



**PALLADIUM
DYNAMICS**

ISO 13849 & CE MACHINE GUARDING COMPLIANCE GUIDE

for Indian Manufacturers

ISO 13849

CE Marking

IEC 62061

Risk Assessment

Robot Safety

ABOUT PALLADIUM DYNAMICS

Palladium Dynamics is a trusted engineering partner specialising in industrial automation, process control, and safety systems for mission-critical operations. We deliver engineered, high-quality solutions covering PLC/SCADA/HMI programming, Smart Factory / Industry 4.0, Industrial AI, RTLS, personnel safety tracking, hazardous area safety monitoring, robot safety fencing, and machine guarding systems for manufacturers across

PLC/SCADA/HMI

Industry 4.0

RTLS

Robot Safety

Machine Guarding

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Contents

FOREWORD Why Machine Safety Is Now a Business Imperative in India

SECTION 01 The Standards Landscape: ISO 13849, IEC 62061, and CE Marking

- 1.1 What Each Standard Covers and Where It Applies
- 1.2 How the Standards Interact
- 1.3 Applicability to Indian Manufacturers

SECTION 02 Risk Assessment: The Foundation of Every Compliant Machine

- 2.1 ISO 12100 Risk Assessment Methodology
- 2.2 Severity, Frequency, and Avoidability: Scoring the Risk
- 2.3 Required Performance Level (PLr) Determination

SECTION 03 Safety Category Selection and Architecture

- 3.1 Categories B, 1, 2, 3, and 4 Explained
- 3.2 Performance Level (PL) and MTTf Calculations
- 3.3 Choosing the Right Architecture for Your Machine

SECTION 04 Robot Safety Fencing and Cell Design

- 4.1 ISO 10218-1/2 and ISO/TS 15066 Requirements
- 4.2 Safeguarding Device Selection
- 4.3 Collaborative Robot (Cobot) Safety Considerations

SECTION 05 Machine Guarding System Specification

- 5.1 Fixed, Interlocked, and Adjustable Guards
- 5.2 Safety Relay and Safety PLC Selection
- 5.3 Safety Circuit Design Checklist

SECTION 06 CE Marking: The Step-by-Step Process for Indian Exporters

- 6.1 The Technical File and Declaration of Conformity
- 6.2 Notified Bodies and Self-Certification
- 6.3 Common Reasons CE Audits Fail

CLOSING Compliance as Competitive Advantage

FOREWORD

Why Machine Safety Is Now a Business Imperative in India

Picture this. An Indian auto-component manufacturer signs a landmark supply contract with a European OEM. Six months of negotiations, three plant visits, and a quality audit later, the purchase order is finally on the table. Then the OEM's compliance team asks one question: do your machines carry CE marking and documented ISO 13849 safety assessments? The answer is no. The contract goes to a competitor in Poland.

This is not a hypothetical. Variations of this story play out in Indian manufacturing every year, and the frequency is accelerating. As Indian industry climbs the value chain - from job-work supplier to Tier 1 partner to original equipment manufacturer - the standards that European and North American customers take for granted become the price of entry. Machine safety compliance is no longer a regulatory burden. It is a commercial requirement.

There is a second driver that matters just as much, and it is closer to home. India's Factories Act and associated state regulations already impose significant liability on plant owners for machine-related injuries. But the enforcement environment is changing. Workmen's Compensation Act amendments, growing awareness among workers of their

rights, and the increasing involvement of insurers in post-incident investigation are creating a domestic compliance imperative that did not exist with the same force ten years ago.

48,000+

Reportable machine-related injuries annually in Indian manufacturing (ILO estimate)

INR 2-15 Cr

Typical total liability exposure per serious machine injury including legal and downtime costs

67%

Of Indian manufacturers in a 2024 survey lacked documented risk assessments for their production machinery

This guide is written by the machine safety engineering team at Palladium Dynamics. We have assessed, designed, and commissioned safety systems across automotive, pharmaceutical, food processing, and general engineering facilities throughout India. We have helped Indian manufacturers achieve CE marking for export markets, defended risk assessments in factory inspector investigations, and rebuilt safety systems after incidents that should never have happened. What follows is a practical, step-by-step technical guide to getting this right.

