



Machine Guarding Gap Checklist

The following is a quick machine guarding gap checklist used to identify potential safety risks and verify guarding integrity for functionality and proper application.

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Yes	No	Item to be inspected
☐	☐	Are all hazardous motions identified (pinch points, rotating parts, cutting edges, crush zones)?
☐	☐	Are hazards present during normal operation, setup, cleaning, or maintenance?
☐	☐	Are there exposed moving parts within reach of operators?
☐	☐	Are guards installed at all identified hazard points?
☐	☐	Do guards prevent reach-over, reach-around, reach-through, and reach-under access?
☐	☐	Are openings compliant with safe distance guidelines?
☐	☐	Are guards securely mounted and durable?
☐	☐	Are there any missing, damaged, or bypassed guards?
☐	☐	Are all access doors equipped with safety interlock switches?
☐	☐	Does opening a guard stop hazardous motion?
☐	☐	Is restart prevented until the hazard is cleared?

☐	☐	Are safety interlocks attached with tamper-resistant hardware?
☐	☐	Are presence sensing devices properly placed?
☐	☐	Is the safety distance adequate for stopping time?
☐	☐	Are devices free from obstruction or misalignment?
☐	☐	Do they stop motion reliably when triggered?
☐	☐	Does the safety system meet required Performance Level?
☐	☐	Are safety circuits monitored for faults?
☐	☐	Is proper-reset logic implemented?
☐	☐	Are emergency stops accessible and functional?
☐	☐	Are operators required to bypass or remove guards?
☐	☐	Are safe procedures defined for setup and maintenance?
☐	☐	Is Lockout/Tagout used when required?
☐	☐	Are there signs of unsafe workarounds?
☐	☐	Are guards regularly inspected?

☐	☐	Are components in good condition?
☐	☐	Are spare parts available?
☐	☐	Is there evidence of temporary fixes?
☐	☐	Are hazards labeled clearly?
☐	☐	Are safety devices documented?
☐	☐	Are manuals available?
☐	☐	Has a risk assessment been performed?

This checklist is a general guideline and is not intended to serve as a formal, certified, or compliant risk assessment. Use of this document does not ensure compliance with ANSI B11.19, Occupational Safety and Health Administration regulations, or any other safety standards. PowerSafe Automation assumes no liability for the use or misuse of this tool. A detailed risk assessment performed by a qualified professional is required to properly evaluate machine safety risks.

If you are interested in a Guarding Assessment done by PowerSafe Automation, please contact us at 260.993.2828.

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Machine Safety Priority Matrix

The following is a machine safety priority matrix used to evaluate and rank hazards based on risk factors to determine where guarding improvements should be prioritized.

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Use this tool to prioritize machine safety risks and determine where to focus improvements.

Scoring: 1 = Low | 2 = Medium | 3 = High

1. Severity (injury potential):

- | | |
|--|-------------|
| ☐ 1 = Minor (first aid) | Score: ____ |
| ☐ 2 = Serious (recordable injury) | Score: ____ |
| ☐ 3 = Severe (amputation, fatality) | Score: ____ |

2. Exposure Frequency:

- | | |
|---|-------------|
| ☐ 1 = Rare | Score: ____ |
| ☐ 2 = Occasional | Score: ____ |
| ☐ 3 = Frequent | Score: ____ |

3. Avoidance Possibility:

- | | |
|---|-------------|
| ☐ 1 = Likely avoidable | Score: ____ |
| ☐ 2 = Possibly avoidable | Score: ____ |
| ☐ 3 = Not avoidable | Score: ____ |

4. Number of People Exposed:

- | | |
|--|-------------|
| ☐ 1 = 1 person | Score: ____ |
| ☐ 2 = 2 to 3 people | Score: ____ |
| ☐ 3 = 4+ people | Score: ____ |

Total Score Calculation:

- Total Score = Severity + Exposure + Avoidance + People
- Your Score = _____

Priority Levels:

- 10 to 12 = Priority 1 (Immediate Action)
- 7 to 9 = Priority 2 (Planned Upgrade)
- 4 to 6 = Priority 3 (Monitor / Improve)

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Machine Safety Risk Reduction ROI Calculator & Planner
The following is a machine safety risk reduction ROI calculator and planner used to estimate the financial impact of safety improvements and justify machine guarding investments.

