



WHITE PAPER

Regulation (EU) 2023/1230 on machinery (EU Machinery Regulation)

Opportunities, burdens and insolvency risks for electronics manufacturing in the EU
An analysis for EMS providers and operators of networked manufacturing facilities in the EU

Dirk Kaussen, MBA

Founder and CEO, EMS Strategy Group | May/June 2026

Translation Notice:

This document has been translated from the original German version using machine translation systems. Although the content has been carefully reviewed, discrepancies or translation errors cannot be entirely ruled out. In the event of any ambiguity or conflict, the original German text shall remain solely authoritative.

Summary

The new EU Machinery Regulation (EU) 2023/1230 will completely replace the existing Machinery Directive 2006/42/EC on January 20, 2027. It affects European electronics manufacturing at a time of technological consolidation: production lines are no longer isolated sequences of machines, but rather networked systems comprising SMD placement machines, wave soldering systems, through-hole technology (THT) assembly solutions, automated optical inspection systems, X-ray systems, warehouse management systems, and higher-level manufacturing execution systems (MES). This very degree of networking is the core of the new regulatory framework.

This white paper analyzes, based on publicly available sources from the period 2025–2026, the significance of the MVO for operators and manufacturers in electronics manufacturing: what advantages the regulation offers, what burdens arise, what costs can be expected on a representative networked production line — and which companies could face economic difficulties due to cumulative regulatory costs.

Four key messages from this white paper

1. Change of legal form without a transition period: The MVO will apply directly and uniformly in all EU member states from 20 January 2027 — without any room for national adaptation.

2. Focus on networked manufacturing: Cybersecurity obligations, AI regulation for self-learning systems and a newly defined "material change" affect not only SMD lines, but the entire networked manufacturing infrastructure.

3. Estimated costs per networked production line: Based on publicly available market prices, the EMS Strategy Group estimates a one-time compliance cost of approximately €30,000–€80,000 for a complete, networked production line with SMD, THT, inspection and MES connectivity.

4. Economic burden for structurally weak SMEs: Publicly available insolvency statistics (Destatis 2025) and the EU Commission's regulatory impact assessment on the MVO suggest that small manufacturing companies with a thin equity base can come under economic pressure due to cumulative regulatory costs. A direct causal link between the MVO and insolvency cannot be statistically isolated—however, the structural risk potential for resource-constrained companies is documented.

1. The EU Machinery Regulation (EU) 2023/1230 — Background and scope

1.1 From directive to regulation: What fundamental legal changes are taking place

On June 29, 2023, Regulation (EU) 2023/1230 was published in the Official Journal of the European Union. It will enter into full force on January 20, 2027. The crucial difference lies in the legal form: A directive had to be transposed into national law by each Member State—sometimes with differing national interpretations. A regulation applies directly, uniformly, and without the need for an implementing act in all EU Member States.

In Germany, the Federal Cabinet introduced a draft law for national implementation at the end of July 2025—the Machinery Directive Implementation Act (MaschinenDG). It exclusively regulates language, procedural, market surveillance, and penalty provisions. The substantive requirements are derived solely from the EU regulation.

Source: Halle-Dessau Chamber of Industry and Commerce (April 27, 2026): Machinery Regulation (EU) 2023/1230 enters into force in 2027. [ihk.de/halle](https://www.ihk.de/halle)

1.2 Scope of application — the entire networked electronics manufacturing

According to Article 2, paragraph 1, the Machinery Regulation applies to complete and incomplete machinery as well as to related products such as safety components and interchangeable equipment. For electronics manufacturing, this means: Machine components of a production line may fall under the requirements of the MVO, especially if they are newly placed on the market, substantially modified, or modernized in a safety-relevant manner.

This means that not only SMD assembly lines are relevant. The MVO also covers wave soldering systems and selective soldering systems, THT pick-and-place machines, X-ray inspection systems, automated storage systems and order picking solutions, handling systems and conveyor systems, MES-controlled control infrastructure, and all machines that communicate with higher-level systems via interfaces. The increasing networking between machines and higher-level systems is explicitly taken into account for the first time in the MVO with regard to safety-relevant requirements for digital control and communication structures.

