

Omron Safety Service

Make your machines safe and compliant



- Reduce machine downtime
- Extend machine lifetime
- Regional support on global scale

Your responsibilities

44%

There's more to machinery safety than CE Marking

Almost all managers who are responsible for machinery are confident that their machines are safe when purchased. The CE Mark is intended to declare conformity to all of the directives applicable. But did you know that according to the UK's HSE, 44% of accidents that were safety control related were traced to the project specification stage - before the machine is delivered? That's just one of the reasons why the end user of a machine is legally responsible for carrying out their own risk and work equipment assessments - before the machine is put into service and regularly during its life.

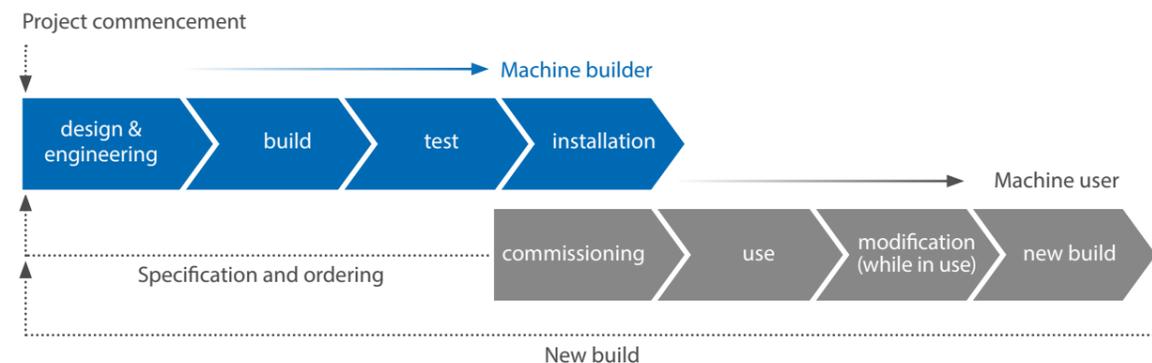
20%

Even after the risk assessment, another 20% of safety control related accidents are caused as a result of user modification and production-line integration – after commissioning and put into service.

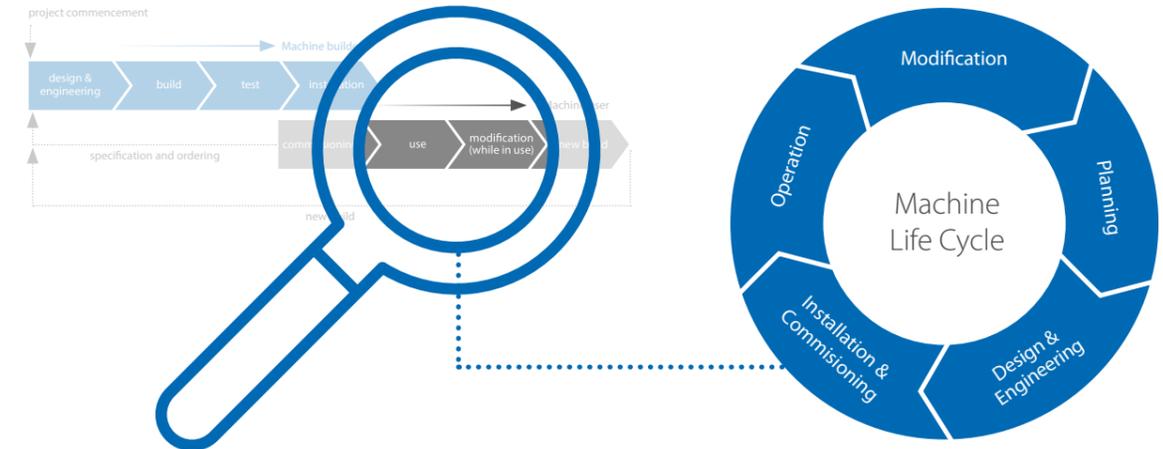
* Source: HSE
The Health and Safety Executive is a partially government funded enforcement agency in the UK.

So how can you be certain that your machines are safe and compliant?