SECTION 01

The Standards Landscape: ISO 13849, IEC 62061, and CE Marking

1.1 What Each Standard Covers and Where It Applies

The machine safety standards ecosystem can feel bewildering the first time you encounter it. Three standards dominate, and understanding the boundary between them is essential before you begin any compliance project.

Standard	Scope	Technology Focus	Indian Relevance
ISO 13849-1:2015	Safety-related parts of control systems (SRP/CS). Defines Performance Levels (PL a-e) and safety Categories (B, 1-4).	Electromechanical, pneumatic, hydraulic and electronic safety circuits	Universal - applies to virtually all production machinery
IEC 62061:2021	Safety Integrity Level (SIL) framework for electrical/electronic/programmable safety systems. Aligns with IEC 61508.	Safety PLCs, programmed safety functions, complex electronic architectures	Pharma, chemical, complex automated lines with safety PLCs
ISO 12100:2010	General principles of machine safety design and risk assessment methodology. The parent standard for all machine safety work.	Risk assessment process and design hierarchy	Mandatory starting point for any compliance project
CE Marking (EU MD 2006/42/EC)	European regulatory requirement for machinery placed on the EU market. CE mark declares conformity with Essential Health and Safety Requirements (EHSRs).	All of the above, plus documentation and declaration requirements	Essential for any Indian manufacturer exporting machinery or equipment to Europe

1.2 How the Standards Interact

ISO 13849 and IEC 62061 were harmonised under a joint working group in 2018, and since the 2021 revision of IEC 62061, users may choose either standard for safety-related control system design. The choice is typically driven by the dominant technology in the control system. For machines with predominantly electromechanical safety circuits (relays, safety switches, light curtains connected to safety relays), ISO 13849 is the more natural fit. For machines with complex safety PLC architectures implementing multiple safety functions in software, IEC 62061's SIL framework often provides a more rigorous design methodology.

■ Key Relationship

Both standards sit beneath ISO 12100, which defines the risk assessment methodology. You always start with ISO 12100 to identify hazards and determine required risk reduction. You then apply ISO 13849 or IEC 62061 to design and validate the safety-related control system that achieves that risk reduction. CE marking brings in the Machinery Directive's administrative requirements on top of the technical standards.

1.3 Applicability to Indian Manufacturers

Indian manufacturers encounter these standards in three contexts. First, as importers of European machinery - CE-marked machines come with documentation and safety architectures that your maintenance and safety teams need to understand and preserve when the machine is modified. Second, as exporters of machinery or equipment to European or globally-minded customers who specify these standards in their procurement requirements. Third, as manufacturers following best practice for domestic machines, where these standards represent the most rigorous and legally defensible approach to machine safety design available.

SECTION 02

Risk Assessment: The Foundation of Every Compliant Machine

In 2022, a press shop at a Tier 1 automotive components plant in the NCR region experienced a serious hand injury when an operator reached into a stamping press during the die-closing cycle. The investigation found that the two-hand control device had been bypassed with a piece of wire - a modification made years earlier by a maintenance technician to speed up the cycle. No risk assessment existed for the press. No one had documented the original safety design. The modification had been invisible until someone was injured.

A properly executed risk assessment would not only have documented the original safety design intent but would have created the framework to flag any modification as requiring safety re-evaluation before implementation. This is why ISO 12100 places risk assessment at the centre of machine safety - not as a paperwork exercise, but as the living document that governs every decision made about a machine throughout its life.

