

## Lock out, Machine guards & safety interlocks and Emergency stops

**Lockout;** protect employees during e.g. maintenance and jam clearing!

### Machine guards & safety interlocks:

those are to protect employees during normal operation!

- Protect people against accidental contact with hazardous parts of machines
- Make procedure that ensure all guards and covers remain in place when machines are pirated
- Interlocking, proximity and other safety switches must be periodically tested
- Display warning signs of the dangers of removing guards
- All guards must remain in serviceable condition

**! Interlock and machine guarding are not “lock-” points and must never be used for lockout purposes !**

**! If a machine guarding has to be removed, mostly lockout is required !**

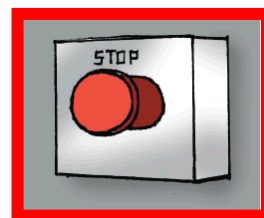
Lockout is not always required during **normal operating work**; those are “routine, repetitive, and integral to the use of the equipment”. For instance, lockout is not required each time material is added to a baler.

Follow these steps in making a decision about whether or not lockout is required during Normal Production Work:

- Is there a risk of injury to workers from the movement of equipment or exposure to an energy source while the activity is carried out?
- No risk of injury → lockout is not required (e.g. an operator would normally be in view of their control panel at all times)
- Risk of injury and equipment is effectively safeguarded → lockout is not required.
- Safe work procedures must be followed during the activity.

### Emergency stops

- Stops a machine in a hurry.
- Can be reached by the operator easily
- Secondary emergency stops in hazardous positions
- Remote emergency stops can be shut down from another area
- Never by-pass any machine’s STOP button, even for a short time
- Emergency Stops are clearly labelled in red. Labels or signs should be large, clean and bright
- All staff must know where emergency stop buttons are positioned
- Emergency Stop Buttons must be free from obstruction



**! Emergency stops are not “lock-” points and must never be used for lockout purposes or normal operational stop !**

## Lock out and exceptions

### Exceptions on Lockout

#### Small cord and plug equipped equipment!

How to rendering the equipment inoperative while working (maintenance) on the equipment:

- disconnect the plug
- keep the plug in sight and within reach so that no one else can accidentally plug in the equipment
- keep the plug under his or her exclusive and immediate control at all times.

Leaving the equipment unattended and the work is incomplete, disconnect plug from its supply

**! Permanently connected equipment must be locked out !**

#### Working on live equipment!

- Making fine adjustments and troubleshooting
  - Only the parts that are vital to the maintenance process may remain energised.
  - After faultfinding, lockout must be performed
- Lubricating or adjusting moving equipment or machines are done on live equipment, specific task procedure(s) must be in place, personnel must be trained, tested and declared competent to perform such tasks and they must furthermore be equipped with supporting tools to mitigate risk.
- Risks must be analyzed and the safety of employees may not be compromised.
- When performing a task on live equipment there must be a second person in the area who has visual control on the performer.




#### Temporarily activation! Activate equipment that was locked out;




- For a short period to move a piece of equipment
- To test a part of the machine




#### Temporarily activation and different steps:




1. All team members and other present people vacate the installation/ area of danger.
2. Removal of all personal isolation locks from the key safe / lock box. This action states that they are not locked out anymore and may not enter the machine.
3. Post “guards, watch man” in strategic places to ensure that no person is able to enter the machine / danger area. These watch persons must remain on guard until the equipment is locked out again.
4. Only the part / piece of equipment may be activated and key/s make available. The rest of the keys of the equipment that remains locked out, must be protected by locking it out again with his/her lock on the key safe / lock box of the team.
5. After task, the energy source/s must be locked out again and the keys returned and locked out on the key safe / lock box.
6. All personal isolation locks on the key safe / lock box.
7. The “guards, watch man” may be removed and the team may enter the machine and continue to work.




## Consider these questions during auditing




- 






**Are emergency stops used for isolation purpose?**
- 






**Is an interlock system considered as an “lock” point?**
- 






**If a machine guarding has to be removed, is lockout than required?**
- 






**Do SOP exist when at risk normal operation are performed?**
- 



**Do operators know the position of the emergency stops?**
- 



**Are permanently connected equipment capable to be locked out ?**
- 



**Are small cord and plug equipment disconnected when unattended?**
- 



**Are specific task procedures written for working on live equipment?**
- 



**Is after faultfinding and before repair, lockout performed?**
- 



**Is there a procedure for temporarily activation of an isolated equipment?**

**This listed points are the minimum to be checked during an audit.**