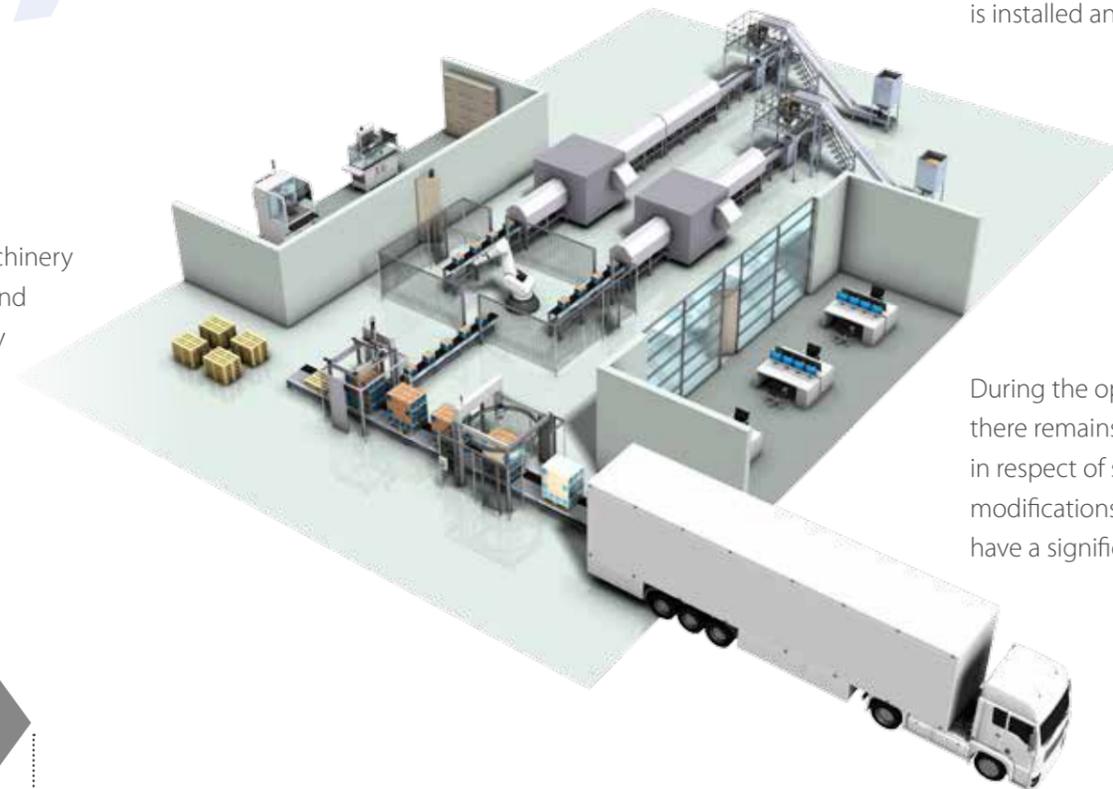
Safety of machinery is not just a snapshot. It is a process that covers the entire machinery life cycle from planning to commissioning and operation including modification and maintenance. Omron Safety Service supports each of the phases in the machinery life cycle with a tailored service offer to help create, support and maintain a safety orientated culture in your company.



At every level in Safety



Responsibilities for the design and build of the machine are clear as the machine manufacturer and the end user have defined ideas about features, performance and the environment where the machine is installed and used.



During the operational phase of the machine life cycle, there remains a need to keep the machinery up to date in respect of safety and performance. Therefore any modifications or upgrades made to the machinery can have a significant effect on the safety of the machinery.

Machine safety consultancy ...

Who are we?

We are a team of highly skilled professionals located across Europe. Our team members are all TUV Rhineland Certified Functional Safety Engineers (FSEng), and highly competent staff in the following specialties:

- Health and Safety
- Functional Safety Engineering
- Machinery Safety
- Technical Consultancy
- Technical Assessment
- Design Engineering
- Project Engineering and Management

In addition to external certification, several of our team members hold EU or national specialist accreditation in technologies such as electrical engineering, hydraulics, pneumatics, ATEX and general health and safety - essential in fulfilling today's legislative and regulatory requirements of machine safety.



... wherever you need it

How we help you

We can help you fulfill your legal and moral obligations in machinery safety and help safeguard your employee's.

- *We can assess, design and remediate all appropriate and necessary safety solutions, and we can help train your engineers in the basics of machinery safety.*
- *The investment you make in using us to support you today continues to benefit and provide a return on your investment for years to come.*

Global reach

We offer a range of machine safety services, scalable to fit the needs of small single site enterprises to multi-site international operations. We provide a consistent approach, incorporating the needs of regional and international legislative compliance and we have the capacity to implement your safety policy globally.

