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# **ATEX 'State of the Art'**

And New Standards

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# INTRODUCTION

The ATEX Directive 2014/34/EU applies to all manufacturers placing equipment or protective systems into potentially explosive atmospheres in the European Union, and for many manufacturers, the moment a product receives its ATEX certification feels like the end of a long journey.

For the majority, the project is closed and all attention turns to production and sales, but in reality, ATEX compliance does not end there. It is a concept that evolves over time: **this is what is referred to as the 'state of the art'**.

As technical standards are developed, as new ignition risks are identified, what is considered the current technical knowledge to which equipment is judged against also changes. A product which met the requirements years ago, or even yesterday, may no longer satisfy today's requirements, even without any physical design changes.

This paper explains what 'state of the art' means within ATEX, how it is satisfied through 'harmonised standards' and how changes in that "state of the art" may affect existing certifications. Most importantly, this whitepaper will set out what you as a manufacturer can do to ensure that your products remain compliant throughout their entire life cycle.



## AUTHOR

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Jayson Shepherd is a Certification Engineer based at Element's Skelmersdale laboratory, supporting customers through testing and certification services of electrical and non-electrical equipment, designed for use in explosive environments. Jayson specializes in ATEX, IECEx, UKEx and HazLoc Certification.

Jayson works closely with customers from initial planning through final certification and on-going technical file and compliance reviews, helping manufacturers to simplify and streamline their product's develop cycle, guide them through the testing process, and review results to ensure clear, actionable insight.

Jayson also has over eight years of experience in bringing household electrical and electronic products, and fire safety equipment to market.



# WHAT IS THE 'STATE OF THE ART'?

Within ATEX, 'state of the art' refers to the accepted level of technical knowledge and safety performance needed to meet the Essential Health and Safety Requirements of Directive 2014/34/EU.

It does not require manufacturers to adopt the most experimental technology, nor does it imply selecting the most expensive solution. Instead, it reflects what industry experts today consider appropriate and reasonable for controlling ignition risks and mitigating explosion hazards.

The State of the Art is expressed through several channels. 'Harmonised standards' cited in the Official Journal of the European Union (OJEU) are the most visible representation. These standards reflect the consensus of industry, safety experts and regulators, and translate legal requirements into practical measures.

Over time, they evolve in response to new knowledge. Lessons from accidents, insights gained from testing, and advances in technology all gradually shift what is considered acceptable practice. The forewords of revised standards often indicate whether changes reflect new technical expectations, and guidance from standardization bodies and Notified Bodies further refines the understanding of acceptable engineering practice.

## WHAT ARE HARMONISED STANDARDS?

Harmonised standards serve as the operational core of ATEX compliance.

When a manufacturer designs, tests and documents their product in accordance with a harmonised standard listed in the OJEU, that product benefits from presumption of conformity. This means authorities accept that the product meets specific Essential Health and Safety Requirements unless there is evidence to the contrary. Standards in the EN 60079 and EN 80079 series provide detailed requirements for design, marking, testing and documentation of explosion-protected equipment, depending on the equipment and its type of protection.

However, these harmonised standards will very likely be updated every five to seven years during regular reviews. The updates often include updates to the design requirements or test methods, thereby resulting in products compliant with previous editions of standards now not compliant with the 'State of the Art'.

Each revision includes a publication date and a withdrawal date and once the withdrawal date passes, the earlier edition no longer provides that presumption of conformity. Manufacturers who continue to rely on outdated standards after the date of withdrawal are taking a great risk as they may fall out of compliance unless they reassess their products against the newer requirements.

# HOW DO CHANGES TO STANDARDS AFFECT THE 'STATE OF THE ART'?

Changes to harmonised standards can have very different implications depending on their nature.

Minor or editorial changes, such as clarifications and corrected errors, generally do not affect the technical performance or safety of a product. In these cases, the design remains acceptable, and manufacturers normally only need to update their documentation to reflect the newer edition of the standard.

'Major technical changes' have a greater impact and could, where there have been serious safety issues addressed by the change, result in the product no longer satisfying ATEX from date of publication. These involve revised test requirements, new definitions of fault conditions, updated clearance and creepage distances, or new expectations for mechanical strength, thermal performance or marking.

Such changes reflect a shift in understanding of what is needed to achieve adequate explosion protection. Where there are major technical changes that cause a shift to this understanding, this is what is considered to be a change in the 'State of the Art'.

A product that met the old requirements may not meet the new ones. When this occurs, the manufacturer must compare the new and old editions in detail, identify gaps and determine whether the product needs redesign or retesting. If the new edition introduces requirements necessary for safety, the Notified Body may need to reassess and update the certificate.

