



ENABLE SAFER MACHINE INTERVENTIONS

Why this Guide?

Lockout/Tagout is an increasingly popular safety procedure to reduce accidents during machine interventions. When implemented well, the Lockout/Tagout procedure and tools enable safer machine interventions by completely isolating machinery from its energy sources. Lockout/Tagout effectively prevents machine movement and the accidental re-energising of machinery while interventions are ongoing.

Go for Zero

As an international manufacturer and provider of Lockout/Tagout solutions, Brady Corporation has seen Lockout/Tagout become a vital part of any ambitious Go for Zero – safety programme, aimed at maximally reducing accidents at work. Brady offers this guide to support companies on their journey towards world-class safety at work.



This Lockout/Tagout Guide book offers a broader insight in the implementation of the Lockout/Tagout safety procedure. How does the policy relate to the tools? What does a successful Lockout/Tagout programme imply? And what are the legal requirements? Page through the guide book for more information or contact Brady.

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Lockout/Tagout: What & Why?

What is Lockout/Tagout?

Lockout/Tagout is an important safety practice that involves de-energising electrical circuits, closing valves, neutralising extreme temperatures and securing moving parts so hazardous energy isn't re-introduced while equipment is being serviced. That way, your employees can get their job done as safely as possible to keep your operation running efficiently.

Why Lockout/Tagout?

Lockout/Tagout is an important safety component to your workplace. It is critical to safeguard workers and employees around the machinery and equipment they operate, service and maintain.

"A co-worker dies, and 160 others have a work-related accident, every 15 seconds."

(International Labour Organization, 2015)



The Benefits of Lockout/Tagout

Lockout/Tagout programmes are most successful when you look at the complete safety picture. That means making sure employee training, instructive procedures, the right products and a dedication to continuous improvement are all within scope of your Lockout/Tagout project. By taking this approach, you could realise great benefits throughout your organisation, including:

- **Saving lives** - Prevent time consuming incidents, injuries and fatal accidents.
- **Cutting costs** - Significantly decrease lost employee time and insurance costs
- **Improving productivity** -
Reduce accidents that cause equipment downtime

“313 million accidents happen on the job every year, 268 million of those resulting in at least 3 days absence from work”





6 steps to implement Lockout/Tagout

Now, where to begin? We believe that the best approach is to establish 6 essential elements of Lockout/Tagout safety and then use this base to continuously improve your programme.

A typical lockout programme includes creating, maintaining and updating machine specific procedures, energy control points, equipment lists and hierarchies, training and planning. To keep these tasks manageable, we split them into 6 key elements.

1. Create a Lockout/Tagout Policy
2. Write Machine Specific Procedures
3. Identify Energy Isolation Points
4. Training
5. Provide Proper Lockout/Tagout Tools
6. Sustainability

1. Create a Lockout/Tagout Policy

The first step to Lockout/Tagout success is developing and documenting an equipment energy control policy. A written lockout document is the skeleton of your overall lockout programme, it establishes and explains it. It's important to take into account international standards, relevant laws and industry regulations*, but also custom requirements for your employees that ensure they can understand and apply the programme in their working environment.

A Lockout/Tagout programme is not a onetime fix, it should be reviewed on an annual basis to ensure it stays relevant and effectively protects employees. Creating a Lockout/Tagout programme should be a collaborative effort from all levels of the organisation.



*More information on relevant laws and regulations on page 31

2. Write Machine Specific Procedures

It's important that lockout procedures are formally documented and easily identify the equipment covered. They should detail the specific steps necessary for shutting down, isolating, blocking and securing equipment to control hazardous energy, as well as steps for the placement, removal and transfer of Lockout/Tagout tools. (See pg 15 for more information on tools)

Going beyond compliance, we recommend creating best practice procedures that include machine-specific photos that unveil the location of any energy isolation points. Procedures should be communicated at the point of use to always provide employees with clear and visual instructions.

In addition, be sure your procedures are tailored to your workforce to help increase employee understanding. For example, you should post multi-lingual procedures if you have a multi-lingual workforce.

Brady offers writing services and softwares to support creating best practice machine specific procedures.



3. Identify Energy Isolation Points

Locate and identify all energy control points, including valves, switches, breakers and plugs, with permanently placed and standardised labels or tags. These points must be clearly marked. You should also keep in mind that these labels and tags should be consistent with the equipment-specific procedures from Step 2.