Better productivity. New functional safety standards mean that machines do not always need to be shut down when intervention or access is required, we have the ability to create safe control solutions using the latest safety techniques that sustain the highest possible levels of safety whilst reducing restart delays and potentially saving materials wastage.

More efficiency. Machinery safety is essentially about making the machine control itself, with as little intervention from the human operator as possible. This reduces the exposure of your staff to any potential hazard.

More return on investment. When a machine is made safer, and its control systems are updated, this can result in fewer machine downtime and maintenance problems as a result of better fault detection. This is especially so on complex machines with high production rates.

How you benefit

Prevention of injuries to staff is a primary focus alongside the need for good production rates.

However, whenever a hazardous event occurs there's machine down time and loss of production. Our support helps you to limit this with well designed and efficient safety systems.

Machine Safeguarding Evaluation (MSE)



Find out which of your machines need attention

45 minutes per machine

A Machine Safeguarding Evaluation is the first step towards ensuring that all your machines are safe to use. It can take as little as 45 minutes per machine and the resulting report tells you which of your machines are in good condition, and which ones need attention.

The report also identifies areas of potential hazard, and highlights where (and why) more in-depth reviews are necessary. This is supported by a risk score analysis. It states what we consider to be the single most dangerous aspect of the machine.

How it works

Our safety consultant visually inspects each machine and completes a detailed checklist. He also consults with your operators and managers about how the machine is actually operated. The resulting formal written report tells you:

- Which machines require a CE mark, and which machines have one
- The status of the machine's safety and fitness for use
- Hazards present on the machine and the number of times each hazard is present. This indicates the overall level of danger that the machine presents to the user
- Identification of the what we consider to be the most dangerous hazard on the machine.

What's next?

This service is the first step in ensuring safety compliance, and it can be the starting point of a Machine Safety Asset Management Program. The report will also recommend if a formal risk assessment or Use of Work Equipment assessment should be carried out.

How you benefit

With a Machine Safeguarding Evaluation for your machines, you will be in the best possible position to plan your safety future.

Machinery CE Health Check (CEHC)



Peace of mind when you buy machinery



Confirmation that you have a compliant machine

This service is ideal if you are buying new or refurbished machinery. It can provide:

- A pre-delivery CE compliance check that can be carried out alongside your own factory acceptance tests or final inspection before taking delivery
- A post-delivery CE compliance acceptance check before it is put into service alongside a UWED assessment
- A basic CE compliance check for existing machinery
- A basic CE compliance check for when you build your own machinery. This helps ensure that you gain the CE mark.

How it works

The assessment includes a visual inspection of the machine. This forms the basis of the formal written report, which includes information on the following topics, in accordance with the Machinery Directive 2006/42/EC:

- **CE mark** - is it correct and valid
- **EC declaration of conformity** - its existence, content and validity
- **Declaration of incorporation** - does it exist and is it correct and valid
- **Instruction manuals and drawings** - do they exist and are they appropriate and compliant
- **Fundamentals of safe operating** - a check of the control system of the machine referencing the essential health and safety requirements of the machinery directive
- **Electrical** - a check of the compliance and condition of the electrical control system to IEC EN 60204-1
- **Hydraulic** - a check of the compliance and condition of the hydraulic system to EN ISO 4413
- **Pneumatic** - a check of the compliance and condition of the pneumatic system to EN ISO 4414
- **Technical File** - does it exist and is it correct and valid

How you benefit

Early identification of non conformance prior to shipping produces tangible cost reductions. It also leads to swift machine installations and earlier production capability. For integration of multiple machines this service guides you to what CE marking requirements are for the completed assemblies.

Machinery Risk Assessment (MRA)



Fulfil your legal safety compliance for machines

So you can focus on what you do best - manufacturing

Manufacturers of machinery are required by law to complete a design-based risk assessment as they design and build machinery, even when the machine is made for the manufacturer's own use.

New machinery

Before putting a new machine into service, there are three questions to be answered:

- 1 does the new equipment carry a CE mark?
- 2 has a risk assessment been carried out for the environment the machine is used?
- 3 has an assessment been carried out in accordance with "Use of Work Equipment Directive"?

If there is a "yes" to all three questions - production on this machine can start.

Existing machinery

End-user has a general legal requirement to complete a risk assessment at regular intervals during the machine's life-cycle, and again in case of machine relocation in accordance to "Use of Work Equipment Directive Assessment (UWED)".

