

ENERGY FORMS, ENERGY SOURCES AND GENERAL LOCKOUT TAGOUT GUIDELINES

1. ENERGY FORM

1.1. Electricity

2. ENERGY SOURCE

- 2.1. Power transmission lines
- 2.2. Machine power cords
- 2.3. Motors
- 2.4. Solenoids
- 2.5. Capacitors (stored electrical energy)
- 2.6. Generators
- 2.7. Batteries
- 2.8. Photovoltaic arrays

3. GENERAL LOCKOUT GUIDELINE

Turn off power at the machine first (point of operation switch), and then at the main disconnect switch for the machine; lock and tag the main disconnect switch (or remove fuses from the box, and then lock and tag the box).

- 3.1. Fully discharge all capacitive systems e.g. cycle machine to drain power from capacitors as per the manufacturer's instructions.
- 3.2. Install grounds where necessary.
- 3.3. Voltage was removed, and the absence of voltage was verified.
- 3.4. Electrical Safety Program for more information.

4. ENERGY FORM

4.1. Fluid Pressure

5. ENERGY SOURCE

- 5.1. Hydraulic systems
- 5.2. Hydraulic presses
- 5.3. Rams
- 5.4. Cylinders
- 5.5. Hammers

6. GENERAL LOCKOUT GUIDELINE

- 6.1. Shut off, lock (with chains, built-in lockout devices, or lockout attachments), and tag valves; bleed off and blank lines as necessary.
- 6.2. Block any possible movement of machinery.

7. ENERGY FORM

7.1. Air Pressure

8. ENERGY SOURCE



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Pneumatic systems:

- 8.1. Lines
- 8.2. Pressure reservoirs
- 8.3. Accumulators
- 8.4. Air surge tanks
- 8.5. Rams
- 8.6. Cylinders

9. GENERAL LOCKOUT GUIDELINE

- 9.1. Shut off, lock (with chains, built-in lockout devices, or lockout attachments), and tag valves; bleed off excess air.
- 9.2. If pressure cannot be relieved, block any possible movement of machinery.

10. ENERGY FORM

10.1. Kinetic Energy (energy of a moving object or materials - the moving object may be powered or coasting)

11. ENERGY SOURCE

- 11.1.Blades
- 11.2. Flywheels
- 11.3. Materials in supply lines of bins or silos

12. GENERAL LOCKOUT GUIDELINE

- 12.1. Stop and block machine parts, and ensure that they are not recycled.
- 12.2. Review the entire cycle of mechanical motion
- 12.3. Ensure that all motions are stopped.
- 12.4.Block material from moving into the area of work and blank as required.

13. ENERGY FORM

13.1.Potential Energy (energy stored in an object with the potential for release due to its position)

14. ENERGY SOURCE

- 14.1.Springs
- 14.2. Actuators
- 14.3. Counterweights
- 14.4. Raised loads
- 14.5. Top or movable part of a press or lifting device

15. GENERAL LOCKOUT GUIDELINE

15.1.If possible, lower all suspended parts and loads to the lowest (rest) position, block parts that might move due to gravity; release or block stored spring energy.

16. ENERGY FORM



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16.1. Pressurized liquids and gases (including steam, chemicals)

17. ENERGY SOURCE

- 17.1. Supply lines
- 17.2. Storage tanks and vessels

18. GENERAL LOCKOUT GUIDELINE

18.1.Shut off, lock (with chains, built-in lockout devices, or lockout attachments), and tag valves; bleed off excess liquids or gases; blank lines as necessary.

