

ISO 3691-4:2023: Compliance testing for automated guided vehicles (AGVs)

In recent years, the demand for robotic systems such as **Automated Guided Vehicles (AGVs)** has grown significantly. **AGV manufacturers** are at the forefront of this industrial revolution, developing advanced solutions that optimise time and resources in the manufacturing and logistics industry.

The implementation of methodologies such as **Kanban (Lean Manufacturing)** or **POLCA (Quick Response Manufacturing)** has increased the need for efficient and safe AGVs. To ensure that these vehicles meet the highest safety and performance standards, it is essential that manufacturers adhere to the harmonised standard **ISO 3691-4:2023**.

What is the ISO 3691-4:2023 Standard and its Harmonisation?

The recently harmonised **standard ISO 3691-4:2023** sets out the safety and verification requirements for **driverless industrial trucks and their systems**, ensuring safety and efficiency in their operation. This harmonisation is crucial for **AGV manufacturers** looking to expand their business in the European Union, as it facilitates obtaining the [CE certification](#), indicating that the robots comply with EU safety standards. Harmonisation simplifies the **process of demonstrating compliance** with the essential requirements, enhancing the brand's reputation and building trust among all stakeholders.

Details of the ISO 3691-4:2023 Standard

The **ISO 3691-4:2023 standard** covers **several key aspects** to ensure the safety and efficiency of **AGVs**:

1. **Risk and Hazard Assessment:** The standard describes the importance of carrying out **hazard analyses and risk assessments**, using specific tables in Annex B.
2. **Safety Systems:** Three key aspects for a safe **AGV** are highlighted: the operating environment, the associated hazards and risks, and the correct implementation of the **protection systems**.
3. **Protective Measures:** The relationship between **safety protection measures**, such as the personnel detection system, the braking system, speed control and stability.
4. **Normal Climatic Conditions:** The standard specifies the **normal climatic conditions** for the operation of **AGVs**, including specific temperatures and altitudes.

5. **Comparison with Previous Standards:** ISO 3691-4 adopts elements from ISO 13849 for driverless industrial trucks, establishing **performance levels (PL)** instead of just categories. In addition, it introduces significant improvements compared to **EN 1525**, especially in the definition and classification of zones and the interaction with transport systems.

Testing Services for AGVs according to ISO 3691-4:2023

Although we are not currently specifically accredited for the **ISO 3691-4:2023 standard**, we can provide compliance through other equivalent previous standards, allowing manufacturers to demonstrate compliance with the applicable requirements through our tests.'

EMC Testing for AGVs according to ISO 3691-4

We perform [Electromagnetic Compatibility \(EMC\) tests to ensure that AGVs do not interfere with other electronic equipment](#) and comply with international standards. We have a large **EMC chamber**, ideal for large components and large **AGVs**, allowing for measurements at 10 metres.

Electrical Safety Testing for AGVs according to ISO 3691-4

We assess the [electrical safety of AGVs](#) to ensure they meet safety requirements and do not present **electrical hazards** to users.

Risk Assessment for AGVs according to ISO 3691-4

We carry out **hazard analyses and risk assessments** in accordance with the **ISO 3691-4 standard**, using specific tables to identify and mitigate potential risks.

Software Assessment for AGVs according to ISO 3691-4

We assess the **control software of AGVs** to ensure its reliability and compliance with the **safety requirements** established in the standard.

RED Directive Compliance and Cybersecurity Services

RED Directive Compliance

We offer [compliance services for the RED \(Radio Equipment Directive\)](#) for equipment requiring this certification, including the new cybersecurity requirements that will be mandatory from August.

Compliance Services for the Machinery Directive 2006/42/EC

Compliance with the Machinery Directive

In addition to the tests indicated above in accordance with the **ISO 3691-4:2023 standard** (a standard harmonised by the **Machinery Directive**), at Applus+ Laboratories **we offer documentary assessment services (a critical part of this process)**, to guarantee compliance with [the essential requirements of the Machinery Directive 2006/42/EC](#), which is the essential legal framework for the commercialisation of **AGVs** in the **European Economic Area**. This mainly includes:

- The review and assessment of the **AGV's Technical Construction File**, verifying that it contains all the documents and evidence required by the directive and/or harmonised standard **ISO 3691-4**, such as electrical diagrams, functional diagrams, list of applied standards, results of tests carried out, risk assessment, calculations, instruction and maintenance manuals, Declarations of Conformity for components and from the manufacturer itself, among other documents.

With this comprehensive assessment, we verify that **AGV manufacturers** comply not only with the technical requirements but also with **the necessary documentary and regulatory process** to ensure compliance with the essential safety requirements demanded by the **Machinery Directive** and its harmonised standard, for obtaining the **CE marking**.

Why choose Applus+ Laboratories for compliance testing of your AGV with ISO 3691-4?

Choosing [Applus+ Laboratories](#) means partnering with a leader in innovation and a trusted partner for **certification and global market access**.

- **Comprehensive Solution:** Complete coverage from **risk assessment to CE Marking**.
- **Risk and Cost Reduction:** Minimise **non-quality costs** and the risks of accidents.
- **EU Market Access:** Streamline the entry of your products throughout the **European Union**.
- **Competitive Advantage:** Ensure compliance with the highest standards of **safety and quality**.

Contact us today to ensure your **AGVs** meet the highest standards and secure their market access.