

Safety & Compliance

Shelfbot is designed so operators interact with bins at a station — not moving machinery in an aisle. Guarding, interlocks, and predictable stop behaviour are part of the normal workflow.

Key features:

- Category 3, PL d safety architecture
 - Interlocked access + perimeter guards
 - Designed for daily operation
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Design principles

Operators interact with bins, not moving machinery

Shelfbot's workflow is designed around fixed stations. People shouldn't be near the robot aisle during normal operation.

Safety is built into every pick cycle

Access to a presented bin is controlled by an interlocked hatch and a safeguarded stop that occurs every pick cycle.

Clear constraints, explainable behaviour

Shelfbot is designed to be conceptually transparent: predictable modes, clear limits, and diagnosable issues.

What happens in normal operation

During a pick

A bin is presented at the station. Opening the access hatch triggers a safeguarded stop. After picking, the hatch is closed and the operator presses RESET to safely return the bin.

Emergency stop

Emergency stop applies a Category 0 stop and motor brakes. It's intended for infrequent emergency use only and typically requires reporting and support involvement before restart.

REST mode

After inactivity, the system can enter REST mode, lowering the platform and disabling motors while maintaining safeguarding.

Important: entering restricted areas after an emergency stop is not permitted without the proper safety process. Emergency stop is for emergencies, not a normal access method.

Safety systems and functions

The Shelfbot safety control system includes a safety PLC, redundant contacts, interlocked doors/hatches, emergency stops, and a reset process designed to prevent unintentional restart.

Perimeter guarding

- Guards surround robot aisles to prevent unauthorised access to the restricted area.
- Racking-side guards maintain safe distance from moving equipment.

Interlocked access

- Front door interlock remains locked during normal operation.
- Access hatch interlock releases only when a bin is presented at the station.

Emergency stop & safeguarded stop

- Emergency stop initiates a Category 0 stop and applies motor brakes.
- Safeguarded stop occurs during each pick cycle when the access hatch is opened.

Safety control system

- Safety PLC with redundant contacts (Category 3, PL d architecture).
- Reset button ensures intentional restart after hatch closure.

Motor brakes & safe state

- Brakes apply automatically on emergency stop, power failure, and REST mode.
- System modes include IDLE and REST to control safe behaviour when inactive.

Signage & inspections

- SWL and safe work procedure signage near the system.
- Monthly visual inspection checklist for racking and guarding.

Hazardous materials

Shelfbot has not been assessed to be intrinsically safe for storage of hazardous materials. The following are **not permitted** to be stored in the system:

- Flammable liquids
- Solvents
- Hazardous chemicals

If you have special storage requirements, raise them early so site risk assessment and fire engineering can be completed.

Practical constraints that matter

- Do not overfill bins above the top edge (prevents jams and dislodgement).
 - Do not exceed bin payload limits.
 - Maintain clearances and keep aisles free from loose objects.
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Applied standards (overview)

Shelfbot documentation references the standards below for safety, guarding, electrical, and racking context.

Safety of machinery / guarding

- AS/NZS 4024 (safety of machinery)
- ISO 12100 (risk assessment principles)
- ISO 13849 / ISO 13849-1 (safety-related control systems)
- ISO 14120 (guards)
- ISO 13857 / ISO 13855 / ISO 14119 / ISO 13854 (safety distances & interlocking)

Electrical

- IEC 60204 / IEC 60204-1 (machine electrical safety)

Racking & installation context

- AS4084:2023 (steel storage racking)
- Additional reference codes listed in documentation (FEM, SEMA, RMI, etc.)

Downloads:

- [Safety risk assessment \(PDF\)](#)
 - [Technical data sheet](#)
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Customer and operator responsibilities

What good operation looks like

- Only trained and authorised personnel operate the system.
- Do not bypass or tamper with guards or interlocks.
- Do not use emergency stop as part of normal routine.
- Never enter restricted areas after an emergency stop without the proper safety process.
- Do not overfill bins above the top edge; do not exceed payload limits.
- Undertake monthly visual inspections of racking, guarding, signage, and clearances.

Ongoing inspections

The customer is responsible for ongoing racking and guarding condition. A monthly visual inspection checklist is part of the normal operating expectation.

- Check racking for impact damage, corrosion, and out-of-plumb uprights
- Verify SWL signage and safe work procedure signage is present and legible
- Confirm bins are stable, not protruding, and not overfilled
- Confirm guards and panels are intact and locked

For the full checklist and procedures, refer to the user manual.

Need this in a safety pack?

We can provide a site-specific pack for your consultant/fire engineer/racking partner using the standard docs as a baseline.

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