LOCKOUT / TAGOUT

Machine-Specific Energy Control Procedure Pack

Free template pack: a fill-in procedure, a worked example, an energy-source checklist and a periodic inspection record.

What's inside

- Part 1 — Blank machine-specific procedure template (one per machine)
- Part 2 — Worked example: belt conveyor with VFD, pneumatic diverter and gravity take-up
- Part 3 — Energy-source identification checklist (use before you write the procedure)
- Part 4 — Periodic (annual) procedure inspection record

Why machine-specific procedures matter

In the US, OSHA 29 CFR 1910.147(c)(4) requires documented energy control procedures that clearly and specifically outline the scope, purpose, authorization, rules and techniques for controlling hazardous energy. The procedure must cover shutdown, isolation, blocking and securing; placement, removal and transfer of lockout devices; and testing to verify that the lockout is effective. Missing machine-specific procedures are among OSHA's most frequently cited lockout failings.

In the UK, PUWER regulation 19 requires means of isolating work equipment from all energy sources, and HSE guidance HSG253 (The safe isolation of plant and equipment) describes how to plan and document safe isolation.

How to use it

1. Walk the machine with the Part 3 checklist. List every energy source, including stored and gravitational energy.
2. Copy Part 1 and fill in one procedure per machine. Photograph each isolation point and add the photos.
3. Have an authorised person perform the procedure on the machine and confirm every step works, especially verification.
4. Post a one-page summary at the machine and keep the full procedure where authorised employees can reach it.
5. Inspect each procedure at least annually and record it on Part 4.

> Important: this is a drafting template, not a substitute for competent judgement. The employer is responsible for the procedure's accuracy. Every procedure must be verified on the actual machine by a competent, authorised person before use, and reviewed whenever the machine is modified.

Part 1 — Energy Control Procedure

Equipment name	
Equipment ID / asset no.	
Location	
Procedure no. / revision	
Prepared by / date	
Approved by / date	
Next review due	

Purpose and scope

This procedure establishes the minimum requirements for the lockout of energy isolating devices on the equipment above whenever maintenance or servicing is done. It must be used to ensure the equipment is stopped, isolated from all hazardous energy sources, and locked out before any employee performs servicing or maintenance where unexpected energisation, start-up or release of stored energy could cause injury.

Energy sources

#	Energy type	Magnitude	Isolation device & location	Lock / device	Stored energy action	Verification
E1						
E2						
E3						
E4						
E5						
E6						

Authorised and affected employees

Authorised employees (trained to lock out)	
Affected employees (must be notified)	

Sequence of lockout

1. Notify affected employees that the equipment will be shut down and locked out, and why.
2. Shut the equipment down by the normal stopping procedure: _____.
3. Operate each energy isolating device listed above (E1–E6) so the equipment is isolated.

4. Apply a personal lock and tag to each isolating device. Each person working applies their own lock.
5. Release, restrain or dissipate stored energy as listed (bleed air, block raised parts, discharge capacitors, allow to cool).
6. Verify isolation: confirm no personnel are exposed, then try the normal start controls; test for absence of voltage with a proven tester; check gauges read zero. Return controls to OFF/neutral.
7. The equipment is now locked out.

Restoring equipment to service

1. Check the area: tools removed, guards reinstalled, equipment intact.
2. Ensure all employees are safely positioned or removed from the area.
3. Notify affected employees that locks are being removed.
4. Each person removes their own lock and tag. Re-energise in the order: _____.

Shift change, group lockout and lock removal

Shift change handover method	
Group lockout method (e.g. lock box)	
Removal of an absent person's lock (who authorises, how)	

Photos of isolation points

Insert a labelled photo of each isolation point (E1, E2, ...).

Part 2 — Worked example

Example only. The values below illustrate the level of detail expected; they do not describe your machine.

Equipment name	Belt Conveyor BC-04 (packing line)
Equipment ID	BC-04
Location	Packing hall, line 2, north side
Procedure no. / revision	LOTO-BC04 rev A

Energy sources

#	Energy type	Magnitude	Isolation device & location	Lock / device	Stored energy action	Verification
E1	Electrical — drive motor via VFD	480 VAC 3-ph, 7.5 kW	Disconnect DS-04 on panel MCC-2, bay 3	Padlock on handle	Wait 5 min for VFD DC bus to discharge (see drive label)	Try start at local station; test for absence of voltage at VFD output terminals
E2	Electrical — control circuit	24 VDC from panel PSU	Isolated by DS-04 (same PSU)	Covered by E1	None	Confirm HMI and control lamps dead
E3	Pneumatic — diverter gate cylinder	90 psi (6 bar)	Lockable dump valve LV-04 at FRL, conveyor frame	Valve lockout on LV-04	Dump valve exhausts system; cycle gate manually to vent trapped air	Pressure gauge at FRL reads 0; gate moves freely by hand
E4	Gravity — take-up counterweight	~45 kg	Mechanical pin at take-up frame	Pin + tag	Lower weight to rest or pin in raised position	Weight cannot move; belt slack
E5	Mechanical — belt tension / roll inertia	Stored in belt	N/A	N/A	Allow belt to stop fully; relieve tension via take-up (E4)	Belt stationary, no tension on pulleys

Specific steps

1. Tell line 2 operators and the shift supervisor that BC-04 is being locked out.
2. Stop BC-04 with the line STOP button on HMI-2; wait for the belt to come to rest.
3. Open disconnect DS-04 (MCC-2, bay 3). Apply personal padlock and tag.
4. Close and lock dump valve LV-04. Cycle the diverter gate by hand to exhaust trapped air.
5. Insert the take-up pin and tag it, or lower the counterweight to rest.
6. Wait at least 5 minutes for the VFD DC bus to discharge.
7. Verify: press START on the local station (nothing happens); test for absence of voltage at VFD output with a proven tester (prove–test–prove); FRL gauge reads 0; return START to OFF.

Part 3 — Energy-source checklist

Walk the machine and tick each source present. Anything ticked belongs in the procedure's energy table.

Energy type	Questions to ask	Present? / notes
Electrical (power)	Main supply? More than one supply? Separate heater, lighting or socket circuits? Supplies fed from another machine?	
Electrical (control / stored)	Separate control supply, UPS, batteries? VFD or servo DC bus capacitors? Power-factor capacitors?	
Pneumatic	Main air supply? Accumulators or receivers on the machine? Cylinders that hold air when valves close? Vacuum?	
Hydraulic	Pump isolation? Accumulators? Cylinders holding load? Trapped pressure between valves?	
Gravity	Raised parts, platens, counterweights, rams that could fall? Need blocks or pins?	
Mechanical / kinetic	Flywheels, springs, belts under tension, coasting rolls?	
Thermal	Hot surfaces, heaters, hot fluids, cryogenics?	
Chemical / process	Pipes carrying product, steam, gas or chemicals into the work area?	
Other	Radiation, lasers, water, remote or automatic starts (timers, PLC sequences, other machines)?	

Part 4 — Periodic inspection record

OSHA 1910.147(c)(6) requires a periodic inspection of each energy control procedure at least annually, by an authorised employee other than those using the procedure, with a certification record.

Date	Procedure no.	Inspector	Employees observed	Deviations found / corrective action