Risk reduction... and more

Our Machine Risk Assessment service (complete in accordance with EN ISO 12100) helps you fulfil these requirements in accordance with the Machinery Directive 2006/42/EC. You will receive a report that identifies initial risk reduction requirements for reducing hazardous events. You will also receive information on additional safety measures and safety related control functions where necessary.

Key features

A mathematical evaluation of all risks posed by associated hazards and tasks identified using the following factors:

- Degree of Possible Harm (DPH)
- Probability of Occurrence (PO)
- Possibility of Avoidance (PA)
- Frequency and/or duration of Exposure (FE)

This evaluation produces:

- A numerical risk score analysis
- Initial risk reduction methodologies
- An overall risk reduction priority list
- Identification of recommended safety related control functions.

How you benefit

We help you fulfill your obligations to carry out the legally required risk assessment on the machine. We identify which of your machines are dangerous and require attention via our highly detailed assessment report.

Conceptual Safety Design (CSD)



The next step in making your machines safe

The second step in risk reduction

Our Conceptual Safety Design service gives you a higher-level overview of possible risk reduction measures for your machines. It includes illustrations and is more specific than the Risk Assessment. This enables you to understand and start planning a way forward to the implementation of necessary risk reduction measures.

If you are uncertain about how to proceed, we can provide more detailed guidance via our Formal Safety Requirement Specification.

Or if you don't have the knowledge base or resource to carry out the remediation yourself, our engineering team can carry out the remediation on your behalf, and the process can be managed by one of our specialist project managers.

The Conceptual Safety Design provides:

- A more detailed description of risk reduction measures to reduce the risks from the hazards identified on the machine.
- EN ISO 13849-1 PLr determination and suggested wiring architecture for each new safety function or safety function upgrade where required.
- Initial Identification of safety devices suitable to implement required safety functions.
- ESPE device type - specification of any devices recommended (type 2 or type 4 and resolution).
- Conceptual design, graphics and images.

How you benefit

Our Conceptual Safety Design is a key and effective step towards reducing the risk on your machinery. If you have the necessary resources it can enable you to remediate your own machinery under our professional guidance.



Formal CE Marking (CEM)

Saving your valuable time

In our experience we find that many new machines or newly installed production lines exhibit some form of non-compliance. They are not always as safe as they can be. Consequently the CE mark on a machine may not be a valid one, simply because of the specific requirements of CE marking machinery.

Accelerating the CE marking process

A CE mark is the manufacturer's declaration that the machine complies with the relevant EU directives. In most cases these are the Machinery, Low Voltage, and EMC directives. A CE mark is needed not only for a machine to be sold on the market, but also when you create one for your own internal use. We can provide all the key assessments and documentation you need to apply the CE mark and ensure it is a valid one..

Where modifications to your original designs are required, we can further support you with designs, engineering, installation and testing of the safety functions, and we can provide documentation for inclusion in the technical file which we can help you create.

Some of the CE marking tasks

Omron ensures the whole process is smooth and efficient.

- Risk assessment of the machine
- Inspection of the machine against all applicable Essential Health and Safety Requirements of the Machinery Directive
- Inspection of the electrical system to IEC EN 60204-1
- Inspection of the pneumatic system to EN ISO 4414
- Inspection of the hydraulic system to EN ISO 4413
- Inspections to all other applicable EN ISO standards for the machine
- Noise testing
- EMC testing
- Calculation of the performance levels under EN 13849-1 for any safety related control functions.
- Calculation and provision of documentation showing the approach speed and positioning calculations for all ESPE devices on the machine such as light curtains, scanners, single beam sensors and all other devices falling under the scope of EN ISO 13855.
- Calculation and provision of documentation showing the correct positioning of guarding and guard interlocks under the scope of EN 14120 and EN 14119 respectively.
- Creation of the Technical File for the machine.
- Creation of the Declaration of Conformity or Declaration on Incorporation for the machine.
- Creation of the EC declaration of conformity or declaration of incorporation for the customer to sign.

How it works

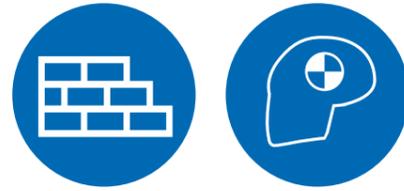
Working closely and 'in partnership' with you or your partners, suppliers (or authorised representatives if you are based outside the EU) we help you gain formal legislative CE marking for your machinery.

