Practical Machine Safety, Compliance & CE Marking –
A Proven 3-stage Coaching Programme

- Do you specify, design, build or modify machinery?
- Are you paying large costs to outside contractors to Safety Assess/CE Mark your machines?
- Are you fully aware of your legal responsibilities as an end user or supplier?
- Are you capable of developing legally compliant technical files?
- Is machine safety and CE marking of concern to you and your organisation?
- Where does machine safety fit into your overall Risk Management Strategy?
- Are you aware of the new Machine Directive and your obligation to be legally compliant?
- Are you aware of other directives that can apply to your machines (Low Voltage, EMC...)?
- Do you have the in-house competence to undertake your own safety analysis, documentation and CE certification?
- Will your machinery pass an HSA inspection?

If so then Festo’s proven methodology could provide you with the opportunity that you are looking for;

Introduction:
Festo’s proven 3 stage approach will develop the skills to achieve compliance with relevant directives through a standards based approach to your onsite machine safety.

Our programme will cover safety and compliance throughout all stages of the machine life cycle, from specification, purchasing, maintenance and operation to eventual disposal.

In following this programme, your staff will develop and deliver a risk management strategy for machine safety that provides significant cost saving benefits throughout the process. By working in partnership with you, Festo enables a group of your professionals to make informed safety decisions and implement the appropriate actions.

Overall Objectives of Festo Programme

At the end of this total process your nominated personnel will be competent to:-

- Identify, practically apply and relate to appropriate machine safety legislation
- Establishing the limit of liability for any given machine
- Practically undertake hazard identification and risk assessment
- Generate and record the required safety technical documentation
- Implement appropriate Risk Reduction procedures
- Know what standards are to be followed and implemented
- Safety Assess and CE Mark existing equipment – as required by law
- Safety Assess and CE Mark new equipment that may be installed or imported in future
- Safety Assess and CE Mark – upgrades, modifications or Systems Integrated into plant on ongoing basis – as part of the daily work of your Engineering personnel
- Integrate machine safety into engineering Procurement and Product Design Specifications (URS)
Stage 1 - Overview on Machine Safety for all personnel directly and indirectly involved in Machine Safety & CE in your company:

- Broad understanding of regulations and responsibilities
- Compliance implications at all levels within your organisation are explained
- Why CE Mark? - The Business Case
- Health, Safety and Welfare at Work – The Legal Case
- Presumption of conformity through the use of harmonised standards
- Application of Safety Standards – Type A, Type B, Type C
- Risk Assessment through Risk Estimation & Reduction
- Target Group: Business managers, Production managers, Engineering managers, Health and Safety personnel, Engineers, Design Personnel, Maintenance Technicians

Stage 2 – Machine Safety Competence Gap Analysis: - Establishing where you are presently versus where you need to be

- Step A: Using one of your own machines, Present safety practices and protocols as implemented on your site will be investigated with your Machine Safety / CE team*.
- Step B: We will then guide your team through the safety analysis and documentation requirements that are required to be Safe, CE & Directive compliant.
- The shortfall in knowledge and practical understanding identified between steps A and B will define and help prioritise your specific training and coaching needs
- Mapping out your coaching plan to get from A to B**: (team member roles and responsibilities defined, tasks defined and allocated, schedule for rollout of plan against defined milestones)

*Where no machine safety team exists we will help you to form a suitable team and provide practical guidance to that team.
**Working Smarter - Festo can help align your machine safety with existing plant strategies, policies and protocols (e.g. OHSAS 18001)

Stage 3 – Filling the Gap and Holding the Gains; Ongoing Coaching & Practical Support

The process of practically implementing the knowledge and understanding gained during sessions 1 and 2 during these coaching sessions is where real on the job experience will be gained leading to competent personnel as the outcome.

- All stages in machine life cycle are investigated (URS, commissioning, running, maintenance disposal)
- Each session will focus on a different machine or machine function from your site.
- Coach will guide the team though the practical interpretation and application of safety standards and directives that relate to different parts of the machine, for example:-
  - EN 60204 - Safety Of Machinery – Electrical Equipment of machines
  - EN 13849- Safety Related Parts of Controls Systems
  - Plus any standards that are identified as applicable to your machines
  - Plus Relevant Type C standards
- The present safety status of the machine is investigated and Festo coach will help the team to develop an action plan for the machine in question.
- Team works on the safety action plan for the machine in question between end of a given session and start of next – with an open link via telephone and e-mail to coach.
- Upon return, coach reviews the completed work. Any questions and findings are then evaluated and guidance and intervention given as appropriate to ensure correct understanding, tools, documentation and methodology have been employed.
- Team under guidance of coach then move to next machine or new aspect of present machine.
- Process repeats until outcomes as defined in plan (stage 2) have been completed and the desired competence level is demonstrated by the team.