Hazardous Energies where Lockout/Tagout is the ideal means of control:

- Electrical
- Mechanical
- Pneumatic
- Hydraulic
- Liquid & gaseous chemicals
- Thermal
- Hot surfaces & substances
- Gravitational
- Equipment that may fall
- Stored energies

Brady offers on-site visits to help identify machine energy sources.



4. Training

Be sure to adequately train your employees, communicate processes and conduct periodic inspections to ensure your programme is running effectively. Training should include why you are organising Lockout/Tagout, what it is, what your Lockout/Tagout policy is and what your machine-specific procedures are. Training should be more intensive for employees who will perform Lockout/Tagout, but it is advised all employees at least get some communication about Lockout/Tagout. 3 employee categories are identified by OSHA (USA):

- **AUTHORISED** - Those who perform the lockout on machinery and equipment for maintenance.
- **AFFECTED** - Those who do not perform lockout requirements, but use the machinery that is receiving maintenance.
- **OTHER** - Any employee who does not use the machinery, but who is in the area where a piece of equipment is receiving maintenance.



Brady offers on-site trainings and a modular Lockout/Tagout training video that can be adapted to the audience.



Watch the video

5. Provide Proper Lockout Tools

The next element of your Lockout/Tagout programme is providing employees with the necessary devices to keep them safe. There are many products on the market, and selecting the most appropriate solution for your machinery is the key to Lockout/Tagout effectiveness. It's important to document and use devices that best fit each energy isolation or lockout point.



Brady provides a wide range of Lockout/Tagout tools and devices. Email emea_request@bradycorp.com for a free and complete Lockout/Tagout catalogue.

6. Sustainability

Last but not least, we recommend taking a continuous improvement approach to your Lockout/Tagout programme. By consistently reviewing it, you are creating a safety culture that proactively addresses safe machine interventions. This allows your company to focus on maintaining a world-class Lockout/Tagout programme, instead of starting from scratch each year and reacting only when something goes wrong. Make sure Lockout/Tagout is permanently communicated on the workfloor using posters or banners for example.



Lockout/Tagout Tools

7 Lockout/Tagout tools help you to quickly implement your Lockout/Tagout policy and machine specific procedures on the workflow.

- Services
- Software
- Devices
- Padlocks
- Tags
- Accessories
- Identification Printers



Services

Identifying energy points and writing machine specific Lockout/Tagout procedures can be time consuming. To create visually instructive and compliant safety procedures for your sites, Brady has an expert team of Field Engineers on standby to assist you on-site.

Brady's Lockout/Tagout procedure writing services start with determining the scope and focus of each customer's safety programme. Brady Field Engineers will identify equipment energy isolation point locations with colour-coded tags and collaborate with your staff throughout the process to help them understand how to maintain a compliant safety programme in the LINK360™ Software.



Software

It can be a great challenge to maintain, evaluate, properly scale and communicate safety procedures to make them available and adhered to in all facilities. This is essential for maintaining a safe workplace and reducing workplace accidents.

With LINK360™, Brady's Lockout/Tagout software, the process of managing, creating, reviewing, scaling and visualising safety procedures becomes a matter of clicks. LINK360 is an extremely powerful tool that enables the swift roll out of new or updated safety procedures across multiple sites and countries.



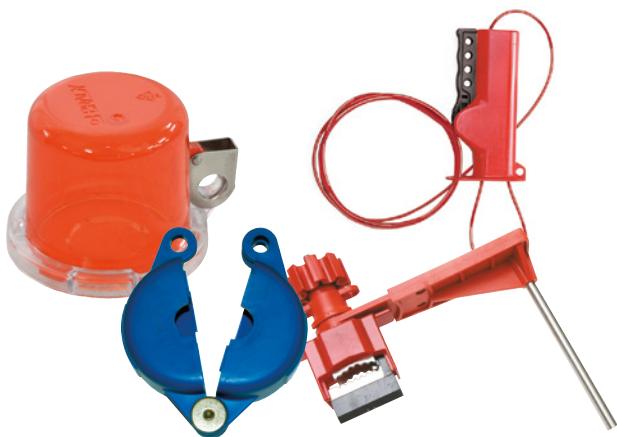
Watch the video



Devices

Machine energy control points are very diverse and include valves, buttons and levers. For most energy control points, a dedicated lockout device has been developed that locks it in the 'off'-position to isolate machinery from its energy. Moveable machine objects and rare energy control points can always be locked out with a universal lockout device.