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Use this quick-reference tool to estimate financial impact and justify machine safety improvements.

1. Risk Event (current state):

- ☐ Potential incident description:

- ☐ Exposure frequency = _____

- ☐ Number of employees exposed = _____

2. Cost of a Single Incident:

- ☐ Medical costs: \$ _____
- ☐ Workers' compensation \$ _____
- ☐ OSHA fines: \$ _____
- ☐ Downtime / lost production: \$ _____
- ☐ Repair / maintenance: \$ _____
- ☐ Training replacement labor: \$ _____
- ☐ Reputation / customer impact: \$ _____
- ☐ Total Incident Cost: \$ _____

3. Likelihood (annually):

- ☐ Likelihood (%) = _____

i. High (75%) Medium (30%) Low (10%)

- ☐ Annual Risk Exposure = \$ _____

i. Incident cost x % likelihood

4. Risk Reduction Solution:

- ☐ Solution description:

- ☐ Project cost = \$ _____
- ☐ Annual maintenance cost = \$ _____

5. Risk Reduction Effectiveness:

- ☐ Estimated reduction (%) = _____
- ☐ New annual risk exposure = \$ _____
- ☐ Annual risk savings = \$ _____

6. ROI Calculation:

- ☐ Payback period (years) = _____
- ☐ ROI (%) = _____

7. Priority Planner:

- ☐ **Priority 1 (Red): Immediate action**
- ☐ **Priority 2 (Yellow): Planned upgrade**
- ☐ **Priority 3 (Green): Future improvement**

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Machine Safety Self-Assessment Scorecard

The following is a machine safety self-assessment scorecard used to evaluate overall safety conditions and identify potential gaps across guarding, controls, and operator interaction.

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Use this quick overview tool to evaluate your current machine safety status before requesting a full guarding assessment.

Scoring: 2 = Good | 1 = Needs Improvement | 0 = At Risk

1. Physical Guarding:

- ☐ Guards installed at hazard points Score: ____
- ☐ Prevents reach (over/under/through/around) Score: ____
- ☐ No missing or damaged guards Score: ____

2. Interlocks & Access Control:

- ☐ Doors/gates have safety interlocks Score: ____
- ☐ Opening stops hazardous motion Score: ____
- ☐ Cannot easily be bypassed Score: ____

3. Presence-Sensing Devices (if applicable):

- ☐ Devices properly placed Score: ____
- ☐ Safety distance adequate Score: ____
- ☐ Reliable stopping performance Score: ____

4. Control Reliability / Functional Safety:

- ☐ Redundant safety circuits Score: ____
- ☐ Fault detection in place Score: ____
- ☐ Proper reset and E-stop functionality Score: ____

5. Operator Interaction & Workarounds:

- ☐ No guard bypassing or removal Score: ____
- ☐ Safe methods for setup/jam clearing Score: ____
- ☐ No temporary unsafe workarounds Score: ____

6. Maintenance & Condition:

- | | |
|---|-------------|
| ☐ Guards/devices in good condition | Score: ____ |
| ☐ No temporary fixes | Score: ____ |
| ☐ Regular inspection process | Score: ____ |

7. Documentation & Procedures:

- | | |
|---|-------------|
| ☐ Procedures documented | Score: ____ |
| ☐ LOTO followed | Score: ____ |
| ☐ Risk assessments completed | Score: ____ |

Total Score Calculation:

- Max score = 42
- Your score = ____

Scoring Guide:

- 32 to 42 = Managed
- 18 to 31 = Exposed
- 0 to 17 = At Risk

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Machine Safety Strategy Guide

The following is a machine safety strategy guide used to outline a structured approach for identifying risks, prioritizing improvements, and implementing effective machine safety solutions.

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From Reactive Fixes to a Structured Risk Reduction Plan

Purpose is to move from reactive safety fixes to a proactive, structured approach to machine safety.