2.1 ISO 12100 Risk Assessment Methodology

ISO 12100 defines a three-phase risk assessment process: risk analysis (identify hazards and estimate risk), risk evaluation (determine if risk reduction is required), and risk reduction (apply protective measures in the prescribed hierarchy). The hierarchy of risk reduction is critical and must be followed in order:

1. **Inherently safe design:** Eliminate the hazard by design. Remove the pinch point, use lower voltage, reduce speed. The most reliable risk reduction because it cannot be bypassed.
2. **Safeguarding and protective measures:** Fixed guards, interlocked guards, safety devices (light curtains, safety mats, two-hand controls). Reduces exposure when design cannot eliminate the hazard.
3. **Information for use:** Warning signs, labels, training, procedures. The least reliable measure - it depends on human behaviour and should never be the primary means of risk reduction for a serious hazard.

Common Mistake	Many Indian manufacturers treat safety signage and training as their primary risk control for machine hazards. Under ISO 12100, information for use is the last resort, not the first response. If your risk assessment concludes that a warning label adequately controls a serious injury hazard, your assessment is almost certainly wrong.
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2.2 Severity, Frequency, and Avoidability: Scoring the Risk

ISO 13849-1 Annex A provides the risk graph methodology for determining the required Performance Level (PLr). Three parameters are evaluated for each identified hazard:

Parameter	Options	Definition
Severity (S)	S1: Slight (reversible injury) S2: Serious (irreversible / fatal)	The worst credible outcome if the safety function fails when a person is exposed to the hazard.
Frequency / Exposure (F)	F1: Seldom to less often F2: Frequent to continuous	How often and how long persons are exposed to the hazard. Threshold is typically once per 15 minutes.
Possibility of Avoidance (P)	P1: Possible under specific conditions P2: Scarcely possible	Can a person realistically detect the hazard and avoid it before harm occurs? Moving machine parts are almost always P2.

2.3 Required Performance Level (PLr) Determination

Combining S, F, and P through the risk graph produces a PLr from a (lowest) to e (highest). This PLr then becomes the design target for the safety function that controls the identified hazard. A safety function protecting against a serious, frequently-exposed, unavoidable hazard (S2, F2, P2) will require PL_e - the highest level. A safety function

covering a slight, infrequent, avoidable hazard (S1, F1, P1) may require only PLc.

■ **Engineering
Note**

PLr is the requirement derived from the hazard. PL is the achieved level of the designed safety function, calculated from the architecture (Category), component MTTF values, diagnostic coverage, and common cause failure resistance. The designed PL must equal or exceed the PLr. This calculation is typically performed using software such as SISTEMA (free from IFA, Germany).

SECTION 03

Safety Category Selection and Architecture

3.1 Categories B, 1, 2, 3, and 4 Explained

ISO 13849-1 defines five safety categories that describe the structural architecture of the safety-related control system. The category is not selected based on preference but is determined by the required Performance Level and the available component MTTF values.

Category	Architecture	Fault Behaviour	Achievable PL
Category B	Single channel. No redundancy.	A single fault can cause loss of safety function.	PLa or PLb
Category 1	Single channel with well-trying components and principles.	A single fault can cause loss of safety function but probability is lower.	PLb or PLc
Category 2	Single channel with periodic test by test equipment.	Fault detection at next test cycle. Function may be lost between tests.	PLc or PLd
Category 3	Two channels (redundant). Single fault does not cause loss of function.	Accumulation of faults may cause loss. Faults detected over time.	PLd or PLe
Category 4	Two channels (redundant) with cross-monitoring. Immediate fault detection.	Single fault and accumulation detected immediately. Highest integrity.	PLe

3.2 Performance Level (PL) and MTTF Calculations

Calculating the achieved PL requires four inputs: the Category (architecture), the Mean Time to Dangerous Failure (MTTFd) of each channel, the Diagnostic Coverage (DC) of any self-test capability, and the Common Cause Failure (CCF) resistance of the dual-channel architecture. MTTFd values are obtained from component datasheets (safety switch manufacturers publish B10d values from which MTTFd is calculated based on operating frequency). DC values are tabulated in ISO 13849-1 Annex E.

For most practical applications, SISTEMA software automates this calculation. You enter the architecture, component data, and DC values, and the tool computes the achieved PL. Where SISTEMA produces a PL below the PLr, you must either upgrade the architecture (move to a higher Category), specify higher-quality components, or add diagnostic capability.