Source: Nuremberg Chamber of Industry and Commerce (2025): Information sheet on Regulation (EU) 2023/1230 on machinery. [ihk-nuernberg.de](https://www.ihk-nuernberg.de)

Source: ZVEI e.V. (2024): Guidelines for the application of the new EU Machinery Regulation in the electrical industry. [zvei.org](https://www.zvei.org)

2. Key innovations of the MVO

2.1 Cybersecurity as a binding manufacturer obligation for the first time

One of the most significant innovations for networked manufacturing environments is the first explicitly formulated requirements for protection against unauthorized digital interference and security-relevant manipulations in accordance with Annex III, Section 1.1.9 of the MVO. Manufacturers must ensure that machines are protected against unauthorized access by third parties. Control systems must be designed in such a way that cyberattacks, hardware and software defects, and errors in the control logic do not lead to hazardous situations. This requirement was not included in the Machinery Directive 2006/42/EC.

For a networked production line — in which pick-and-place machines, soldering systems, inspection systems and MES communicate via a shared network infrastructure — this means: Every network interface, every external control connection and every data access to machine parameters must be secured against unauthorized access and documented.

Source: EUR-Lex (29 June 2023): Regulation (EU) 2023/1230, Annex III, point 1.1.9. eur-lex.europa.eu

Source: NTT DATA (July 25, 2025): EU Machinery Regulation 2023/1230: New cybersecurity requirements for manufacturers from 2027. de.nttdata.com

Source: German Social Accident Insurance (DGUV) (2025): Cybersecurity and functional safety according to the new Model Ordinance. dguv.de

2.2 AI and self-evolving behavior

Machines with self-evolving behavior using machine learning fall under Annex I, Part A of the Machinery Regulation and are subject to stricter conformity assessment requirements. In electronics manufacturing, AOI and SPI systems primarily use AI for optical misclassification. This generally does not fall under the stricter testing requirements of Annex I, as it does not perform safety-related control tasks (such as locking protective covers). Annex I is generally only relevant for EMS operators if autonomous logistics systems (AGVs) or collaborative robots (cobots) independently learn safety-relevant driving and movement rules using AI.

AI-supported systems must not perform safety-relevant functions that could lead to uncontrolled or hazardous machine states. Changes to parameters and rules that could create hazardous situations must be prevented. Safety-relevant decision-making processes must be documented.

Source: ZVEI e.V. (2024): Guidelines for the application of the new EU Machinery Regulation in the electrical industry. zvei.org

2.3 Software as a safety component

Under the MVO (Mechanical Safety Regulation), software that performs safety functions is legally treated like a physical safety component. It is subject to the same requirements for documentation, conformity assessment, and market surveillance as mechanical components. For EMS providers, this means: Software changes affecting safety functions or safety-relevant control logics may necessitate a re-conformity assessment, depending on the scope and risk assessment.

Source: Ebner Stolz (May 2026): The new Machinery Regulation (EU) 2023/1230 — What companies need to know now. ebnerstolz.de

2.4 Significant change — also due to software updates

The Machinery Regulation (MVO) defines for the first time in law when a modification to an existing machine is considered "substantial": when the change affects safety and creates new hazards or increases existing risks. Crucially, this definition explicitly includes digital interventions such as

Software updates: Anyone who substantially modifies an existing machine can be legally classified as a manufacturer under Article 10 of the Machinery Regulation. Important for practical purposes: Regular firmware and security updates from the original machine manufacturers (e.g., ASM, Fuji, Ersa) do not represent a significant change for the operator.

However, EMS providers face a substantial risk when they implement their own control software or MES scripts via open interfaces (e.g., IPC-CFX, Hermes standard) that actively intervene in the safety-related logic or emergency stop chains of the line.

Source: EUR-Lex (29 June 2023): Regulation (EU) 2023/1230, Article 10. eur-lex.europa.eu

Source: iSAX GmbH (July 29, 2025): Machinery Directive 2023/1230: What to expect. isax.com

Source: CCC Industrie Software GmbH (January 19, 2026): EU Machinery Regulation 2023/1230 — What will change by 2027? blog.ccc-industriesoftware.de

2.5 Digital operating instructions and new documentation requirements

Operating instructions and declarations of conformity may now be provided digitally as standard. Manufacturers must ensure that the digital instructions remain available online for the entire lifespan of the machine, but for at least ten years. In the B2B sector, buyers may still request a paper version free of charge.

