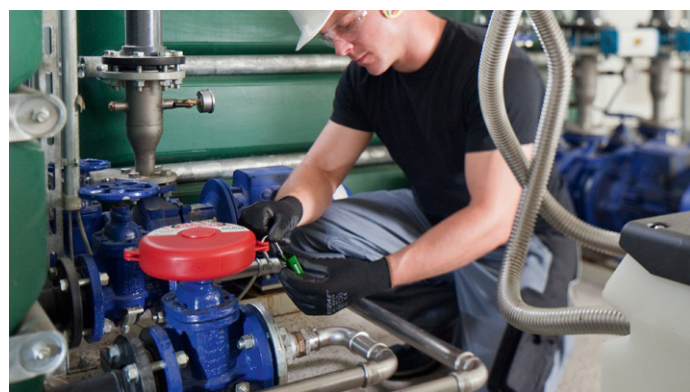


PROVIDING SAFETY

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Lockout – Tagout – Tryout Manual



Introduction

Nowadays more and more companies are implementing lock out – tag out – try out (LTT). The question that nearly everybody faces is: “How?”. With this manual we will try guide you through the process of setting up a first draft of a LTT-program.

The rollout of a LTT program consists of 3 steps:

1. Preparation of a LTT manual including all procedures
2. Training the personnel
3. Implementing the program

With this document we hope to have given you a good base to be able to successfully implement the 3 steps above. Of course we are more than willing to assist you in this process and advise you with choosing the right products.

Unique Safety Products underlines that this document does not give guarantee for 100% compliance with all applicable laws and regulations. This is only a first draft which you will have to work out to the situation as it applies to your business.

Company name (8x)	Your company name
Safety person (17x)	Name of this person in your company
Area supervisor (19x)	Direct supervisors (for example: shift supervisor or production managers)
Appropriate department (3x)	Your actual department which is performing and inspecting the LTT program
Number(1x)	Number of years to keep on file
Type locks (5x)	Type of padlocks that are used in your company

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Introduction

The European Directive 89/655/EEC (the latest version EU Directive 2009/104/EC) lays down minimum requirements for safety and health at work for the use of work equipment by workers. This concerns all used machinery, equipment, tools or installations and any activity related to such equipment.

According to this directive the employer shall take the necessary measures to make sure that the equipment provided is suitable for the work to be performed. If this is not the case, they should be adjusted so that the safety and health of workers during the use of such equipment can be ensured. If it is not possible then the employer shall take appropriate measures to reduce risks to a minimum.

The directive contains general articles on workplace ergonomics, information and training of workers, periodic inspection of work equipment and specific skills that employees must have to work with work equipment that could cause a threat to safety or health.

In addition there are a few examples that should be specifically mentioned.

Appendix 1 – § 2.14: All work equipment must be fitted with clearly identifiable means to isolate it from all its energy sources.

Appendix 1 – § 2.16: To carry out production, adjustment and maintenance operations the employees must be able to reach all necessary parts of the equipment under constantly secure conditions.

In order to ensure that there is compliance with the above mentioned directive LTT is a possible solution. **LTT is a predefined safety procedure whereby the energy supply of industrial machinery and equipment is turned off while cleaning, maintenance or repair work is performed.** In the European Directives only the minimum requirements are mentioned and they do not address a specific embodiment of the methods / components to be used. The OSHA standard 1910.147 is a bit more specific on these requirements. This standard specifies the following about lockout and tagout devices:

- They must be identified as individual devices;
- They must be the only devices for controlling energy sources;;
- They must not be used for other purposes and comply with the following requirements: durable, standardised, substantial, identifiable.

Durable: Devices must be capable of withstanding the environment to which they are exposed for the maximum time of exposure expected.

Standardised: Devices shall be standard in a facility, either by colour, shape or size.

Substantial: Devices must be sufficiently substantial to resist removal without the use of excessive force or unusual techniques, such as using cutting pliers.

Identifiable: Devices must indicate the identity of the employee.

In this manual we have tried to combine the best of above mentioned approaches in order to create a proper LTT program.

Chapter 1; Goal

1.1 Why this LTT manual?

This manual outlines the requirements for the control of hazardous energy (LTT) as required by OSHA standard 29 CFR 1910.147 and the European laws and regulations. These standards require controls to be utilized to guard against the unexpected energizing, start-up or release of stored energy in machines and equipment that are being serviced. All energy sources must be isolated and rendered inoperative before maintenance or servicing can begin. The release of such energy could cause significant harm or death.