3.3 Choosing the Right Architecture for Your Machine

Hazard Profile	Typical PLr	Recommended Architecture	Typical Application
S1, F1, P1 - Low risk	PLa-b	Category B/1 - Single channel, standard components	Low-speed conveyor access door, non-hazardous area
S1, F2, P2 - Medium risk	PLc	Category 2 or 3 - Single or dual channel with monitoring	Light assembly machine, packaging equipment guard
S2, F1, P2 - High risk	PLd	Category 3 - Dual channel, safety relay or SRP/CS	Press guard, robotic cell perimeter, stamping machine
S2, F2, P2 - Highest risk	PLe	Category 4 - Dual channel with cross-monitoring, safety PLC	Full-size industrial robot cell, high-tonnage press, chemical injection

SECTION 04

Robot Safety Fencing and Cell Design

A mid-sized automotive wiring harness manufacturer in Pune deployed their first six-axis industrial robot in 2021 for welding operations. The integrator installed perimeter fencing with an interlocked door. Production began. Eighteen months later, a maintenance technician entered the cell through a panel cut into the fence to access a cable duct - a panel that had been installed without telling the safety team and that bypassed the interlocking system entirely. The robot was in automatic cycle.

The technician was not injured, but only because the robot happened to be in a dwell position at that moment. The near-miss triggered a full safety audit that found four separate bypass mechanisms that had been created by production and maintenance personnel in the 18 months since commissioning. Every one of them was a rational response to a poorly designed system - doors in the wrong location, reset buttons that required a second person, restart sequences that took too long. Good robot safety design is not just about the fence. It is about designing the cell so that the compliant path is also the easiest path.

4.1 ISO 10218-1/2 and ISO/TS 15066 Requirements

ISO 10218-1 governs the robot manufacturer's responsibilities for the robot itself. ISO 10218-2 governs the system integrator's responsibilities for the complete robot installation, including the cell design, safeguarding, and commissioning. Both are referenced by CE marking requirements for robotic installations. ISO/TS 15066 extends this to collaborative robot applications, defining the speed and force limits for power and force limiting (PFL) modes.

- **Safeguarding minimum requirements (ISO 10218-2):** All robot cells must have perimeter safeguarding that prevents personnel from entering the hazard zone during automatic operation. The cell must have a means to detect presence within the safeguarded space. The robot must not be able to restart automatic operation if the safeguarded space has been entered.
- **Safety distance calculation (EN ISO 13857/ISO 13855):** The distance between the safeguarding device and the nearest hazard point must be sufficient that a person cannot reach the hazard before the machine reaches a safe state after the safety function activates. This is calculated from the stopping time of the robot and the approach speed defined in the standard.
- **Cell layout principles:** The operator interface (HMI, teach pendant docking) should be positioned outside the safeguarded space wherever possible. Material handling openings (for loading/unloading) should be equipped with area scanners or presence-sensing mats rather than requiring entry for every cycle.

4.2 Safeguarding Device Selection

Device Type	Best Application	Typical PL Achievable	Key Specification Points
Interlocked guard (safety switch)	Perimeter gates, access panels, maintenance doors	Up to PLe (dual-channel coded switch)	Specify coded/RFID switches (non-coded switches are easily defeated). Use Category 3/4 wiring.
Light curtain (AOPD)	Material transfer openings, operator access points where physical gate impractical	Up to PLe (Type 4 per IEC 61496)	Specify Type 4 for PLe. Verify minimum object resolution for the application (finger, hand, body detection).
Safety laser scanner	AGV path monitoring, large area protection, cobot collaborative workspace	PLd typical (some PLe capable)	Define warning and stop zones. Account for reflective surfaces in detection reliability.
Safety mat / floor scanner	Presence detection inside safeguarded zone, secondary protection layer	Up to PLd	Specify load capacity, environmental protection rating, and self-monitoring capability.

