

EUCHNER SAFETY SERVICES

Services for machine manufacturers and operating organizations



Your partner for machinery safety

EUCHNER

More than safety.



Your partner for machinery safety

Our expertise for your success

Industrial safety is becoming more important all the time. Machine manufacturers and operating organizations must comply with European directives, as well as national and international standards. We at EUCHNER Safety Services provide professional solutions to support you with any machinery safety issues you may have – wherever you are in the world.

We help manufacturers and operating organizations meet legal safety requirements in all machine and installation life cycles. Our team of highly qualified machinery safety experts is at your disposal.

We'd be delighted to meet with you informally to discuss how our services can fulfill your specific requirements. Or why not schedule an in-house consultation day, tailored to suit your own safety engineering issues?

Knowledge you can trust

Our membership in national and international standards committees keeps us up to date on regulations, standards and future developments. Machine manufacturers or operating organizations can rely on us as a partner with a wealth of reliable advice and support for their safety engineering tasks. We have the expertise needed to review, understand and analyze your specific requirements from a neutral, objective viewpoint.

Industry expertise in the service of safety

EUCHNER has dedicated itself to the safety of people, machinery and processes for over 70 years. This has given us valuable experience in all areas of safety engineering – and all sectors ranging from the construction of machine tools, printing presses, paper machines and packaging equipment to logistics, assembly technology, automotive engineering and renewable energy systems. We know the legal requirements, as well as the potential hazards and risks in your sector.



All-around safety with EUCHNER Safety Services

You can rest assured that EUCHNER Safety Services will provide the best professional support throughout all machine and installation life cycles.

As early as during the engineering phase, we support machine manufacturers in implementing the legal requirements set out in Machinery Directive 2006/42/EC. Likewise, we assist machine operating organizations over the longer term in fulfilling legal requirements from the Use of Work Equipment Directive.



EUCHNER ACADEMY

Targeted training provides safety in addition to numerous other benefits. We offer practical training courses all about machinery safety, developed and accompanied by identified specialists. Our courses will teach you about the key statutory requirements, how you can solve your safety tasks, close safety gaps and keep your installations up to date with the latest safety engineering standards.

Machine manufacturers and operating organizations alike are responsible for their machines' safety over the respective life cycles. Our broad range of courses includes the right seminar to meet your requirements. The EUCHNER Academy helps you stay on top of the Machinery Directive, the Machinery Regulation and the Ordinance on Industrial Safety and Health, as well as bringing you the benefits of our wide-ranging knowledge and experience.

Benefits for you

- + Expert knowledge straight from the specialists
- + Training based on cutting-edge industry practice
- + Courses taught by highly qualified instructors
- + Implementation of current regulations based on examples
- + Courses conducted in house on request



TÜV-Certified Expert in Operational Safety and Machinery Safety (ZEAM)

The four-day **Safe Operation of Machinery** training course familiarizes manufacturers and operators with the basics in ensuring operational and machinery safety in production. Employees who work with machines and systems, be it during acceptance, maintenance or modification, are obliged to conform to legal requirements.

Content of the four-day course

- ▶ Responsibilities and obligations under the Ordinance on Industrial Safety and Health
- ▶ Requirements for safe machinery operation
- ▶ Hazard assessment and state of the art
- ▶ Inspections according to the Ordinance on Industrial Safety and Health
- ▶ Maintenance of machinery and systems
- ▶ Design principles for machinery safety

Completing the course

- ▶ Multiple-choice test at the end of the four-day course
- ▶ Expert in Operational Safety and Machinery Safety TÜV certificate if you pass the test
- ▶ Four VDSI (Verband für Sicherheit, Gesundheit und Umweltschutz bei der Arbeit e.V.) occupational safety training points
- ▶ Integration of technical protection measures
- ▶ Legal certainty when converting and retrofitting machinery
- ▶ Inspection of machinery for substantial modifications and assemblies
- ▶ Conformity assessment procedure according to Machinery Directive 2006/42/EC

You can find more training courses on our homepage.