In order to isolate and render an energy source inoperative, a lockout device, lock and a warning tag must be used to lock the energy source out and warn against re-energizing the equipment being serviced. Every employee that will be working on the machine must apply a lock and/or tag to the energy isolating device. It is the duty of each employee to become familiar with this program and to follow stated procedures.

1.2 Scope

Company name is committed to providing the employees the tools necessary to ensure a safe workplace. This policy applies to all **Company name** employees and the LTT procedures outlined in this policy should be followed every time the following activities are being engaged:

- Installing,
- Adjusting,
- Repairing,
- Servicing,
- Cleaning,
- Testing,
- Inspecting or
- Upgrading of machinery or equipment.

During production there also may occur operations that require the use of LTT. This will be in situations.

- Where (a part of) the guarding and / or other safety components have to be removed or bypassed or
- Where an employee has to move his or her (parts of the) body within the working parts or danger zone of the machine or installation.

There are other activities that could require the LTT procedures and employees should inquire with their **Area supervisor** when in doubt.

Chapter 2; Definitions

Activated: Connected to an energy source or under the presence of residual or stored energy.

Affected employee: An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under LTT, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

Authorized employee: An employee who locks or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include servicing or maintenance covered under this section. Authorized employees will be given such responsibilities when **Safety Person** has determined appropriate training and knowledge has been received.

Energy isolating device: A device which enables you to use lockout and / or tagout in order to isolate and lock the energy source.

Energy source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Lockout: The placement of a lockout device on an energy isolating device, in accordance with the procedure stated in this policy, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device: A device that utilizes a positive means such as a lock, either key or combination style, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment.

Other employees: An employee whose operations (possibly) take place in an area where LTT is used. These employees should be instructed about LTT in such a way that they would never try to start machinery or equipment on which lockout and / or tagout devices are installed.

Tagout: The placement of a tagout device on an energy isolating device, in accordance with the procedure stated in this policy, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout device (warning sign): A specially designed warning sign / label, attached to or near an energy isolating device to indicate that this device and the isolated machinery or equipment must not be operated.

Hoofdstuk 3; Authorization and Training

3.1 Safety Department

All employees of Company Name will receive education and training for the LTT procedures. Safety Person will provide such training via training videos, classroom meetings, booklets, this policy and any other viable means necessary. The content of this will be determined by the Safety Person and the Area supervisors. Safety Person shall certify that employee training has been accomplished and is being kept up-to-date. The certification shall contain each employee's name and dates of training. Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or process that presents a new hazard, or when there is a change in energy control procedures. Retraining shall establish employee proficiency and introduce new or revised control methods and procedures as necessary.

3.1.1

Safety Person will ensure required reviews and inspections are completed according to this policy (See chapter 12).

3.1.2

Safety Person will be responsible for the exchange of LTT procedures with outside contractors and provide appropriate training of outside contractor's procedures to Company Name's employees.

3.2 Area supervisor

Area Supervisors will authorize their employees to perform LTT. Area supervisors will appoint primary responsibility to one authorized employee when group lockout is performed. Area supervisors will also perform removal of locks and tags when the authorized employee is unable to perform such task (see chapter 7). Area supervisors will provide locks and appropriate lockout devices to authorized employees.

3.3 Authorized employees

Authorized employees will receive necessary training from Safety Person and implement procedures outlined in this policy when LTT is necessary. Authorized employees will apply and remove locks and tags according to this policy and will perform independent verification of LTT when required.

3.4 Affected employees

Affected employees will receive necessary training from Safety Person on LTT procedures. Affected employees will be notified of LTT by their Area supervisor.

3.5 Other employees

Other employees will receive the necessary training from **Safety Person** on LTT procedures and they will be aware of the fact that they must never try to start machinery or equipment on which lockout and / or tagout devices are installed.

Chapter 4; Energy Assessment Forms and LTT Procedure Forms

Safety Person, authorized employees and **Area supervisors** will complete an Energy Assessment Form (Appendix A) for every machine and all equipment located throughout **Company Name**. These forms should be filled out prior to LTT, kept on file in **Appropriate Department**, and referenced for LTT Procedure Forms (Appendix B). When a LTT is required, **Safety Person**, authorized employee and **Area supervisor** will complete a LTT Procedure Form for corresponding equipment utilizing stated procedures in Section 5. Upon completion of the LTT, the LTT Procedure Form should be kept on file in the **Appropriate Department** for **Number** of years.