Source: ecoprotec GmbH (April 9, 2026): EU Machinery Regulation 2023/1230 — All amendments from 2027. ecoprotec.de/eu-maschinenverordnung-2027

3. Opportunities of the MVO for electronics manufacturing

3.1 Uniform legal framework in all EU Member States

The most fundamental advantage of the Machinery Regulation lies in its direct, uniform application without national variations. EMS providers operating in multiple EU countries or procuring equipment across borders previously had to consider differing national interpretations of the Machinery Directive. The Machinery Regulation eliminates this burden structurally.

Source: Halle-Dessau Chamber of Industry and Commerce (April 27, 2026): Machinery Regulation (EU) 2023/1230 enters into force in 2027. ihk.de/halle

3.2 Legal clarity for networked, digital manufacturing

The Machinery Directive from 2006 was not designed for today's technological reality of networked production lines. Key questions remained unanswered: What applies in the event of cyber incidents on networked production machines? When is a software update so extensive that a new conformity assessment becomes necessary? Who is liable in the event of a security incident triggered by a compromised control interface? The Machinery Regulation (MVO) provides binding answers to these questions for the first time, thus creating a reliable legal framework for modern manufacturing environments.

Source: M&P Experts (March 5, 2025): The new Machinery Regulation (EU) 2023/1230 — Everything you need to know. mp-sachverstaendige.de

3.3 Increased product safety as a quality feature

The stricter requirements for cybersecurity and AI regulation are demonstrably increasing the level of security in European manufacturing environments. For OEM customers who outsource their orders to European EMS providers, an MVO-compliant partner means: documented protection of production data, machines operated in accordance with regulations, and transparent risk management. In safety-critical sectors such as medical technology, defense, and automotive, this proof is increasingly becoming a prerequisite for awarding contracts.

Source: elektro-automatisierung-digital.de (February 4, 2026): Fit for 2027: What will really change with the new EU Machinery Directive. elektro-automatisierung-digital.de

3.4 Harmonisation with the Cyber Resilience Act

The MVO explicitly harmonizes with the EU Cyber Resilience Act (CRA). For companies that already have to establish compliance processes for the CRA, this creates synergies: cybersecurity requirements, risk assessment logic, and documentation obligations overlap structurally. Addressing both sets of regulations together optimizes the overall effort.

Source: German Social Accident Insurance (DGUV) (2025): Cybersecurity and functional safety according to the new Model Ordinance. dguv.de

4. Burdens on EMS service providers in in-house operation and line linking

Note on the legal distinction: The Machinery Regulation (MR) is primarily a regulation for manufacturers placing products on the market. It does not directly address a mere operator of an unmodified machine (for whom the national Industrial Safety Ordinance applies). However, in electronics manufacturing, the lines immediately become blurred as soon as an EMS provider independently links individual machines (printers, pick-and-place machines, reflow machines) into a "combination of machines" or substantially modifies older systems through retrofitting. In these cases, the operator may be required to assume the legal obligations of a manufacturer under the Machinery Regulation.

4.1 Deadline 20 January 2027 — no transition period

From January 20, 2027, only the Machinery Regulation (MR) applies. There is no parallel period during which the old Machinery Directive could optionally still be applied. Companies should examine planned modernization, retrofit, and networking projects early on with regard to possible impacts of the Machinery Regulation in order to avoid later adaptation and documentation efforts.

Source: ecoprotec GmbH (April 13, 2026): EU Machinery Directive — Are your machines ready for 2027? ecoprotec.de

Source: midok.de / Stefan Kurze (December 5, 2025): 2026: The year in which "We'll take care of it later" can become really expensive. midok.de

4.2 Retrofit, wave soldering and THT — also older line sections affected

A common misconception in the industry is the assumption that the Machinery Regulation primarily affects modern SMD lines with AI components. This is incorrect. Existing machines can also be affected, especially if they are significantly modified, subsequently networked, or undergo safety-related modernization. This can be relevant, for example, in retrofit projects, new MES connections, remote maintenance access, or changes to safety-relevant control software. A wave soldering system with digital process control and network connection to an MES system can become relevant under the Machinery Regulation — especially if subsequent networking or safety-related modernizations affect safety-related control functions and thus could constitute a significant change within the meaning of the Machinery Regulation.