Section 1: Machine Identification		Yes	No	N/A	Comments
1. Is the machine a completed stand-alone machine?		✓			
2. Is the machine a partly completed machine?			✓		
3. Is the machine a partially completed machine?			✓		
Section 2: Declaration of Conformity or Incorporation		Yes	No	N/A	Comments
4. Has the manufacturer's name and address been declared?	1. Does the declaration detail the name and address of the manufacturer?	✓			Authorised representatives details are present
5. Has the year of declaration been declared?	2. Does the declaration detail a description of the machinery?		✓		
6. Has the serial number of the machinery been declared?	3. Does the declaration detail the model number of the machinery - this can be a series number?	✓			
7. Has the model number of the machinery been declared?	4. Does the declaration detail the serial number of the machinery?	✓			
8. Have the essential health and safety requirements been declared?	5. Does the declaration detail the model number of the machinery?	✓			
9. Has the CE mark been declared?	6. Does the declaration contain the name and address of the responsible person?	✓			
	7. Does the declaration declare to all applicable EU directives?		✓		Machine not declared to the EMC or LVD directives
	8. Does the declaration state the harmonised standards used in the machines design?	✓			
	9. Where appropriate does the declaration state any other national technical standards or specifications used?	✓			
	10. Where a type examination has been performed, does the declaration state the name and address of the notified body and the type examination certificate reference number?			✓	
	11. Does the declaration state the name of the person empowered to sign it on behalf of the manufacturer or his authorised representative as the holder of the TCF?	✓			
	12. Is the declaration signed by this person?	✓			
	13. Does the declaration state the date on which it was signed?	✓			
	14. In the case of a DoI does the declaration state that the machinery must not be put into service until the machinery in which it is to be incorporated has been declared in conformity?			✓	

How you benefit

Our team members are very experienced in the CE marking process and all of its intricacies. We ensure the whole process runs smooth and efficient and the machine to which the CE mark is applied is legal for use.

Turn-Key Solution (TKS) Validation and Verification (VAV)



Additional support when you need it

Engineers specialised in machine safety

After we have performed a risk assessment, you may find that your engineers do not have the specialist knowledge or resources to perform the remediation. You may also prefer not to handle the 'safety sign-off' yourself. No problem, we take care of both: remediation and sign-off.

As with our safety requirement specification provision service, we work to the appropriate EU directives and applicable EN ISO standards for the machine, and with due consideration to the Use of Work Equipment Directive.

Where necessary, we refer to any appropriate formally published guidance, such as codes of practice and local regulations.

Our 'Turn-key' design and installation solutions can include:

- Documentation
- Functional specifications
- All mechanical, electrical, pneumatic and hydraulic specifications.
- Any applicable electrical drawings
- All applicable safety-related control system designs
- EN ISO 13849-1 safety-related control system performance level determinations and calculations
- Any documentation required to update the technical file
- Procurement of all necessary parts and equipment
- Installation of the design solution.

Validation, verification and safety 'sign-off'

The final part of any safety refurbishment, remediation or upgrade is the validation, verification and safety 'sign-off'. In cases where we have initially assessed the machine, and then provided the fully engineered design solution, we provide the final 'safety sign-off', and can carry out a Use of Work Equipment Directive assessment, before the machine is returned to service. In addition to this, and where required, we support your staff with training on any safety solution we have provided to ensure that machinery can be operated safely.

How you benefit

You get peace of mind. We take the responsibility for the safety sign-off and train your staff to safely operate the machine with its new safety functionality.

Use of Work Equipment Assessment (UWED)



We assess, so you can manufacture

The 'Use of Work Equipment Directive' 2009/104/EC requires a formal assessment of a machine's safety and suitability for use. The directive was adopted into law by the individual EU member states in various forms but all with the same objective: to ensure that work equipment is safe for end-users. It specifically requires that all work equipment must be assessed by the machine's owner before it is put into service - and at other appropriate intervals.

The assessment must be performed:

- Before a machine being put into use for the first time
- At appropriate or regular intervals depending on the machine's duties and the environment in which it sits
- When the machine is moved / relocated – even when it is within the same facility
- When the machine is modified or changed in any way that may affect its suitability for safe use and fitness for use.

Focused in two main areas of the directive:

- Assessment of the site policies and procedures by way of mandatory legal health and safety requirements
- Physical assessment of the machine.

How you benefit

We perform this assessment on your behalf and we can help correct any non-conformances that the assessment identifies.