A more challenging situation arises when a harmonised standard is removed from the OJEU without a replacement. In this case, the standard cannot be used to claim presumption of conformity. Manufacturers must then justify compliance directly against the Essential Health and Safety Requirements, using risk assessments, technical justifications or non-harmonised standards. This process requires clear documentation considering all risks and often closer collaboration with the Notified Body. Where non-harmonised standards are being utilised, the process to certification within the Notified Body may also take longer and may come with a higher price tag for the manufacturer.

Also, we found that within ATEX in 2025, standards were published by CENELEC, but not harmonised into the OJEU by the European Commission for a number of reasons.

This presents challenges as there are now standards that industry experts believe shift the 'State of the Art', but are not considered to provide the presumption of conformity with the ATEX Directive.

As a solution to this, there are calls on the European Commission to provide new standards published by CENELEC (European Committee for Electrotechnical Standardization) with the same presumption of conformity as those standards currently listed in the OJEU. During the period where there is a newer standard that has been published by CENELEC, but where the previous standard is listed in the OJEU, it would not be considered unwise to apply the previous standard. Until the date of withdrawal, the older standard still provides the presumption of conformity.

Within the European Coordination of ATEX Notified Bodies Group (ExNBG) there is an ongoing discussion involving all Notified Bodies to collectively recognise and determine the standards the Bodies consider as "state of the art". This is to ensure consistent application of the requirements amongst all EU Notified Bodies in the interim period between publication and harmonisation.



# WHAT DOES THIS MEAN FOR EXISTING CERTIFICATION?

An ATEX certificate is not a never-ending guarantee of conformity.

It reflects the 'State of the Art' and regulatory expectations at the time it was issued. When standards evolve, underlying assumptions change, and certificates issued to previous standards may no longer meet current expectations.

For products still in production, each new unit placed on the market must comply with the requirements valid at the time it was placed onto the market, and it is not considered acceptable to only consider the requirements of standards current when the product was first placed onto the market.

If a new edition of a standard has become applicable, products based on older editions may pose a risk if no reassessment is performed.

Installed products present a somewhat different case. The Directive governs products when they are placed on the market, and there is generally no legal requirement to upgrade equipment already installed in the field. However, when manufacturers supply spare parts or replacement components, these must not compromise the explosion protection of the original installation. If the understanding of risks or performance requirements has changed, certain spare parts may need to be reassessed to ensure they do not introduce new hazards. Both manufacturers and Notified Bodies must be prepared to justify why an existing product remains aligned with the state of the art when questioned by authorities or users.



# PRACTICAL STEPS THAT YOU SHOULD TAKE

Maintaining compliance with ATEX, in light of the evolving 'State of the Art', requires a proactive and structured approach.

Manufacturers should establish clear responsibility within their organisation for monitoring changes to relevant standards and guidance. Keeping a register of all standards applied to each product, including their editions and withdrawal dates, allows early identification of changes that may affect compliance. This is one of the areas assessed as part of the Quality Assurance process to provide a QAN.

Whenever a standard is revised, a thorough comparison should be made between the new and previous editions to understand how the changes impact your products. This gap analysis should identify whether the changes influence safety or are merely editorial.

When safety-related changes occur, a technical assessment must be performed to determine whether the product continues to meet the Essential Health and Safety Requirements. Engaging with your Notified Body at an early stage ensures that any necessary reassessment, redesign or testing is planned in time to avoid production delays or certificate issues.

At the same time, technical documentation should be kept up to date. The technical file, design documents, risk assessments, test reports and user instructions should all reflect the latest information and be revised when changes occur.

Effective change control processes are essential so that any design modification, however small, is evaluated for its effect on explosion protection and certification.

Where the changes to standards do not directly affect your product, this does not immediately mean that you may claim compliance with the new standard straight away.

The certification provided by the Notified Body is only to the standards listed on the product certificate and should you wish to have the new standards listed on your certificate, you must involve the Notified Body to make this update.

## CONCLUSION

ATEX certification is not a milestone in your product's journey to market which is to be achieved and forgotten about.

It is an ongoing process that demonstrates your product meets an evolving benchmark. As new technical knowledge emerges and standards evolve in response, you must ensure that your products continue to evolve too.

By actively monitoring standards, conducting meaningful gap analyses, engaging with Notified Bodies and maintaining robust documentation and change control practices, you can confidently demonstrate compliance, protect users and maintain the integrity of their products throughout their life.



Scan to find out more.

## WHY CHOOSE ELEMENT?

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**We provide comprehensive testing and certification services that ensure products meet international standards for connectivity, interoperability, and safety.**

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