EUCHNER Safety Services for machine manufacturers

Your roadmap to optimal machinery safety

Machines and production facilities must be safe in accordance with applicable law. Manufacturers cannot sell a machine in the European Economic Area until it has passed the conformity assessment process and received a CE marking.

From design to EC conformity

We can support you right from the engineering phase, accompanying you every step of the way to obtain the CE marking for your machine.

The earlier you involve us in your processes, the more you will benefit from this. Starting to consider safety engineering aspects during the development phase can greatly reduce your workload down the line, and help you develop the safest possible machine design from the outset.

We analyze and assess potential hazards, and suggest measures you can take to reduce risks. We develop custom safety concepts for you, and provide any assistance you may need to put the required measures into practice.

Your added value

With our support, you can rest assured that your machine will meet the latest legal requirements. We help you implement all relevant specifications. You save valuable time, and can focus on your core business.

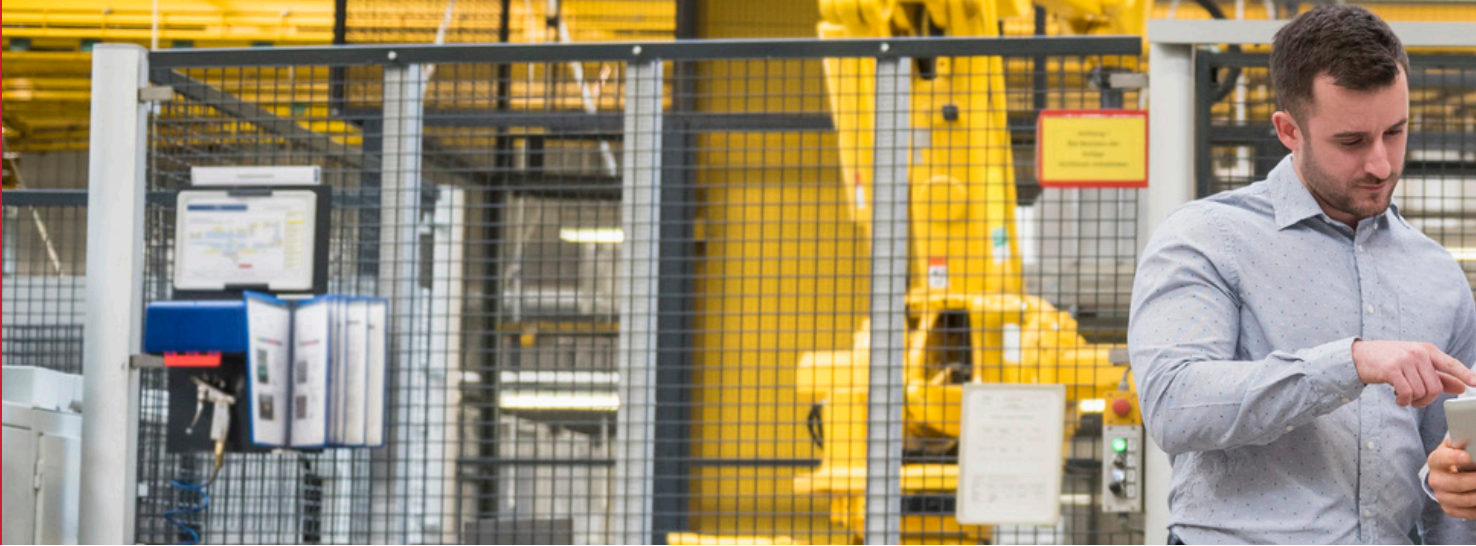


Our services for machine manufacturers

We work with you in every step of the process to obtain EC conformity.

Benefits for you

- + Support in all engineering phases
- + Risk assessment according to current legal status and harmonized standards
- + Support in implementing risk reduction measures
- + Assessment of risk reduction measures
- + Comprehensive, clear documentation
- + Compliance with requirements of the conformity assessment process



Support through to the CE marking

Machines in Europe must comply with the safety requirements of Machinery Directive 2006/42/EC before they can be sold in the European Economic Area. The Directive governs a uniform protection level for avoiding accidents on machines.