We can use our extensive knowledge and range of services to help resolve any problems that are identified, and any necessary remediation work either being carried out by our engineering team working on your behalf, or in partnership with your own engineers.

Safety Requirement Specification (SRS)



Getting the specification right

Preparing to remediate

When a risk assessment identifies a machine that is in need of some new or updated safety functionality, you may wish to remediate it yourself. If so, we can provide you with a formal written Safety Requirement Specification.

The written specification is based on the operational designs and production requirements of the machine. It also takes into consideration the findings in our risk assessment, all relevant EU directives and EN ISO standards – and with due consideration of the Use of Work Equipment Directive.

Where necessary, we refer to appropriate guidance such as codes of practice and local regulations, or your own company standards.

What's included?

The Safety Requirement Specification is tailored to your individual needs, it can include:

- Guarding specifications
- Safety-related control system functional specifications, by machine zone and hazard
- Identification of the formal 'Input - Logic - Output' block diagrams
- EN ISO 13849-1 safety related control function PLr' determinations
- Functional descriptions and specifications for the safety related control system
- Cause and effect matrix tables.

What's next?

Finalising the Safety Requirement Specification is a key milestone in the design of a safe machine. You can now start to remediate your machines using your own staff, or we can do it all for you. Or we can work alongside your staff and implement the remediation together.

How you benefit

Our Machine Safety Requirement Specification enables you to use your own engineers or our accredited system integrators to perform some or all of any identified remediation needs.

ESPE Stop Time Testing (EST)



Step-by-step safety compliance

To further help you comply with your legal obligations, we provide two supplementary services:

- [Machine Stop Time Testing](#)
- [Safety Device Position Calculation and Verification to EN ISO 13855](#)

This is a critical process in the design, installation, commissioning and maintenance of a machine. Especially in any country where the Use of Work Equipment Directive has been adopted, which effectively mandates these tests.

Therefore, if you use any such item of ESPE you must have its function and positioning formally tested and verified on a regular basis by a 'competent' person. This also includes any safety device that fall under the scope of EN ISO 13855 such as light curtains, laser scanners, single beam light sensors, pressure mats, and interlocks etc.

The vast majority of users of the devices that fall under the scope of this standard are unaware of this requirement, and never formally test their ESPE devices, or record the results - thereby potentially putting their employees at risk.

Best practice suggest a test interval for ESPE devices as follows:

- Type 2 devices - every 12 months
- Type 4 devices - every 6 months.

The assessment provides:

- **Identification** of each of the safety functions on the machine or assembly associated with an applicable device
- **Physical testing** of the machine or assemblies stopping time, set against the safety functions identified
- **ESPE (Electro Sensitive Protective Equipment) device positioning calculation** in relation to the hazard under the scope of EN ISO 13855.

How you benefit

We provide the formal determination of the stopping time of a machine, and then carry out the calculation and verification of the positioning of any safety device that is used to prevent access to moving parts of machinery which falls under the scope of EN ISO 13855, and supports the requirements of the Use of Work Equipment Directive.

Safety Performance Level Determination (SPLD)



Step-by-step safety compliance

To further help you comply with your legal obligations, we provide as supplementary service:

Determination of the achieved Performance Level of a Safety related Control Function to EN ISO 13849-1

This is a mandatory formal assessment of the performance level required for each safety function under EN ISO 13849-1 for anyone manufacturing, refurbishing, remediating or upgrading machinery and looking to gain or maintain a CE mark.

We can support anyone involved in this process with our EN ISO 13849-1 PLr' determination service. The assessment provides:

- Identification of each safety function
- Calculation of the required performance level using the following parameters taken from EN ISO 13849-1
 - Severity of Injury
 - Frequency of Exposure
 - Probability of Avoidance.

This service can be provided separately, or in conjunction with any of our other machinery safety services as a supplementary option.

How you benefit

You get peace of mind. We take responsibility for the determination of the Performance level under EN ISO 13849-1.

Both of these additional specific assessment services can be provided separately to clients, or in conjunction with any of our other machinery safety services as a supplementary option.

Supplementary Assessments (SAT & MNC)



Additional services to support you.