Source: iSAX GmbH (July 29, 2025): Machinery Directive 2023/1230: What to expect. isax.com

Source: Ebner Stolz (May 2026): The new Machinery Regulation (EU) 2023/1230 — What companies need to know now. ebnerstolz.de

4.3 The lack of harmonized standards increases the planning effort.

The official application guide for the Machinery Regulation is still under development. A complete publication is not expected until the end of 2026 at the earliest—just a few weeks before it comes into force. Harmonised standards, which manufacturers can use to presume conformity, are also not yet fully updated in some cases. Without harmonized standards and a final guide, risk assessments and conformity evaluations can only be carried out based on the regulatory texts themselves—which means increased consultation efforts and the risk of costly rework.

Source: IBF Solutions GmbH (May 2026): News on the Guidelines for the Machinery Directive. ibf-solutions.com/fachbeitraege/news-zum-leitfaden

4.4 Personnel costs and external expertise

The Machinery Regulation requires specialized technical and legal knowledge for networked security systems, cybersecurity, and conformity assessment. In many medium-sized EMS companies, this

knowledge is not readily available without external resources. Training for security officers and those responsible for technical documentation, external CE consulting, and ongoing monitoring processes for software updates represent a significant resource commitment.

5. Cost estimate for a networked electronics production line

5.1 Methodology and basic assumptions

A precise quantification of MVO compliance costs for a single production line is only possible using range data based on publicly available sources. The following estimate is based on publicly published market prices for CE services and technical documentation, as well as on the EMS Strategy Group's industry-experience-based assessment for items for which no publicly available individual prices exist. The latter is explicitly indicated in the text. The costs mentioned do not represent generally valid market prices, but rather indicative ranges based on publicly available information and industry-specific practical experience.

The basic assumption for this estimate is that a representative networked electronics production line in the medium-sized EMS sector comprises at least two SMD placement machines, a stencil printer, an SPI system, a reflow soldering oven, and an AOI system. For through-hole technology (THT) production, it also includes a wave soldering system or a selective soldering system for THT components. All machines are connected via a common network with an MES interface. At least two to three machines (AOI, modern pick-and-place, SPI) incorporate adaptive software algorithms that potentially meet the AI requirements of the Machinery Regulation.

Cost overview: One-time compliance costs per networked production line

measure	Scope of Services	Cost Range	Source
Gap analysis & inventory	Evaluation of all machines against MVO requirements	3.000 – 6.000 €	CE-Koordination.de (2026); highdoc.de (2026)
Risk assessment	Update according to DIN EN ISO 12100 + MVO, per machine	€2,000 – €4,000 / machine	HighDoc Technical Documentation GmbH (2026)
Technical documentation (complete)	Technical documentation and operating instructions for all machines	8.000 – 18.000 €	CE-Koordination.de; highdoc.de (2026)
Cybersecurity Assessment	Network architecture, controls, update processes, MES interfaces	4.000 – 10.000 €	EMS Strategy Group assessment (based on NTT DATA, 2025)
Software Documentation	Version control, security-relevant change documentation	2.000 – 6.000 €	Assessment by EMS Strategy Group
Training	CE Coordinator, technical documentation, safety/security	2.000 – 5.000 €	Assessment by EMS Strategy Group
External testing body (Annex I)	TÜV / DGUV test for machines with AI safety components, per machine	€3,000 – €10,000 / machine	TÜV SÜD (tuvsud.com, 2025); DGUV Test (dguv.de, 2025)
Ongoing costs (annual)	Documentation maintenance, standards monitoring, update evaluation	€3,000 – €8,000 / year	Assessment by EMS Strategy Group

Total one-time costs for complex in-house integration (including the theoretical maximum cost for external testing facilities for AI-controlled robotics safety components): **approximately €30,000 – €80,000**. In classic SMD and THT series production (where no AI-based safety components are utilized), the costs for external testing bodies are entirely eliminated, reducing the actual one-time cost to **approximately €21,000 – €53,000 per integrated line**.