Two-hand control	Operator-initiated machine cycles where hands must be clear of hazard at initiation	Up to PLe (Type IIIC per ISO 13851)	Specify Type IIIC for highest risk applications. Control timing: both hands must be held simultaneously.
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4.3 Collaborative Robot (Cobot) Safety Considerations

Cobots operating in power and force limiting (PFL) mode under ISO/TS 15066 do not require physical perimeter guarding when the force and speed limits defined in the standard are met. However, this exception is frequently misunderstood and misapplied. The force limits apply at the point of contact with a person - and the permitted forces vary by body region (hand, arm, head, neck). An application where the cobot moves at 500mm/s near a worker's head requires a fundamentally different risk assessment than one where it works alongside their hands at 100mm/s.

<p>■ Cobot Safety Warning</p>	<p>A cobot without a risk assessment is not a safe cobot. The PFL exception in ISO/TS 15066 requires a documented application-specific risk assessment that verifies the force, speed, and body region parameters for every operational mode. Simply buying a cobot and removing the fence without this assessment is a compliance violation and a serious liability.</p>
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SECTION 05

Machine Guarding System Specification

5.1 Fixed, Interlocked, and Adjustable Guards

ISO 12100 distinguishes three primary guard types. Fixed guards are permanently attached and can only be removed with tools. They require no monitoring and can be very effective when properly designed - the challenge in Indian manufacturing environments is ensuring that removed guards are reinstalled, which requires both physical design (captive fasteners) and management culture. Interlocked guards generate a stop signal when opened or removed, integrated into the safety circuit. They are appropriate for guards that need to be opened for routine operations such as material loading, cleaning, and minor adjustments. Adjustable guards allow manual adjustment to accommodate different workpiece sizes while maintaining protection - common in cutting and forming machine applications.

5.2 Safety Relay and Safety PLC Selection

The safety relay is the most common safety circuit implementation in Indian manufacturing. It accepts inputs from safety devices (switches, light curtains, e-stops) and provides monitored, redundant outputs to machine actuators. Safety relays are appropriate for single-function or small multi-function safety circuits up to Category 4 / PL_e. When a machine has more than four to five safety functions, or when the safety functions involve complex logic, a safety PLC becomes more appropriate.

- **Safety relay selection criteria:** Verify the relay's Category and PL certification from an accredited certification body (TUV, BG, etc). Specify the input circuit type (normally closed contact, OSSD for active devices such as light curtains). Verify the output current and voltage ratings match your machine's actuators. Specify auto-reset vs manual-reset based on the risk level.
- **Safety PLC advantages:** A single safety PLC can implement dozens of safety functions with full documentation, diagnostic coverage, and cross-monitoring. Safety PLCs from Siemens (SIMATIC S7-1500F), Rockwell (GuardLogix), Pilz (PSS 4000), and others are certified to SIL 3 / PL_e. The programming environment allows safety logic to be documented, version-controlled, and modified in a controlled manner.
- **For Indian plants exporting to Europe:** The safety circuit validation must be documented using SISTEMA or equivalent software. The calculation report, including all component data and architecture diagrams, forms part of the CE Technical File.

5.3 Safety Circuit Design Checklist

Design Element	Requirement	Verification Method
E-stop coverage	E-stops accessible from all operator positions. Dual-channel wiring for PL _d /e.	Physical inspection + circuit trace. Fault injection test (one channel open).
Interlock monitoring	All interlocked guards wired into the safety circuit with feedback monitoring.	Functional test: open each guard door, verify machine stops within stop time.
Safe stop category (IEC 60204-1)	Define Stop Category 0, 1, or 2 for each safety function based on process requirements.	Review design documentation against IEC 60204-1 definitions.
Reset and restart control	Manual reset required after safety function activation for PL _d /e. Restart must be intentional operator action.	Test: activate safety device, attempt restart without deliberate reset. Machine must not restart.
Muting (if applicable)	Muting of safety devices (e.g. light curtains for material entry) must be supervised and time-limited.	Verify muting logic in safety relay/PLC documentation. Test muting activation and timeout.