We can provide supplementary services to help you comply with your legislative and regulatory obligations, and to ensure that equipment that is safe for use, and fit for purpose. These additional services include:

- Individual Essential Health and Safety Requirement (EHSR) Assessments
- Control System Assessments to the Relevant EN Standards
- Noise Assessment

Individual Essential Health and Safety Requirement (EHSR) Assessments

It is mandatory that machinery is compliant with the EHSRs of the machinery directive and this is an integral part of the CE marking process. However, on-going compliance to the EHSRs is sometimes overlooked when refurbishment or upgrading machinery.

We can provide individual assessments to any of the EHSRs within the Machinery Directive 2006/42/EC, and provide a written report to identify any non-compliance. We can also outline any necessary further remediation of the machine that may be required to ensure compliance is achieved.

Control System Assessments to the Relevant EN Standards

To achieve compliance the machine builder can presume conformance if the machine is built to the applicable standards when CE marking machinery. A good way of ensuring compliance to specific EN standards following upgrade or refurbishment is an individual assessment of the machine's functional control systems, and hazardous energy control systems.

- IEC EN 60204-1 Safety of machinery - Electrical equipment of machines
- EN ISO 4414 Safety of machinery - Fluid power systems and their components - Pneumatics
- EN ISO 4413 Safety of machinery - Fluid power systems and their components - Hydraulics

We can provide a full assessment report, that can give you peace of mind that the machine's control systems are compliant to the standards.

Machinery Noise Calculation (MNC)

This is also mandatory under the scope of the Machinery Directive when CE marking machinery. The manufacturer must state the level of airborne noise emission generated by the machine in its operating instructions, and provide noise testing results in the machine's Technical File. We have consultants qualified in noise assessment that can provide a noise assessment on machinery to help you fulfil these obligations.

How you benefit

You can build a machine safety conformance strategy around the expertise and man-power that you have in-house and supplement this with expertise from us. This optimises your business efficiency.

Machine Asset Management Program (MAMP)



Compliance at a pace that suits your budget

Prioritised remediation

Our Machinery Safety Asset Management service is a total solution for all your machines, and it also helps you focus your budget to where the greatest risks are first. In this way you achieve full regulatory compliance for all your machines, and you demonstrate that you are managing your risks. But because you control the pace of this process (with our support and advice) you also control where to invest each year. We can carry out all of the remediation work in conjunction with our accredited system integrators on your behalf, or you can use your own staff, or we can work together in partnership.

Working with you, we create a program to inspect all your machinery. During the inspections we talk to your operators and line managers to assess how they use the machines. This enables us to best prioritise your machines into high, medium, and low risk. We remediate the high risk machines first, then the medium risk machines, and then the low risk machines.

Sustainable Safety

Our experience shows that investment in the beginning of the project during planning and design maximizes your primary risk reduction needs at an appropriate level of cost.

Sustainable compliance

We can train your staff to ensure that the solutions implemented during the program are sustained long after it is finalised. In short, we upgrade and update your machines and then we help your people keep them up to date. So your investment today will be sustained for many years.

To further ensure on-going and continued safety compliance, we will routinely re-inspect your machinery and re-assess your machines via our Machine Safeguarding Evaluation service for long-term confidence.

How you benefit

With our Machinery Safety Asset Management Program you achieve a holistic approach to all your legal obligations in one stroke. Which means you can focus on what you do best - manufacturing.

			Design Concept and Engineering	New Build	Initial Testing	Factory Acceptance Testing and Inspection	Commissioning	Operation and Use	Modification or Upgrade	Relocation
Machine Safeguarding Evaluation	MSE		✓	✓	✓		✓	✓	✓	✓
Machinery CE Health Check	CEHC		✓	✓	✓	✓	✓		✓	✓
Machinery Risk Assessment	MRA		✓					✓	✓	✓
Conceptual Safety Design	CSD		✓					✓	✓	✓
Formal CE Marking	CEM		✓	✓	✓	✓	✓		✓	
Turn-Key Solution	TKS		✓					✓	✓	✓
Validation and Verification	VAV				✓				✓	✓
Use of Work Equipment Assessment	UWED						✓	✓	✓	✓
Safety Requirement Specification	SRS		✓						✓	✓
ESPE Stop Time Testing	EST			✓	✓	✓	✓	✓	✓	✓
Safety Performance Level Determination	SPLD		✓					✓	✓	✓
Supplementary Assessments	SAT		✓	✓	✓	✓	✓	✓	✓	✓
Machinery Noise Calculation	MNC			✓	✓		✓	✓	✓	✓
Machine Asset Management Program	MAMP							✓	✓	✓

Would you like to know more?

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