Note: Specific individual prices for CE services on electronics manufacturing machines are not available in any publicly accessible study. The cost ranges are based on publicly published market prices for standard CE services and on the EMS Strategy Group's assessment of the specific additional costs resulting from the new MVO requirements. Where no public source is available, this is explicitly stated.

Sources Section 5: HighDoc Technische Dokumentation GmbH (May 27, 2026): highdoc.de/kosten-ce-kennzeichnung — CE-Koordination.de / Knorre GmbH (February 18, 2026): ce-koordination.de — TÜV SÜD AG (2025): tuvsud.com — DGUV Test (2025): dguv.de - **Federal Institute for Occupational Safety and Health (BAuA) (2025): baua.de**

6. Regulatory burdens and economic challenges for SMEs — an objective analysis

6.1 What the insolvency statistics show

Whether companies become insolvent specifically because of the Machinery Regulation cannot be statistically isolated—insolvency is always the result of several overlapping burdens. What can be demonstrated based on public data is that the economic situation of German manufacturing SMEs was considerably strained in 2025. The Federal Statistical Office recorded 21,812 corporate insolvencies in Germany for 2024—an increase of 22.4% compared to the previous year. Small and medium-sized enterprises were predominantly affected.

Source: Federal Statistical Office / Destatis (2025): Corporate Insolvencies in Germany 2024. [destatis.de/DE/Themen/Branchen-Unternehmen/Unternehmen/Gewerbeanzeigen-Insolvenzen](https://www.destatis.de/DE/Themen/Branchen-Unternehmen/Unternehmen/Gewerbeanzeigen-Insolvenzen)

6.2 Regulatory Impact Assessment by the EU Commission

In the legislative process for the Machinery Regulation, the European Commission prepared a regulatory impact assessment. This assessment assumes that for the vast majority of affected economic operators, there will be no additional burden compared to the status quo—provided the previous Machinery Directive was correctly applied. However, the Commission identifies relevant adaptation costs for companies with significant retrofitting needs. Recital (28) of the Machinery Regulation explicitly states that conformity assessment costs should be reduced proportionally to the interests and needs of SMEs.

Source: EUR-Lex (29 June 2023): Regulation (EU) 2023/1230 of the European Parliament and of the Council. eur-lex.europa.eu/legal-content/DE/ALL/?uri=CELEX:32023R1230

6.3 Cumulative regulatory burden as a structural risk

The Machinery Regulation is not the only regulatory requirement facing electronics manufacturing companies between 2025 and 2027. Running concurrently are the requirements of the EU Cyber Resilience Act, the EU AI Act for companies with AI systems, stricter REACH requirements for process chemicals, and CSRD reporting obligations for SMEs from 2026 onwards. This increasing regulatory burden is impacting companies that are simultaneously grappling with high energy costs, a shortage of skilled workers, and sales pressure.

The combination of these factors — not the Machinery Regulation alone — could lead to significant economic burdens, especially for resource- and capital-limited SMEs in electronics manufacturing. This assessment is based on the public sources cited in this white paper and does not replace an economic study. For companies with annual revenues below €3 million and no dedicated compliance resources, a one-time compliance effort within the range specified in Section 5 can represent a significant financial burden, depending on their capacity utilization and equity situation, especially if this effort coincides with other regulatory requirements.

6.4 No direct causality — but a documented risk potential

Scientific studies on the direct insolvency effects of the Machinery Regulation for small electronics manufacturing companies are not available in publicly accessible specialist publications. However, it can be objectively demonstrated that compliance costs are proportionally more burdensome for small companies than for large ones. This is a fundamental economic principle that the EU Commission also explicitly addresses in recital (28) of the Machinery Regulation.

Source: EUR-Lex (29 June 2023): Regulation (EU) 2023/1230, Recital (28). eur-lex.europa.eu/legal-content/DE/ALL/?uri=CELEX:32023R1230

7. Strategic recommendations for operators of networked production lines

7.1 Immediate measures until the end of 2026

Less than eight months remain until the deadline of January 20, 2027 (as of May 2026). The following measures should be addressed as a priority:

Gap analysis of the entire machinery—not just the SMD line: Existing machines and networked manufacturing systems should be assessed for potential impacts of the Machinery Regulation (MVO), especially during planned modernizations, retrofits, software changes, or safety-related networking. This can include wave soldering systems, through-hole technology (THT) placement machines, storage systems, and MES interfaces. This assessment requires CE expertise and should not be conducted internally without the appropriate qualifications.