The CE marking process comprises many individual steps. Each of them requires the well-founded understanding of applicable regulations and the extensive experience in dealing with machines and installations that we can offer as safety experts.

Our service: CE marking as a complete package

We support you in each individual step and guide you throughout the entire declaration of conformity process, until you obtain a CE marking for your machines.

Benefits for you

- + Independent, experienced experts help you navigate through complex rules and regulations.
- + You work with a partner that understands your specific requirements and can support you only where needed or throughout the CE process.
- + You receive all services related to the CE marking from one source, saving you time and money.
- + We assume the responsibility for issuing the conformity declaration on your behalf.



Our services

We support you in all phases through to the CE marking

The individual steps of the conformity assessment process:

► Risk assessment

We first determine the harmonized standards and legal foundation applicable to the machine concerned. We define the machine functions and identify and assess potential danger zones in the risk analysis and risk assessment. The risk assessment fully documents the risks and the required Performance Level for you.

► Safety concept

The next step after the risk assessment is designing the machine to be safe. We develop a detailed machinery safety concept for you by suggesting risk reduction measures.

► Verification with SISTEMA

With the safety concept as a basis, we specify and test the machine's individual safety functions and verify its safety integrity. EUCHNER uses the SISTEMA software for verification.

► Engineering

We support you as needed in implementing the measures from the safety concept.

► Validation

Validating the safety concept involves checking the effectiveness of the implemented measures by testing the safety functions and preparing the required documentation of results and verification.

► Preparation for issuing the conformity declaration

Once the process is complete, we give you a written recommendation for issuing the conformity declaration. Alternatively, you can authorize us to issue the conformity declaration on your behalf.

Result: CE marking for your machine

Machines may be provided with the CE marking and sold within the EU once the conformity declaration process is complete. With the CE marking, you as the machine manufacturer declare conformity with the Machinery Directive and accept the responsibility for your product meeting the legal requirements.



Risk assessment

All manufacturers must perform and document a risk assessment for their machines. This risk assessment is a complete, systematic assessment of all machine hazards. It makes economic sense to perform the risk assessment as early as the engineering phase.

Our safety experts assess the risks in close cooperation with you.

Systematic process according to EN ISO 12100

Risk assessment involves several steps to determine and assess all hazards posed by a machine. EN ISO 12100 defines the exact sequence and the assessment criteria.

The first step is to describe the machine in detail – including its use and its limits. In the process, we also determine the applicable harmonized standards and legal foundation for the machine. We identify a machine's hazards in the risk analysis and risk assessment. All danger zones are then listed and assessed using a standardized process.

Benefits for you

- + You receive an assessment of all safety-engineering aspects in compliance with the latest laws and standards, plus an assurance of neutrality on the part of our safety experts.
- + Standardized procedures and documents ensure uniform quality of development.
- + Our risk assessment lays the foundation for your machinery safety.

Our services

We assess risks in the individual machine life cycles in accordance with legal requirements. This comprises:

- ▶ Assessment of the machine by a machinery safety expert.
- ▶ List of applicable directives and standards.
- ▶ Description of the machine, its use and limits.
- ▶ Risk assessment of the individual danger zones.



Safety concept

The next step after determining a machine's danger zones in a risk assessment is to create an intelligent safety concept. The objective here is to define specific measures for each danger zone to reduce the risk to an acceptable minimum. The individual risk reduction measures are shown based on a machine overview.

We work closely with you to develop the technically and economically ideal safety concept. We are committed to neutrality in selecting the safeguards for this purpose.

Implementing the safety concept does more than just improve the installation's safety. A safe installation increases your machine availability while boosting your productivity.

Benefits for you

- + You get a technically optimized safety concept tailored to your requirements.
- + Professional integration of suitable safety measures saves you time and money.
- + Your safety concept always complies with the latest laws and standards.

