



Simplify Complexity, Risk Assessment, and Safety and Cybersecurity Compliance with Jama Connect® for Industrial Machinery Development

Developing modern industrial machinery involves navigating a dense web of complexity where precision is paramount. Engineering teams must synchronize mechanical, electrical, control, and software components while adhering to rigorous safety and security standards like ISO 13849-1 and 2, IEC 62061, IEC 61508, and IEC 62443. The pressure to deliver tailored product variants rapidly often conflicts with the need for thorough risk assessment and documentation. Without a unified approach, gaps in requirements can lead to costly delays, safety incidents, or field recalls, threatening both market reputation and operational efficiency.

Jama Connect for Industrial Machinery Development provides a robust, pre-configured framework designed to tame this complexity. By aligning directly with major machinery and functional safety and security standards, the platform creates a clear digital thread from high-level stakeholder requirements down to specific component verification. This solution bridges the gap between diverse engineering disciplines, ensuring that control systems, safety functions, and mechanical designs evolve in lockstep. Teams manage the entire product lifecycle — from concept to validation — within a single source of truth that actively monitors for compliance and risk.

KEY BENEFITS

Streamline Standards Compliance

Automate the traceability required for standards, significantly reducing the manual effort of audit preparation.

Support Secure-by-Design

Seamlessly incorporate cybersecurity planning and controls from design initiation to ensure compliance with EU Cyber Resilience Act requirements.

Adopt Agile Approach to Contextualize Functional Safety Assessments

Customize assessments to fit each specific product or iteration instead of using the same preset list of hazards and responses for every project.

Unify Risk Management

Integrate hazard analysis (HARA) and Failure Mode and Effects Analysis (FMEA) directly into the development process to ensure safety risks are identified and mitigated early.

Enhance Multi-Disciplinary Collaboration

Align mechanical, electrical, and software teams on a single platform to prevent silos and ensure system-wide coherence.

Accelerate Variant Management

Manage product variants efficiently to meet specific customer specifications without sacrificing speed to market.

Ensure End-to-End Traceability

Maintain links between requirements, risks, and tests to ensure every design decision is verified and validated before release.



Jama Connect for Industrial Machinery Development includes the following:

- **End-to-End Traceability.** The out-of-the-box, customizable Traceability Information Model™ starts right at the top with every stakeholder or customer requirement tracing back to a specific standard or clause. This traceability provides teams with a clear link between what they're building and why it's required and detailed documentation for auditors.
- **Functional Safety Compliance.** The classic V-model structure covers stakeholder to system, subsystem, component, design, and then test for a clean, end-to-end chain that mirrors the safety lifecycle — define it at the top, prove it at the bottom.
- **Integrated Cybersecurity Framework.** Identify relevant threats and vulnerabilities using pre-defined templates to align threat analysis with security requirements and verifications, enabling teams to respond to incidents quickly at all stages of the product lifecycle.
- **Risk Management.** Each use case connects into a hazard analysis or FMEA which flows naturally into safety function requirements. That means that identified risks turn directly into design actions, not just documents that sit on the shelf.
- **Control Systems Safety.** Safety functions break down into the safety-related parts of the control system — electrical, electronic, or software layers where things like Performance Level or SIL come into play.
- **Verification and Validation.** Every safety function, every requirement, has a clear link to the tests or activities that prove it's been met.

From standards, threats, and risks all the way through design and verification, everything is connected. It makes compliance smoother, audits faster, and the overall process a lot more reliable and efficient.

Example of Hazard Analysis Trace Matrix

SOURCE ITEMS					1 LEVEL DOWN		
ID	Name	Required Perfor...	Severity (S)	Frequency/Expo...	Project ID	Function Name	Performance Level Required (Plr)
MACH_SAMPLE...	Robotic Pick Exec...				MACH_SAMPLE-SFR-17	Safety-Rated Monitored Stop (SR...	d
MACH_SAMPLE...	Collision During R...	d	S2	F1	MACH_SAMPLE-SFR-18	Speed and Separation Monitoring ...	d
MACH_SAMPLE...	Gripper Release F...	b	S1	F2	MACH_SAMPLE-SFR-19	Drop Detection Interlock	b
MACH_SAMPLE...	Order Validation a...				MACH_SAMPLE-SFR-20	Shipment Release Interlock	b
MACH_SAMPLE...	Incorrect Order Dl...	b	S1	F1	MACH_SAMPLE-SFR-21	Label Verification Interlock	c
MACH_SAMPLE...	Mislabeling of Pac...	c	S1	F2	MACH_SAMPLE-SFR-22	Weight-Label Cross-Check	c

Companies choose Jama Connect for Industrial Machinery Development to innovate faster and deliver complex, safety-critical machinery with confidence, knowing that every requirement is met, tested, and documented for the global market. To learn more, visit www.jamasoftware.com



Jama Software® is focused on maximizing innovation success in multidisciplinary engineering organizations. Numerous firsts for humanity in fields such as fuel cells, electrification, space, software-defined vehicles, surgical robotics, and more all rely on Jama Connect® requirements management software to minimize the risk of defects, rework, cost overruns, and recalls. Using Jama Connect, engineering organizations can now intelligently manage the development process by leveraging Live Traceability™ across best-of-breed tools to measurably improve outcomes. Our rapidly growing customer base spans the automotive, medical device, life sciences, semiconductor, aerospace & defense, industrial manufacturing, consumer electronics, financial services, and insurance industries. To learn more, visit us at: jamasoftware.com.