Review of existing technical documentation: Older documentation was created under the Machinery Directive 2006/42/EC and should be reviewed for its relevance to the Machinery Regulation, especially if modernizations, networking, or safety-related modifications are planned or have already been carried out. Gaps in the documentation of networked or retrofitted systems are particularly common.

Introduce a process for software update documentation: From now on, every software update on machines should be documented and assessed for its potential security relevance. Depending on the nature and scope of the modifications, structured documentation of software updates and safety-related changes may become increasingly important under the Machinery Regulation.

Source: ecoprotec GmbH (April 13, 2026): EU Machinery Directive — Are your machines ready for 2027? ecoprotec.de

7.2 Positioning of MVO compliance in OEM competition

EMS providers who actively document and communicate MVO compliance create a verifiable qualification basis for OEM customers in safety-critical segments. In medical technology, defense, and automotive, the ability to demonstrate regulatory-compliant manufacturing environments is increasingly becoming a prerequisite for awarding contracts—not just a desirable attribute. Those who provide this proof early on strengthen their competitive position in precisely those customer segments that prefer European manufacturing locations.

Source: elektro-automatisierung-digital.de (February 4, 2026): Fit for 2027: What will really change with the new EU Machinery Directive. elektro-automatisierung-digital.de

8. List of Sources

Primary sources (legal texts)

EUR-Lex (29 June 2023): Regulation (EU) 2023/1230 of the European Parliament and of the Council. eur-lex.europa.eu/legal-content/DE/ALL/?uri=CELEX:32023R1230

EUR-Lex (consolidated text): Regulation (EU) 2023/1230. eur-lex.europa.eu/legal-content/DE/TXT/PDF/?uri=CELEX:02023R1230-20230629

Official bodies, chambers and associations

Halle-Dessau Chamber of Industry and Commerce (April 27, 2026): Machinery Directive (EU) 2023/1230 enters into force in 2027. ihk.de/halle

Nuremberg Chamber of Industry and Commerce (2025): Information sheet on Regulation (EU) 2023/1230 on machinery. ihk-nuernberg.de

North Westphalia Chamber of Industry and Commerce (2025): New EU Machinery Regulation. ihk.de/nordwestfalen

Chambers of Industry and Commerce of Baden-Württemberg (2025): CE Marking: Guide to the new EU Machinery Regulation. produktentwicklung.ihk.de

DGUV Test (2025): Conformity assessment procedure according to the Machinery Directive. dguv.de/dguv-test

Federal Statistical Office / Destatis (2025): Corporate Insolvencies in Germany 2024. destatis.de/DE/Themen/Branchen-Unternehmen/Unternehmen/Gewerbeanzeigen-Insolvenzen

Federal Cabinet / Federal Council (July 2025): Draft Law on the Implementation of the Machinery Directive (MaschinenDG). bundesrat.de

Specialist media, industry and consulting sources

ecoprotec GmbH (April 13, 2026 / April 9, 2026): EU Machinery Regulation 2023/1230 — All amendments from 2027 onwards. ecoprotec.de

CCC IndustrieSoftware GmbH (January 19, 2026): EU Machinery Regulation 2023/1230 — What will change by 2027? blog.ccc-industriesoftware.de

Ebner Stolz (May 2026): The new Machinery Regulation (EU) 2023/1230 — What companies need to know now. ebnerstolz.de

NTT DATA Deutschland GmbH (July 25, 2025): EU Machinery Regulation 2023/1230: New cybersecurity requirements for manufacturers from 2027. de.nttdata.com

ZVEI e.V. (2024): Guidelines for the application of the new EU Machinery Regulation in the electrical industry. zvei.org

German Social Accident Insurance (DGUV) (2025): Cybersecurity and functional safety according to the new Model Ordinance. dguv.de