Our services

We develop the safety concept for your machine. You receive an offer including the following services:

- ▶ Solutions for ensuring machinery safety over the long term.
- ▶ Development of suggestions for protecting the respective danger zone using state-of-the-art mechanical, electrical, pneumatic and hydraulic technologies.
- ▶ Specification of the safety function.



Verification

It must be verified whether the safety functions planned for the machine achieve the required safety level. EUCHER uses the manufacturer-independent SISTEMA software from the Institut für Arbeitsschutz (IFA) for this purpose. The SISTEMA calculation can quickly and reliably determine whether the planned safety measures comply with the requirements of the EN ISO 13849-1 standard. Our experts are well versed in using this software.

Simple machinery safety calculation

SISTEMA simulates the structure of machine safety components based on predefined architectures and then calculates the Performance Level achieved. The safety concept has been verified and corresponds to the specifications in the standards if the required Performance Level from the risk assessment has been met.

Benefits for you

- + You receive a reliable evaluation of whether the planned safety measures comply with the requirements of the EN ISO 13849-1 standard.
- + If you need a reliable partner with well-founded experience in using SISTEMA, look no further than EUCHNER Safety Services.

Our services

- ▶ Verification of the planned measures from the safety concept in accordance with EN ISO 13849-1.
- ▶ Verification using SISTEMA calculation, which includes feeding the safety functions from the risk assessment into the software structure.
- ▶ Reliable, clear documentation of results.



Validation

Validation is a decisive step in the conformity assessment process. It is used to check whether the fully equipped machine is safe and the specifications of Machinery Directive 2006/42/EC are met. This final check ends with verification that your machine complies with all safety provisions. Our experienced machinery safety experts guarantee an efficient and neutral safety assessment.

The machine safety check is preceded by validation planning, during which we consider every danger zone from the risk assessment along with the safeguard implemented for it. Our experts develop a suitable checking strategy for each safeguard.

Benefits for you

- + You receive an efficient and neutral machine safety assessment performed by experienced specialists.
- + We work out details of the procedure with you in advance while keeping your economic considerations in mind.
- + Standardized documentation, as well as state-of-the-art testing and measuring equipment, guarantees high productivity when processing the inspection order.

Our services

- ▶ Subsequent review and documentation of the danger zones from the risk assessment.
- ▶ Preparation of a detailed inspection plan based on the risk assessment and the installed safeguards (safety check).
- ▶ Inspection directly on the machine or installation.
- ▶ Standardized measurement and test report as verification.



EUCHNER Safety Services for machine operating organizations

Championing your operational safety

Machine operating organizations bear the heavy responsibility of adequately protecting employees against potential hazards. Machine and installation operating organizations must observe current machinery safety laws.

This obligation begins as soon as a machine is purchased, and continues throughout its life cycle. Our safety experts are at your side in every phase.

Targeted and thorough

Operating organizations must ensure occupational and machinery safety as soon as they purchase work equipment. This is required by the Use of Work Equipment Directive 2009/104/EC and by industrial safety regulations. New and existing machines must therefore undergo periodic hazard assessments.

The operating organization must analyze and assess the effects of any modifications when converting, retrofitting or linking a machine. This is the only way to ensure that legal safety requirements are fulfilled.