Brady offers durable lockout devices for every energy control point. To determine which devices you might need, you may want to identify the energy control points for every machine on-site. Brady Field Engineers can offer support.



Watch the video



Padlocks

Lockout/Tagout padlocks exist in various materials, sizes, colours and casings. Colour coded padlocks can be interesting to identify which maintenance team is servicing a specific machine for example. Various padlock casings exist to optimise their durability and their user's safety in specific contexts. Some industries require padlocks with a high abrasion resistance, others will prefer non-conductive padlocks.

Brady offers a wide range of durable padlocks. They can be keyed different, keyed alike, and can be implemented with master and grandmaster keys, all in line with your Lockout/Tagout policy.

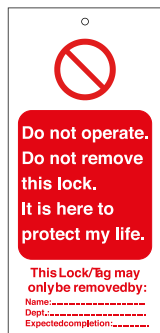




Tags

A tag can be attached to padlocks that isolate machinery and render it inoperable. This tag can communicate why a machine is locked out, who is servicing it, and how long this might take. In this way, co-workers are always aware of the importance of the lock and they know who to ask for more information if necessary.

Brady supplies full sets of Lockout/Tagout tags for on the spot communication.





Accessories

Accessories further support the implementation of Lockout/Tagout in your organisation. Hasps are particularly useful for larger teams who are servicing a single machine as they enable more people to add their padlock to a single lockout device. Lock boxes are interesting when larger groups of people or even various shifts are performing maintenance operations on the same machinery.

Also available from Brady are padlock centres to help distribute the right equipment to the right employees, belt pouches to easily carry a number of locks and Lockout/Tagout bags to move a number of devices.



Watch the video



Identification Printers

A thermal transfer on-site identification printer allows for fast labelling of every energy isolation point, padlock, device, tag and accessory. Clear identification will help professionals to quickly find isolation points, retrieve devices and personal padlocks faster, and apply Lockout/Tagout more efficiently.

Brady offers a wide range of thermal transfer standalone identification printers that offer durable, quality print in mono- or multicolour. Just walk up and print a new identification label. Connect your printer to Brady's label creation software to include a company logo, a picture or any custom image or font.



A man in a dark suit, light blue shirt, and red tie is pointing his right index finger at a digital interface. The interface consists of a vertical list of six square buttons. The second button from the top is highlighted with a bright white glow and a lens flare effect. The background is a blurred blue-grey.

Regulations

Compliance

Specifications

Standards

Policies

Laws & Regulations

Lockout/Tagout enables safer machine interventions and can help to make your company compliant. The following pages list relevant legislation that mentions Lockout/Tagout explicitly, or refers to the isolation or inoperability of machinery during interventions.

International

- **ISO 14118:** Prevention of Unexpected Start-Up. Keep a machine in a stopped condition while persons are present in danger zones.
- **IEC 60204:** Safety of Machinery (Electrical): Applies to the application of electrical, electronic and programmable electronic equipment and systems to machines not portable by hand while working.



European Union

- **EU Guidelines 89/655:** minimum requirements for safety and health while using equipment.
- **EN 1037:** norm for machine energy isolation to prevent equipment from re-energising.
- **Directive CEE 89/655:** safety regulations to protect employees servicing equipment.



United States of America

- **OSHA 29CFR 1910.147:** Control of Hazardous Energy
- **OSHA 29CFR 1910.333:** Electrical Safety
- **ANSI Z244.1-2003:** Lockout Tagout and Alternative Methods



EU Members

- **Austria: AschG** –ArbeitnehmerInnenschutzgesetz,
AM-VO – Arbeitsmittelverordnung 1 §17



- **France:** UTE C18-50, INRS Best practice
document November 2011: ED 6109



- **Germany:** Betriebssicherheitsverordnung,
Annex 1, Annex 2.



- **Italy:** Direttiva 2001/45/CE



- **Switzerland:** UVG, VUV, EKAS
Guideline no. 6512



- **Spain:** Real Decreto 1215/1997,
BOE n° 188 07-08-1997



- **United Kingdom:** BS 7671:2008





Checklists

The following pages contain 3 checklists to help you determine if your Lockout/Tagout programme is ready.