TÜV SÜD AG (2025): Overview of EU Machinery Regulation 2023/1230. tuvsud.com/de-de/branchen/produzierende-industrie/maschinenbau/maschinenverordnung

iSAX GmbH (July 29, 2025): Machinery Directive 2023/1230: What to expect. isax.com

IBF Solutions GmbH (May 2026): News on the guidelines for the Machinery Directive. ibf-solutions.com/fachbeitraege/news-zum-leitfaden

M&P Experts (March 5, 2025): The new Machinery Regulation (EU) 2023/1230. mp-sachverstaendige.de

elektro-automatisierung-digital.de (February 4, 2026): Fit for 2027: What will really change with the new EU Machinery Directive. elektro-automatisierung-digital.de

midok.de / Stefan Kurze (December 5, 2025): 2026: The year in which "We'll take care of it later" can become really expensive. midok.de

Cost sources for section 5

HighDoc Technical Documentation GmbH (May 27, 2026): What does CE marking cost? Prices & Costs 2026. highdoc.de/kosten-ce-kennzeichnung

CE-Koordination.de / Knorre GmbH (February 18, 2026): Technical documentation for machinery. ce-koordination.de

Federal Institute for Occupational Safety and Health (BAuA) (2025): CE Marking and Product Safety – Information Portal. [baua.de](https://www.baua.de)

About the author

Dirk Kaussen is the Founder and Managing Director of EMS Strategy Group and brings nearly 40 years of experience in the electronics manufacturing industry. As an entrepreneur, he successfully founded and managed his own manufacturing operations in Germany. His expertise spans advanced manufacturing processes, the selection of qualified EMS partners, supply chain resilience, relocation strategies, and risk management. Utilizing a highly practical, hands-on approach, he develops solutions tailored precisely to industrial realities – well-founded, actionable, and sustainable.

About the EMS Strategy Group

EMS Strategy Group supports industrial enterprises in the strategic advancement and optimization of their electronics manufacturing operations – from high-level planning to operational execution. Our core expertise lies in the strategic relocation of manufacturing volumes to European EMS providers, the establishment of new production capacities, and the expansion of existing manufacturing structures.

Furthermore, we design resilient supply chain frameworks, conduct comprehensive risk assessments, and guide dual-sourcing strategies to secure and fortify supply chains. Upon request, we manage projects closely until a successful serial production ramp-up is achieved – hands-on, efficient, and sustainable.

www.emssg.com | [LinkedIn: Dirk Kaussen](#)

Legal Notice / Disclaimer

The information, assessments, and recommendations contained in this White Paper have been prepared with the utmost care and to the best of our knowledge. They are provided solely for general informational purposes in a B2B context and do not constitute legal, tax, technical, or business advice tailored to any specific situation. The content of this document does not replace, and is not intended to replace, individual qualified professional counsel or economic feasibility studies.

Regulatory Proviso: As legal requirements, directives, standards, and their official application guidelines (particularly at the EU and international levels) evolve continuously, all information reflects the status at the time of preparation. It is strictly subject to later official publications or regulatory changes. Only the official legal texts and governmental publications remain legally binding.

Translation Notice: This document was translated from the original German version using machine translation systems. Although the translation has been reviewed, discrepancies, inaccuracies, or translation errors cannot be entirely ruled out. In the event of any ambiguity, conflict, or contradiction, the original German text shall remain solely authoritative.

Limitation of Warranty and Liability: While every reasonable effort has been made to ensure the accuracy of the information provided, EMS Strategy Group makes no representations or warranties, express or implied, regarding the accuracy, completeness, or timeliness of the content contained herein.

To the fullest extent permitted by applicable law, EMS Strategy Group shall not be liable for any direct, indirect, incidental, consequential, or other damages arising from the use of, reliance on, or

practical implementation of any information, strategies, recommendations, or evaluation criteria contained in this White Paper.

Copyright and Distribution: This White Paper may be distributed and shared in its original, unmodified form, provided that full attribution and copyright ownership of EMS Strategy Group is maintained at all times.



www.emssg.com | LinkedIn: Dirk Kaussen

© 2026 EMS Strategy Group. All rights reserved. This white paper may be freely quoted, provided the source is acknowledged.