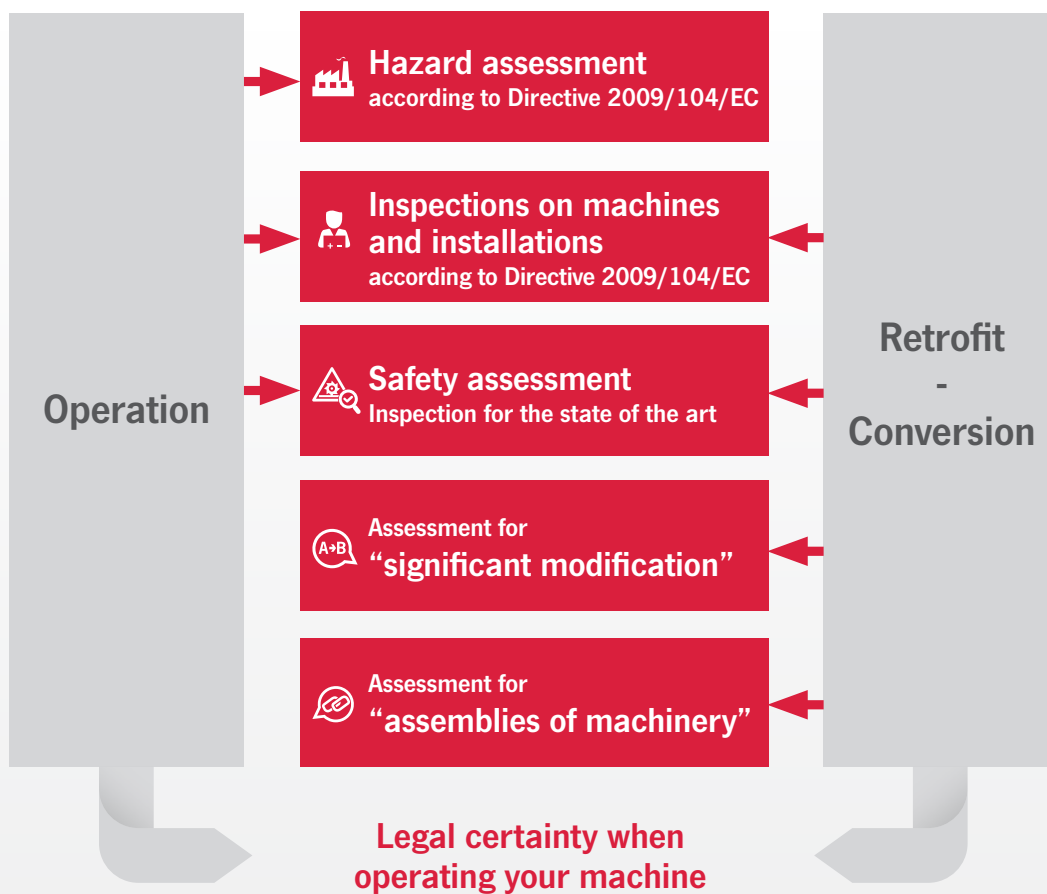
We support you in every machine life cycle: we check and document the safety status of your machines, perform hazard assessments and inspections, assist you with conversions and accompany you all the way to CE marking for your machine if necessary.

Your added value

EUCHNER Safety Services will ensure you are always compliant with the latest Use of Work Equipment Directive. Existing and potential hazards are ruled out so that you can rest assured you are always working and manufacturing in compliance with the law.



Our services for machine operating organizations



Benefits for you:

- + Systematic hazard assessments
- + Greatest possible safety for employees, machines and processes
- + Minimized accident risks and machine downtimes
- + Solution-oriented, state-of-the-art approaches taking economic aspects into account at all times
- + Comprehensive, clear documentation
- + Support in implementing the measures



Hazard assessment according to the Use of Work Equipment Directive

The Use of Work Equipment Directive 2009/104/EC and its amendment of 2015 govern safety and occupational health protection for employees when they use work equipment.

By law, companies must perform a hazard assessment for each item of work equipment. This means that the employer must document all hazards that could impair employees' health and safety. This must be done before the equipment is used for the first time and at regular intervals afterward.

Our safety experts will help you develop the required protective measures to guarantee safe use in all machine life cycle phases.

Benefits for you

- + Your work equipment is efficiently and fully assessed according to the Use of Work Equipment Directive.
- + You benefit from our structured approach that always takes the productivity of your production processes into account.

Our services

- ▶ Agreement about the type and scope of hazard assessments.
- ▶ Performance of the hazard assessments on an agreed schedule.
- ▶ Preparation of an action plan for eliminating possible causes of risk.
- ▶ Documentation of the implemented protective measures.
- ▶ Review of your hazard assessment.