SISTEMA validation	SISTEMA calculation report demonstrating achieved PL \geq PLr for each safety function.	Review SISTEMA project file. Verify component data matches datasheets.
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SECTION 06

CE Marking: The Step-by-Step Process for Indian Exporters

The CE mark is often misunderstood in India as a product certification issued by a European authority. It is not. CE marking is a self-declaration by the manufacturer that the product conforms to the applicable European directives - in the case of machinery, the Machinery Directive 2006/42/EC. The manufacturer affixes the CE mark and signs the Declaration of Conformity. The obligation is to ensure that the product genuinely meets the requirements, and the liability for that claim rests entirely with the manufacturer.

For Indian machinery manufacturers, this is both an opportunity and a responsibility. The opportunity: CE marking opens the European market and signals quality to global buyers everywhere. The responsibility: a CE mark applied to a machine that does not meet the EHSRs exposes the manufacturer to product liability claims under European law, potential market withdrawal, and reputational damage that is extremely difficult to recover from in export markets.

6.1 The Technical File and Declaration of Conformity

The Technical File is the evidentiary backbone of CE compliance. It must exist before the CE mark is applied, must be maintained for 10 years after the last machine is placed on the market, and must be made available to market surveillance authorities on request. For Indian exporters, this means the Technical File must be accessible to European authorities even if the manufacturer is based in India.

- **Technical File contents:** Description of the machinery including drawings, component list, and function description. Risk assessment (ISO 12100) with identified hazards and risk reduction measures. Design drawings for safety-relevant components and circuits. SISTEMA calculation reports for each safety function. Test and validation records. Copies of relevant standards applied. Instructions for use (manual) in the language of the destination country.
- **Declaration of Conformity:** A signed document declaring conformity with the Machinery Directive and listing the harmonised standards applied. Must include manufacturer name and address, machinery description, authorised signatory name and title, and place and date of signature.
- **Authorised Representative:** Indian manufacturers placing machines on the EU market must appoint an EU-based Authorised Representative. This person or entity accepts legal responsibility within the EU for the conformity declaration. Several service providers in Germany, Netherlands, and UK offer this service commercially.

6.2 Notified Bodies and Self-Certification

Most machinery under the EU Machinery Directive can be self-certified by the manufacturer - no third-party Notified Body involvement is required. The exception is machinery listed in Annex IV of the Directive, which includes certain press types, woodworking machinery, and machinery for underground mining. For Annex IV machinery, a Notified Body must either examine a specimen machine (type examination) or assess the quality assurance system under which the machine is produced.

■ Practical Guidance for Indian Exporters

Even when self-certification is permitted, many Indian manufacturers benefit from engaging a Notified Body or accredited inspection body (TUV SUD, Bureau Veritas, SGS, Intertek) for a pre-CE assessment. The cost is typically INR 2-5 lakhs for a standard machine, and the review catches documentation gaps and technical non-conformities before they become customer complaints or market surveillance issues.

6.3 Common Reasons CE Audits Fail

- **Incomplete risk assessment:** The most common deficiency. Risk assessment that covers only the main hazards and omits reasonably foreseeable misuse scenarios, maintenance tasks, and lifecycle phases.
- **SISTEMA calculations using estimated component data:** MTTFd values must come from component datasheets or manufacturer declarations, not estimated. Calculations using estimated values will not survive scrutiny.

- **Instructions for use not in destination language:** The Machinery Directive requires instructions in the official language(s) of the destination country. An English-only manual will fail for machines sold in Germany, France, or Spain.
- **Safety function validation not documented:** Commissioning tests must be documented with pass/fail criteria and actual results. 'Machine tested and working' is not acceptable documentation.
- **Post-delivery modifications without re-assessment:** Any modification to a CE-marked machine that affects safety requires a new or updated risk assessment and potentially a new Declaration of Conformity. Undocumented modifications found during audit are a serious non-conformity.

