



# Industrial Robot Application & Robot Cell

## Safeguard Validation Checklist for Commissioning

*(System Integrator / Safety Validation Use)*

### Purpose:

This checklist is intended to be used by **robot system integrators** before commissioning and handover of a robot application or robot cell.

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### A. General Safeguard Design

- ☐ Safeguards address all identified hazards from the risk assessment
- ☐ Safeguards do not introduce new hazards (visibility, access, escape routes)
- ☐ Safeguards are appropriate for all operating modes
- ☐ Safeguards account for foreseeable misuse

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### B. Safeguarded and Restricted Spaces

- ☐ Safeguarded space(s) clearly defined and documented
- ☐ Restricted space(s) fully contained within safeguarded space(s)
- ☐ Dynamic changes to safeguarded space validated (mode/task dependent)
- ☐ Motion limiting devices correctly enforce restricted space boundaries

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### C. Perimeter Guarding

- ☐ Perimeter guards installed where required
  - ☐ Guard height meets minimum requirements
  - ☐ Guards prevent reach over, under, around, or through
  - ☐ Guards are not closer to hazards than restricted space allows
  - ☐ Adjacent cells and interfaces evaluated
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#### **D. Fixed Guards**

- ☐ Fixed guards removable only with tools
  - ☐ Guard fasteners remain attached when removed
  - ☐ Fixed guards cannot be easily bypassed
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#### **E. Interlocked Guards**

- ☐ Opening interlocked guards initiates a protective stop
  - ☐ Hazardous motion ceases before access is possible
  - ☐ Reset behavior requires deliberate action
  - ☐ Guards open away from hazard where practicable
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#### **F. Guard Locking (If Applicable)**

- ☐ Guard locking provided where stopping time exceeds reach time
  - ☐ Guard remains locked while hazard exists
  - ☐ Unlocking conditions validated and documented
  - ☐ Speed or motion conditions used for unlocking treated as safety functions
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#### **G. Sensitive Protective Equipment (SPE)**

- ☐ SPE selected appropriately for the application
  - ☐ SPE not used alone where ejection or thermal hazards exist
  - ☐ SPE installation prevents circumvention (reach-over/under/around)
  - ☐ Environmental conditions do not degrade SPE performance
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#### **H. SPE – Protective Stop Function**

- ☐ Minimum distance calculations completed and documented
  - ☐ Protective stop occurs before hazard can be reached
  - ☐ Hazardous motion remains prevented until reset
  - ☐ Reset cannot occur from inside the safeguarded space
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### **I. SPE – Presence Sensing Function**

- ☐ Detection zone covers all operator-accessible areas
  - ☐ No standing space exists between detection zone and hazard
  - ☐ Anti-circumvention measures implemented (geometry, surfaces)
  - ☐ Presence sensing used with additional safeguards where required
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### **J. Blanking, Muting, and Override**

- ☐ Blanking configured only for fixed, known conditions
  - ☐ Muting is deliberate, sequenced, and limited
  - ☐ Override functions provide equivalent risk reduction
  - ☐ Override behavior tested and documented
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### **K. Unexpected Restart Protection**

- ☐ Restart prevention measures implemented
  - ☐ Reset devices located outside safeguarded space
  - ☐ Presence sensing or alternative measures used where visibility is limited
  - ☐ Restart requires deliberate operator action
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### **L. Validation and Documentation**

- ☐ All safeguards function-tested under real conditions
  - ☐ Safeguard failures produce safe states
  - ☐ Validation results recorded
  - ☐ Safeguard logic and layouts included in final documentation
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### **Final Commissioning Statement**

- ☐ Safeguards meet the requirements of the risk assessment
- ☐ Safeguards perform as intended in all modes
- ☐ The robot application is safe to commission



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### **Integrator Pre-Commissioning Declaration**

☐ I confirm that the robot application and robot cell have been integrated in accordance with applicable safety requirements. All reasonably foreseeable hazards have been addressed, and the system is ready for commissioning and validation.

**Integrator Name:** \_\_\_\_\_

**Company:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Signature:** \_\_\_\_\_