Safety engineering assessment and inspection for the state of the art

Operating organizations are often faced with the question of whether their machines or production facilities still meet the current safety requirements. As independent service providers, we conduct a targeted safety assessment to determine whether your machine is in a condition to provide sufficient protection for your employees, and thereby complies with applicable laws.

We identify the key danger zones on the machine or installation and define appropriate risk reduction measures. The condition and functionality of existing safeguards and safety systems and their integration into the control concept can be checked as needed.

Our independent safety specialists inspect your machine or installation. We can help you design your machine to be used as safely as possible in accordance with the latest state of the art.

Benefits for you

- + Professional integration of suitable safety measures saves you valuable time and money.
- + Our independent, experienced employees always base their safety assessments on the highest quality standards and the latest state of the art.

- + You benefit from a partner that works closely with you while keeping the productivity of your processes in mind during all assessment phases.
- + Manufacturer-independent assessment of the machine's current safety level.

Our services

- ▶ Agreement on the type and scope of the safety assessment.
- ▶ Analysis of the machine or installation by a machinery safety expert.
- ▶ Documentation of the hazards found on the machine.
- ▶ Suggestions for eliminating possible causes of risk.
- ▶ Wiring diagram inspection to determine whether the existing safety function complies with the latest state of the art.
- ▶ Plant assessment – initial safety inspection tour of production facilities.



Conversion of machinery – assessment for significant modification

Machines and installations undergo changes in the form of modernization, conversions or expansions over the course of their service life. This generally has direct effects on the machine's safety requirements as well.

It is decisive whether the modification is classified as "significant." An interpretation document from the German Federal Ministry of Labour and Social Affairs (BMAS) details the criteria for classifying a modification as significant. This document also specifies a generally recognized procedure to check this.

If the modification to the machine and its protective measures is of a significant nature, legislation requires that the conformity assessment process must be repeated for the modified overall system.

A significant modification is assessed using a multi-level decision graph from the BMAS. Decisions of an interpretative nature must be made at each level.

Our experience helps you make the decisions required for the respective level.

Benefits for you

- + Experienced machinery safety experts help you assess modifications and conversion measures.
- + You benefit from assessment in compliance with all legal requirements and legal certainty regarding whether the modification in your facility is a "significant modification."

Our services

- ▶ Analysis of the existing machine and the planned conversion regarding the effects on safety.
- ▶ Preparation of a report on the decision concerning a significant modification.
- ▶ EUCHNER Safety Engineering support for implementing the conversion work.



Assessment for assemblies of machinery

If individual machines or installations interact in the production process, it must be checked whether the combination constitutes an “assembly of machinery” as defined in the Machinery Directive. If this is determined to be the case, this new safety unit must undergo a new conformity assessment process.

If the combination does not constitute an “assembly of machinery,” the operating organization must fulfill the requirements resulting from the interface assessment of the individual machines.

We guide you through the maze of options based on our long-standing experience, helping you make the right decisions in compliance with standards and the law.

At the end of the consultation process, you receive a document recording the decision-making process and its result.

Benefits for you

- + Experienced machinery safety experts assist you in safely assessing assemblies of machinery.
- + You benefit from assessment in compliance with all legal requirements and legal certainty regarding whether the combination falls under the “assemblies of machinery” definition according to the requirements of the Machinery Directive.

Our services

- ▶ Examination of interacting machines for assemblies of machinery as defined in the Machinery Directive.
- ▶ Documentation on the assessment for assemblies of machinery.
- ▶ Assistance in performing the conformity assessment process.



Inspecting machines and installations

Operating organizations are obligated to check machines and installations before they are used for the first time, at periodic intervals afterwards and if they are converted. The employer must remedy any defects found in order to ensure safe use of the work equipment by employees.

From inspections on safeguards and safety systems to recurring functional checks, we offer the right check for your machine.

Regular inspections are also required by law to ensure electrical safety on installations and equipment and to identify defects in good time.

Our experts always assist you with suitable inspections to the appropriate depth.