Chapter 5; LTT Procedures

5.1 Preparation for shutdown

All affected employees must be notified that LTT is going to be utilized. Before the authorized or affected employee turns off the machine or equipment, the authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy. Please see Appendix B.

5.2 Machine or equipment shutdown

The machine or equipment shall be turned off or shut down using the procedures established for the machine or equipment. An orderly shutdown must be utilized to avoid any additional or increased hazard(s) to employees as a result of the equipment stoppage.

5.3 Machine or equipment isolation

All energy isolating devices that are needed to control all energy to the machine or equipment shall be provided by the area supervisor. Devices shall be operated in such a manner as to isolate the machine or equipment from the energy source(s).

5.4 Lockout or tagout device application

5.4.1

Lockout or tagout devices shall be affixed to each energy isolating device by authorized employees.

5.4.2

Lockout devices, where used, shall be affixed in a manner that will hold the energy isolating devices in a "safe" or "off" position.

5.4.3

Tagout devices, where used, shall be affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited.

- Where tagout devices are used with energy isolating devices designed with the capability of being locked, the tag attachment shall be fastened at the same point at which the lock would have been attached.
- Where a tag cannot be affixed directly to the energy isolating device, the tag shall be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.

5.5 Stored energy

Following the application of lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, and otherwise rendered safe.

5.5.1

If there is a possibility of re-accumulation of stored energy to a hazardous level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.

5.6 Verification of isolation

Prior to starting work on machines or equipment that have been locked out or tagged out, authorized employees must verify the proper placement of the energy isolating device and the de-energization of the equipment. Authorized employees shall perform any equipment specific test to confirm that any hazardous energy has been released. After testing, all operating controls shall be returned to the “safe” or “off” position.

Chapter 6; LTT Rules

6.1 Procedures

Each department, building, location, etc. utilizing this policy for the control of hazardous energy, must establish and document site-specific procedures for the isolation of energy for all machinery and equipment in that area. The procedures should follow those outlined in this policy (see chapter 5).

6.2 Material

For the safety of our employees and to comply with OSHA's standard, locks used for LTT must be uniform by color, shape or size. **Company Name** has decided to use **only Type locks** for the purpose of LTT. This uniformity of **Type locks**, company-wide, will ensure that all employees know when a lockout is in place. Only **Type locks** can be used for lockout and **Type locks** CAN NOT be used for any other purpose in our facilities.

6.3 Removal of material

No employee shall remove another employee's lock or tag (see chapter 8).

6.4 Authorization

Service on any locked out machine or equipment shall not be performed by any employee other than the authorized employees.

6.5 Use of tagout

If an energy isolating device is capable of being locked out, the authorized employee should perform lockout according to the procedures listed in this manual. If the **Area supervisor** can demonstrate that the use of the tagout procedure will provide their employees full protection from the hazardous energy source then a tagout is permissible.

6.6 Attaching tagout

When a tagout device is used on an energy isolating device that is capable of being locked out, the tagout device shall be attached at the same location that the lockout device would have been attached.

6.7 Limitations of tagout

When tagout systems are used, employees shall also be trained in the following limitations of tags:

6.7.1

Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.

6.7.2

When a tag is attached to an energy isolating device, it is not to be removed except by the authorized employee responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.

6.7.3

Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.

6.7.4

Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.

6.7.5

Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.

6.8 Maintenance and inspection of LTT devices

Keeping the LTT devices intact and complete will be done by the **Area supervisors**.

There will be a weekly visual inspection on the completeness of all of the LTT devices.

There will be a monthly inspection on the functionality of all of the LTT devices.

Chapter 7; Lockout Tagout Devices

7.1.1 Minimum requirements

Specialized lockout tagout devices shall be purchased and kept within each department, building, location, etc. of **Company Name. Area Supervisors** will work with the **Safety Person** to determine the appropriate devices needed for all equipment within each area.

7.1.1

Devices shall be used for no other purpose than LTT.

7.1.2

Lockout and tagout devices shall be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.

7.1.3

Tagout devices shall be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag to become illegible.

7.1.4

Tags shall not deteriorate when used in corrosive environments such as areas where acid and alkali chemicals are handled and stored.

7.1.5

Lockout and tagout devices shall be standardized based on **Type locks**; and additionally, in the case of tagout devices, print and format shall be standardized.

7.1.6

Lockout devices shall be substantial enough to prevent removal without the use of excessive force or unusual techniques.

7.1.7

Tagout devices, including their means of attachment, shall be substantial enough to prevent inadvertent or accidental removal. Tagout device attachment means shall be:

- of a non-reusable type
- attachable by hand
- self-locking
- non-releasable with a minimum unlocking strength of no less than 50 pounds
- having the general design and basic characteristics of being at least equivalent to a one-piece, all environment-tolerant nylon cable tie.