1. Identify exposure:

- ☐ Identify pinch points, rotating parts, cutting hazards
- ☐ Review operator interaction during operation, setup, and maintenance

2. Assess & Prioritize:

- ☐ Evaluate severity, exposure frequency, avoidance, and number of people exposed
- ☐ Rank risks using a priority-based approach

3. Apply Layered Safety:

- ☐ Physical guarding (barriers, enclosures)
- ☐ Access control (interlocks)
- ☐ Presence sensing (light curtains, scanners, radar)
- ☐ Functional safety controls (relays, monitored circuits)
- ☐ Administrative controls (LOTO, procedures)

4. Validate Performance:

- ☐ Verify stopping time and safety distance
- ☐ Confirm interlock and safety device functionality
- ☐ Ensure proper reset logic

5. Plan & Execute:

- ☐ Address high-risk items immediately
- ☐ Build a 6 to 12 month safety improvement roadmap
- ☐ Align projects with downtime and budget cycles

Common Mistakes to Avoid:

- Treating safety as one-time project
- Ignoring operator workarounds
- Assuming older machines are compliant
- Relying on a single safety method

What Good Looks Like:

- Hazards not accessible during operation
- Systems designed, not pieced together
- Operators do not bypass safeguards
- Risk reduction is planned and prioritized

When to Seek Professional Assessment:

- Uncertainty in risk levels
- Recent near-misses or audit concerns
- Low confidence in existing guarding
- Need for budget justification

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Preventative Maintenance for Machine Guarding checklist

The following is a routine maintenance checklist to be performed to verify the machine guarding integrity for functionality and cosmetically.

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Yes	No	Item to be inspected
☐	☐	Any damage to frames?
☐	☐	Any damage or haziness to plastic panels?
☐	☐	Is all wire mesh in t-slot?
☐	☐	Is all wire mesh free of dust and dirt on the grids for visibility?
☐	☐	Have the panels been modified with openings larger than regulation? <i>(see chart below)</i>
☐	☐	Are all fasteners tight? <i>(a finger or hand is not a tool)</i>
☐	☐	Are endcaps on all open ends?
☐	☐	If applicable, are all stand-offs in place between guarding and machine frame?
☐	☐	Are all doors aligned?
☐	☐	Has any of the guarding been removed or modified outside of reachability regulation?
☐	☐	Are all floor anchors installed and tight?

- | | | |
|--------------------------|--------------------------|---|
| ☐ | ☐ | <ul style="list-style-type: none"> Is there evidence that the safeguards have been tampered with or removed? <hr/> |
| ☐ | ☐ | <ul style="list-style-type: none"> Are all electronic safety devices working properly? <i>Check for any bypassed to ensure stop behavior is working properly...</i> <hr/> |
| ☐ | ☐ | <ul style="list-style-type: none"> Is the control box still clean orderly inside? No oils or dust, cables are still neat and orderly? No rips or tears in cables or broken connectors <hr/> |
| ☐ | ☐ | <ul style="list-style-type: none"> Is the machine operable in all modes associated with safety circuit? <hr/> |
| ☐ | ☐ | <ul style="list-style-type: none"> Do new operators and/or maintenance workers need training in how the machine was guarded and/or how and under what circumstances guards can be removed? <hr/> |
| ☐ | ☐ | <ul style="list-style-type: none"> If applicable, is the bypass circuit being used in the specified condition? <hr/> |
| ☐ | ☐ | <ul style="list-style-type: none"> If applicable, are the light curtains and safety laser scanners clean of dust/dirt? <hr/> |

If you are interested in field modifications, additional guarding, or repairs done by PowerSafe Automation, please contact us at 260.993.2828.

If you need to order spare parts for any of the above repairs or restock your maintenance department, contact us for a quote to order the parts you need.

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Chart to verify opening in guard to point of hazard

Distance from opening to hazard (in)	Maximum width opening (in)
.5 to 1.5	.250
1.5 to 2.5	.375
2.5 to 3.5	.500
5.5 to 6.5	.750
6.5 to 7.5	.875
7.5 to 12.5	1.250
12.5 to 15.5	1.500
15.5 to 17.5	1.875
17.5 to 31.5	2.125