Benefits for you

- + Compliance with legal requirements.
- + Support for acceptance inspection on a machine from the manufacturer.
- + Documentation in test reports as needed, with specific recommendations for action.
- + Support by EUCHNER Safety Engineering in correcting defects.

Our services

- ▶ Checking the effectiveness of safeguards.
- ▶ Visual and functional inspection of the safety functions.
- ▶ Checking the safety functions depending on the category and Performance Level (safety check).
- ▶ Inspection of electrical installations and stationary equipment according to DGUV (German Social Accident Insurance association) regulation 3 in accordance with the EN 60204 standard (DIN VDE 0113).



Inspection of electro-sensitive protective equipment (ESPE)

Manufacturers are obligated to inspect electro-sensitive protective equipment when the system it is put into operation and at the operating organization's location. This must be done at periodic intervals and after any changes (e.g. replacement).

If safety sensors such as light curtains, light grids or laser scanners are used, it will be necessary to validate the proper mounting, correct integration into the machine control system, and the run-on time of the safety system for this purpose.

These run-on measurements are carried out using specially calibrated time measuring systems. After the overtravel is measured, the required safety distance is determined, compared with the actual situation on the machine or installation and then documented.

Benefits for you

- Check for damage, correct mounting and selection of the ESPE.
- Run-on measurements performed using the latest, calibrated measuring equipment.

Our services

- ▶ Check of electro-sensitive protective equipment such as light curtains, light grids and laser scanners performed by authorized persons.
- ▶ Compilation of a standardized inspection report.
- ▶ Affixing of a test seal verifying the successful inspection, with inspection date and information about the next inspection.

Safety Engineering

We as EUCHNER Safety Engineering can perform all design, conversion or retrofitting work on your machine – from project planning through to implementation and trial operation at your location.

In addition to the actual process sequence of the machine or installation, it is above all important to consider and harmonize the current safety requirements as well.

As early as during the project planning phase, it is essential to coordinate your expectations with our engineering experts to define solutions we can implement together.

These details provide important initial information for specifying the control system technology, an important functional safety process phase.

Depending on the services required, our team implements the documented safety engineering measures in practice. These consist of mechanical design, fluidics, electrical design (hardware and software), in-house control cabinet construction, assembly, installation and trial operation.

Accompanying verification and validation measures ensure implementation in compliance with standards and fulfillment of the requirements according to the EN ISO 13849-1/2 standard.

Benefits for you

- + You benefit from project management from a single source with one central point of contact. This saves you valuable time and money.
- + Interpretation of safety-related requirements as practical solutions.
- + EUCHNER Safety Engineering provides legal certainty for your machine.
- + As a general contractor, we can carry out the entire process on your behalf.

Our services

- ▶ Functional safety management based on the V model according to EN ISO 13849-1/2.
- ▶ Design of mechanical, electrical, fluidic and control equipment.
- ▶ Software configuration (PLC, NC, HMI) of process and safety functions.
- ▶ Electrical installation, mechanical assembly and trial operation on site.
- ▶ Verification and validation of the implemented measures.



Consultation day

Our experts advise you on site about relevant machinery safety topics. These include the following topics:

- ▶ Procedure for a CE process, as well as the requirements of Machinery Directive 2006/42/EC.
- ▶ Review of machine documents relevant to CE.
- ▶ Assistance as part of a risk assessment.
- ▶ Verification of safety functions according to EN ISO 13849-1 and SISTEMA calculation of the achieved Performance Level.
- ▶ Consultation on compliance with legal requirements in accordance with the Use of Work Equipment Directive.
- ▶ Assistance in performing a hazard assessment and inspections on machines and installations.
- ▶ Consultation on conversion and significant modification to machines.
- ▶ Consultation on assemblies of machinery and installations.

Benefits for you

- ⊕ We clarify all safety-specific aspects with you and address your specific questions.
- ⊕ Since we advise you on site, you save valuable time and can concentrate on your core business.

Our services

- ▶ Our consultation is tailored to your requirements.

EUCHNER SAFETY SERVICES

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EUCHNER

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