7.1.8

Lockout devices and tagout devices shall indicate the identity of the employee applying the device(s).

7.1.9

Tagout devices shall warn against hazardous conditions if the machine or equipment is energized and shall include a legend such as the following: “Do Not Start.” “Do Not Open.” “Do Not Close.” “Do Not Energize.” “Do Not Operate.”

Chapter 8; Release from LTT

8.1 Procedures for removing lockout and / or tagout devices

After completing required maintenance/service, the authorized employee(s) shall use the following procedures to remove LTT devices and return operations back to normal.

8.1.1

Inspect area to ensure nonessential tools have been removed and that all personnel are clear of the equipment.

8.1.2

Inspect equipment to ensure that machine or equipment components are operationally intact.

8.1.3

Notify affected and other employees that the LOTO devices are being removed and the machine or equipment is ready to be energized.

8.1.4

Each authorized employee shall remove their respective LOTO device. Employees are not permitted to remove anyone's LOTO device but their own.

8.1.5

The machine or equipment can be energized and started.

8.2 Procedures for removing another person's LOTO device

When the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed under the direction of the employee's immediate Area supervisor. Specific training and procedures for such removal shall be provided by Safety Person. The procedures and training shall be documented. The documentation shall demonstrate that safety equivalent to the original process of having only the authorized employee remove the device is maintained. The specific procedure shall include at least the following elements.

8.2.1

Verification by the immediate Area supervisor that the employee who applied the device is not at the facility.

8.2.2

Making all reasonable efforts to contact the authorized employee to inform them that his/her lockout or tagout device has been removed.

8.2.3

Ensuring that the authorized employee has this knowledge before they resume work at the facility.

Chapter 9; Testing or Positioning of Machines, Equipment or Components

9.1 Procedures for testing or positioning of machines, equipment or components

In situations where lockout or tagout devices must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the equipment or component thereof, the following sequence of actions shall be followed. The **Area supervisor** and all authorized employees that placed a LOTO device must be present. The procedure must at least contain the following elements.

9.1.1

Clear the machine or equipment of tools and materials.

9.1.2

Remove employees from the machine or equipment area.

9.1.3

Remove the lockout or tagout devices.

9.1.4

Energize and proceed with testing or positioning.

9.1.5

De-energize all systems and reapply energy control measures to continue the servicing and/or maintenance.

Chapter 10; Group-LTT

10.1 Procedures for group-LTT

When servicing and/or maintenance is performed by a crew or department, the **Area supervisor** will appoint a lead authorized employee for group LTT. The lead authorized employee will coordinate the activities of all members of the group. The procedure must at least contain the following elements.

10.1.1

A multi-lock accepting device will be place on the energy isolating device by the lead authorized employee.

10.1.2

The lead authorized employee will place his/her lock on the multi-lock device.

10.1.3

Each authorized employee will place their personal LOTO device to the multi-lock device before beginning work and shall remove their device at the end of their work shift.

10.1.4

When all service and/or maintenance work is complete, each authorized employee shall remove their LOTO device and the lead authorized employee will remove his/her lock last.

10.1.5

The lead authorized employee will remove the multi-lock accepting device from the energy isolating device. The machine or equipment can be energized and activated again (see chapter 8).

Chapter 11; Shift or Personnel Changes

When shift or personnel changes occur while equipment is under LTT, then **Safety Person** and **Area supervisor(s)** shall confirm that procedures are implemented to ensure continued employee protection throughout shift and employee changes. Authorized employees entering the work area must affix their locks in place before departing employees remove their locks. Verification of LTT must be performed on each shift before any work begins. This verification must be performed by the lead authorized employee for the oncoming shift.

Chapter 12; LTT Procedure Review

12.1 Review

Company Name will conduct a review of this policy and stated procedures on at least an annual basis to ensure the safety of our employees and compliance with the applicable laws and standards.

Safety Person, Appropriate Department and an authorized employee (not directly involved in the utilization of the energy control procedure being inspected) will perform the periodic inspection. The inspection will include a review, between **Safety Person** and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected. The employer shall certify that the periodic inspections have been performed. The certification shall identify the machine or equipment on which the energy control procedure was being utilized, the date of the inspection, the employees included in the inspection, and the person performing the inspection.

12.2 Documentation of review

Documentation of review shall include the machines or equipment on which LTT was used, date of the inspection, employees involved in the inspection, and name of inspecting employees.