CLOSING

Compliance as Competitive Advantage

We opened this guide with the story of an Indian manufacturer who lost a European contract because of missing machine safety documentation. Let us close with a different story. A precision engineering company in Coimbatore approached us in 2023 to help them achieve CE marking for a range of special-purpose machines they were developing for export. The project took eight months. It involved a complete redesign of the safety circuit architecture on two machines, new guarding hardware on four, and a documentation programme that produced Technical Files running to several hundred pages per machine.

When their first machine was shipped to Germany and the customer's engineering team reviewed the Technical File, they called the managing director personally to say it was the most complete and professionally presented compliance documentation they had received from a new supplier - anywhere, not just India. They placed an order for eight more machines. The CE compliance programme that seemed like a cost and delay became the differentiator that opened a market.

This is the trajectory available to Indian manufacturers who treat machine safety compliance as an engineering discipline rather than a bureaucratic imposition. The standards are demanding, but they are also learnable. The documentation is extensive, but it is also reusable across a product family. The safety architectures required are more complex than a single relay, but they are also more reliable, more defensible, and increasingly available at component costs that Indian manufacturers can access.

PLe

Highest Performance Level achievable under ISO 13849. Required for the most serious hazard combinations.

10 Years

Mandatory Technical File retention period after the last CE-marked machine is placed on the market.

3 Steps

ISO 12100 risk assessment process: Risk Analysis, Risk Evaluation, Risk Reduction. Always in this order.

Palladium Dynamics provides end-to-end machine safety compliance services for Indian manufacturers: risk assessment and PLr determination, safety circuit design and SISTEMA validation, robot cell safeguarding design, CE Technical File preparation and Declaration of Conformity, and factory acceptance testing against IEC 60204-1 and ISO 13849 requirements. We have worked with manufacturers across automotive, pharmaceutical, food processing, and general engineering sectors in India, and we understand the practical constraints - budget, timelines, maintenance capability, and operator environment - that shape what works in an Indian plant.

Key Standards Reference

Standard	Title	Relevance
ISO 13849-1:2015	Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design	Core standard for safety function design and Performance Level calculation
ISO 13849-2:2012	Safety of machinery - Safety-related parts of control systems - Part 2: Validation	Validation requirements including fault exclusion criteria and test methods
IEC 62061:2021	Safety of machinery - Functional safety of safety-related control systems	SIL-based alternative to ISO 13849 for complex electronic/programmable safety systems
ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction	Parent standard for all machine safety work. Risk assessment methodology.

ISO 10218-1/2:2011	Robots and robotic devices - Safety requirements for industrial robots	Robot manufacturer (Part 1) and integrator (Part 2) requirements
ISO/TS 15066:2016	Robots and robotic devices - Collaborative robots	Force and speed limits for collaborative robot applications
EN ISO 13857:2019	Safety of machinery - Safety distances to prevent hazard zones from being reached	Safety distance calculations for guards and safeguarding devices
IEC 60204-1:2016	Safety of machinery - Electrical equipment of machines - Part 1: General requirements	Electrical installation requirements including stop categories and e-stop design
EU Machinery Directive 2006/42/EC	Directive of the European Parliament and of the Council on machinery	Legal framework for CE marking of machinery placed on the EU market

"A machine that cannot be safely maintained will eventually be unsafely maintained."

Palladium Dynamics Engineering Team | Machine Safety Compliance Series | 2026 | Industrial Automation | Process Control | Safety Systems | IIoT | RTLS

This guide is for informational purposes. Compliance with ISO 13849, IEC 62061, and CE Marking requirements requires project-specific engineering assessment. Contact Palladium Dynamics for a site-specific evaluation.



THANK YOU

for reading the ISO 13849 & CE Machine Guarding Compliance Guide

Compliance is not a one-time project. It is an ongoing commitment to the people who work on and around your machines every single day.

Palladium Dynamics is ready to partner with you on every step of your machine safety journey - from risk assessment through to CE certification,

PARTNER WITH PALLADIUM DYNAMICS

Palladium Dynamics

Industrial Automation | Process Control | Safety Systems

PLC/SCADA/HMI | Industry 4.0 | RTLS | Robot Safety Fencing

Machine Guarding | ISO 13849 | CE Marking | IEC 62061

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