- 7 steps to safely service a machine
- The Lockout/Tagout Scavenger Hunt
- Lockout/Tagout Maturity Model



7 steps to safely service a machine

When locking out a piece of equipment, it is essential to follow these 7 steps in order to be compliant and safe:

1. Notify affected employees of your intent to lock out the equipment
2. Review the written lockout procedure
3. Perform the normal machine stop
4. Shut off all energy isolation controls
5. Lock out the energy isolation controls
6. Dissipate any stored or residual energies
7. Verify the zero-energy state to safely begin servicing



The Lockout/Tagout Scavenger Hunt

Now that you know the elements you need – let's put your facility to the test. Take a walk around your workplace and check to see if you have the following items:

- Machine-Specific Procedures: Are your employees trained on them?
- Fully Stocked Lockout Tagout Stations: Are they updated?
- Permanent Identification Labels: Are they easily identified?
- Locks, Tags & Devices: Were they easy to find and the proper devices for the types of equipment?
- Tutorial or Training Posters: Do these align with your employee training?
- Corporate Safety Messaging: Could your employees easily define these?

Did you find them all? Great! Where you missing a few?

This is your chance to update what is needed and begin your continuous improvement journey. Next, ask a few of your employees to perform the same scavenger hunt. This will help you determine how well they understand your lockout programme. After all, your employees are the ones responsible for performing lockout tasks. If they can't easily spot the device or procedure necessary, then it is likely out of sight, out of mind.

Lockout/Tagout Maturity Model

Stage 1

1. PROGRAMME/POLICY

"We do not have a written programme, but we have a general, site-based policy that my employees use to lockout their equipment."

2. PROCEDURES

We rely on a site-based lockout procedure, which can be accessed by employees. I'm unsure if adjustments have been made recently."

3. ISOLATION POINTS

"Some points are identified and labelled, others aren't. It really depends upon the machine."

4. TRAINING

"We do not have a standard training programme. Current operators train new ones on the procedure. We don't worry about contractors."

5. DEVICES

"We have a number of lockout devices and we use whatever fits. We do not maintain a list of equipment and lockout devices needed."

6. SUSTAINABILITY

"We haven't made any adjustments to our procedures or lockout programme since they were created. "

To check how far your facility has pushed safer machine interventions with Lockout/Tagout, Brady developed a maturity model based on best practices and observations in the field.

Stage 2

"We have a site-based programme and machine-specific lockout procedures. Procedures are stored in an Excel file and the policy is posted around the plant."

"We have machine specific procedures that were developed internally and can be accessed by employees. Anytime a procedure is audited, we add new equipment procedures as needed."

"Most energy isolation points are labelled or tagged."

"Employees and contractors receive an orientation on the overarching company safety policy and the site-based procedures, including a lockout device training. This training is documented."

"When our procedures were written, we received product suggestions and purchased accordingly. We maintain a spreadsheet of what equipment is used and what lockout device is needed."

"We audit our procedures and update our programme in the event of an issue or incident."

Stage 3

"We have a corporate policy and documented machine specific procedures. Both are posted for our employees to reference. Our protocols are reviewed regularly to ensure compliance."

"Our machine specific procedures include both written and visual components. They are posted close to the respective piece of equipment. New equipment is never energised before a new procedure is drafted."

"All energy isolation points are tagged and referenced in the machine-specific procedure."

"All new, transferred and contracted employees receive the orientation. We specified training tracks for affected and authorised employees, which include a hands-on lockout device module. Training is logged and I receive prompts when retraining is required."

"Tools needed to lock out a machine are visually documented next to every machine. We use an asset management system and have lockout stations in key positions in the facility."

"The programme is tracked continuously and audited yearly. New equipment is always incorporated into the company policy and a machine-specific lockout procedure is drafted."

Brady Your complete Identification Solution Provider



Lockout/ Tagout solutions: Brady offers full support and a broad range of products to create your advanced work safety environment.



Safety signs: We offer more than 8000 different signs for safety, maintenance and facility identification.



Smart spill control: Clean, fast and safe removal of oil, water and chemicals spills.



Pipe markers: Easily identify pipe content and flow direction.



Hazardous substance symbols: Highly visible CLP / GHS symbols for you to make sure to comply with the CLP / GHS Regulation.



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Korea 82-31-451-6600
Latin America 1-414-540-5560
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EUR-M-797-EN

08/01/2016



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