Appendix A: Energy Assessment Form

Machine / Equipment:

ID number:

Type of energy	Magnitude of energy	Location	Stored energy ¹	Energy isolating device's needed
Electrical	V	A		
	V	A		
	V	A		
	V	A		
Mechanical	hp	lb		
	hp	lb		
	hp	lb		
	hp	lb		
Pneumatic	psi			
	psi			
	psi			
	psi			
Hydraulic	bar			
	bar			
	bar			
	bar			
Other				
Other				
Other				

¹ Stored energy in the form of a battery, spring, capacitor, etc

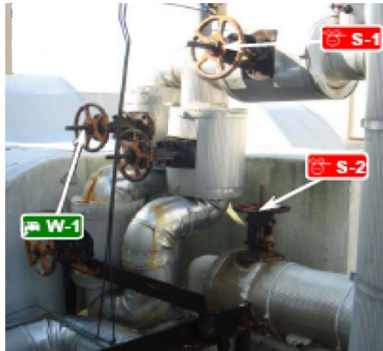
Appendix B: LTT Procedure Form

LTT Procedure USP-001234		Developed by: RV Reviewed by: RV Revised by: RV		
Machine number 0123456789		Machine description: Air Handler Unit AHU1		
Building Main building	Locatie: Dak	Rev.nr.: 1	Date rev: 02-03-11	Origin Date: 07-08-09

SUPPLIES	Labels 4 x S497LNL	 X ...
Padlocks 4 x 410KAMKRED	Devices 3 x 483	 X ...

Reviewed and approved 09-08-2011 A. Jansen	NEXT AUDIT DUE AUG 2012	NEXT AUDIT DUE AUG 2013	NEXT AUDIT DUE AUG 2014	NEXT AUDIT DUE AUG 2015
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South Side View	North Side View	Photo
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		<i>You can add a photo here...</i>
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! ALWAYS PERFORM A MACHINE STOP BEFORE LOCKING OUT DISCONNECTS !

ID	Source	Device	Location	Method	Check
 E-1	Elektrical 480V	1 x 410KAMKRED 1 x S3431LNL	Isolation point on south side of AHU1	Move E-1 disconnect to off. Apply lock and tag.	Verify machine is de- energized.
 W-1	Chilled water Inlet 4 bar	1 x 410KAMKRED 1 x S3431LNL 1 x 483	Isolation point on north side of AHU1	Turn W-1 valve to closed position. Apply device, lock and tag.	Verify pressure has bled off.
 S-1	Steam Inlet 2,3 bar	1 x 410KAMKRED 1 x S3431LNL 1 x 483	Isolation point on north side of AHU1	Turn S-1 valve to closed position. Apply device, lock and tag.	Verify pressure has bled off.
 S-2	Steam Outlet 2,3 bar	1 x 410KAMKRED 1 x S3431LNL 1 x 483	Isolation point on north side of AHU1	Turn S-2 valve to closed position. Apply device, lock and tag.	Verify pressure has bled off.
	Thermal Energy 300°C	Be sure to wait until heat has dissipated from machine before servicing. Wear proper PPE before beginning work.			

! OPENING A GUARD DOES NOT CONSTITUTE A LOCKOUT !

Any machine modifications must be shown in procedure.
Contact Safety person to update procedure

Appendix C: Symbols

Elektricity	Gas	Pneumatic	Steam	Water	Valve	Control Panel
 E-1	 G-1	 P-1	 S-1	 W-1	 V-1	CP-1
 E-2	 G-2	 P-2	 S-2	 W-2	 V-2	CP-2
 E-3	 G-3	 P-3	 S-3	 W-3	 V-3	CP-3
 E-4	 G-4	 P-4	 S-4	 W-4	 V-4	CP-4
 E-5	 G-5	 P-5	 S-5	 W-5	 V-5	CP-5
 E-6	 G-6	 P-6	 S-6	 W-6	 V-6	CP-6
 E-7	 G-7	 P-7	 S-7	 W-7	 V-7	CP-7
 E-8	 G-8	 P-8	 S-8	 W-8	 V-8	CP-8
 E-9	 G-9	 P-9	 S-9	 W-9	 V-9	CP-9

Appendix D: LTT devices

Padlock
Art.nr. 410KAMKRED



Tag
Art.nr. S3431LNL



Valve lockout device
Art.nr. 483



Multi lockout hasp
Art.nr. 421



Type
Art.nr.

Picture

Type
Art.nr.

Picture