resistant tag stock are both great options for this type of labeling project. These labels have compliant colors, phrases, and symbols to warn workers of danger. They also provide stark reminders not to energize equipment.



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## Mark out hazardous areas with SafetyTac®.

Floor tape enhances your Lockout/Tagout communication system by enabling you to indicate hazardous areas. Lockout SafetyTac® inline floor tape has phrases such as “Lockout Equipment Before Entering” and “Remember Lockout and Tagout Procedures” so workers can clearly see the areas where they must adhere to Lockout/Tagout. Inline floor tape doesn’t allow your workers to forget essential safety measures.



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## Lockout/Tagout items make it easy to implement your own unique program.

As you establish a Lockout/Tagout procedure in your facility, you'll need more than just simple padlocks. Some energy control points require something more complex, such as clamp-on breakers, lockout boxes, and ball valves. Hasps are another common Lockout/Tagout tool that maintenance workers use to isolate electrical valves or switches.

Tags can be complicated as well; it isn't enough to simply write a warning on a sheet of paper and stick the paper on machinery. Lockout/Tagout tags must be OSHA and ANSI compliant, as well as color-coded, resistant to chemicals and water, and standardized. You can invest in ANSI-compliant tag supply that provides an opportunity for workers to include their picture for easy identification. Or, invest in tags that contain pre-printed phrases such as "Do not open", "Electrician at work," and "Do not switch breaker on" to address the specific Lockout/Tagout program in your facility.

Lockout/Tagout kits make it easy to invest in everything you need, and keep all your tools in one place. These kits come with hasps, padlocks, tags and cable ties, gate valves, power plug lockout devices, and more. No matter how extensive your Lockout/Tagout program is, you can find all the tools you need to keep workers safe.



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