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References available upon request
Practical Machine Safety and CE Coaching
4 day Programme
for
• SPMB’s- Special Purpose Machine Builders
  • Design Engineers
  • Project Engineers
  • H&S Personnel

Machine Safety & CE Marking Practical Coaching – 4 day Programme
• The New Machine Directive 2006/42/EC
• EN ISO 12100: 2010 Safety of machinery - General principles for design - Risk assessment and risk reduction
• EN ISO 13849-1 Safety of Machinery – Safety Related Parts of Control Systems – General principles for design
  • EN ISO 13849-2 Safety of Machinery - Safety Related Parts of Control Systems -Validation
  • EN IEC 60204 – 1 Safety of Machinery – Electrical Equipment of Machines
  • EN ISO 11161 – Safety of Machinery – Integrated Manufacturing Systems
  • EN IEC 61000 – EMC – Electromagnetic Compatibility
Programme Overview:-

Machine Safety & CE Marking Practical Coaching – 4 day Programme

- The New Machine Directive 2006/42/EC
- EN ISO 12100: 2010 Safety of machinery - General principles for design - Risk assessment and risk reduction
- EN ISO 13849-1 Safety of Machinery – Safety Related Parts of Control Systems - General principles for design
- EN ISO 13849-2 Safety of Machinery – Safety Related Parts of Control Systems - Validation
- EN IEC 60204 – 1 Safety of Machinery – Electrical Equipment of Machines
- EN ISO 11161 – Safety of Machinery – Integrated Manufacturing Systems
- EN IEC 61000 – EMC – Electromagnetic Compatibility

Since December 30, 2011 the time has come, that without further notice, the EN 954-1 is repealed and replaced by EN ISO 13849-1. Together with the harmonized standard EN ISO 12100:2010 this can mean a significant adjustment in your organization.

This programme will guide participants through the necessary documentation to be generated and maintained in the Technical File: - e.g. user manual, maintenance documents, containing information about transport, installing, adjustment, servicing, dismantling, decommissioning and recycling / disposal.

The programme will be about the practical interpretation and application of the standards and directives listed above.

The new harmonized standards EN ISO 12100:2010 and EN ISO 13849-1 (PL) which describe how we should deal with machinery safety and using statistical data to determine and validate a required performance level will be explored in detail, as will be the standards EN ISO 11161, EN IEC 60204 and EN IEC 61000.

The outcomes from this programme are Competent Personnel who:

- Know the content of the “new” Machine directive and the Machine directive Guide
- Know the Essential Health and Safety Requirements from the Machine directive
- Know which standards are harmonized under the new Machinery Directive (OJ list)
- Know the relationship between the Directives and standards
- Know how a risk analysis, risk assessment and risk reduction should be made based on EN ISO 12100:2010
- Know the difference between a machine and a partly completed machine
- Know which documentation has to be generated for an (partly completed) machine
- Know for which life stages of the (partly completed) machine, the manufacturer is responsible. (Transportation, installation, maintenance, disposal)
- Know how the information in the EN ISO 13849-1 (PL) should be applied
- Know how the information in the EN ISO 13849-2 (Validation) should be applied
- Know how the information in the EN ISO 12100:2010 is to be applied
- Know how the different security circuits for the various safety levels are constructed
- Can apply the machine directive and use the machine directive Guide
- Can apply the Essential Health and Safety Requirements from the Machine directive
- Can based on the directive, choose the appropriate harmonized standards
- Can define the life cycle phases of an (partly completed) machine
- Can determine the limits of the (partly completed) machine
- Can create the proper documentation for an (partly completed) machine
- Can perform the statistical calculations, for the required Performance Level
- Can cope and calculate on terms such as MTTF, MTBF, B₁₀, B₁₀₀, T₁₀, DC, CCF, etc.
- Can create the appropriate declaration of conformity or the declaration of incorporation (CE).

**Upon completion of the training you will receive electronic documentation and tools as described below (CD or USB Pen):**

To build “safe” machines the “new” machinery directive does not exclusively apply; a series of directives apply when designing and building machinery.

To simplify the search for relevant directives the USB memory stick or CD-ROM comes with the following contents:
- Brochure with Product Service life
- The OJ list with harmonised Standards
- The relevant presentations in PDF format
- The most used directives in “en” including the available guides
- The Calculation tools as used in the training

**Target group**
Machine Builders, designers of electrical and / or mechanical controls, Project Engineers, Automation Engineers.

**Recommended Prerequisites**
General technical understanding and or basic knowledge of the machinery directive and standards.

**Duration**
Total 4 days.
The delivery is typically 2 of 2 day blocks for public courses (or as agreed for Onsite Training)

**Small Class Size**
Max class size = 10 participants
Instructor:-
Festo Machine Safety expert Mr Rinus Simonis will be your instructor and hands-on coach (see page 5)

Upon completion of the programme, should you wish, Festo can provide additional training or coaching on specific areas of interest to you as they occur or present themselves. These additional days will be chargeable at a day rate.

ECoaching:
In addition, upon completion of initial 4 days, Festo can provide distance 1 to 1 support as it is needed via e-mail, telephone, skype or web conference. This service is charged at an hourly rate.

In House Option:
For In house training, subject to a maximum class size of 10, the price for this programme will be based on your requirements over a 4 day period.

Upon completion of the programme, should you wish, Festo can provide additional training or coaching on specific areas of interest to your company as they occur or present themselves. These additional days will be chargeable at a day rate.

In addition, upon completion of initial 4 days, Festo can provide distance 1 to 1 support as it is needed via e-mail, telephone, skype or web conference. This service is charged at an hourly rate.
Meet Our Machine Safety Expert: Mr Rinus Simonis

Contract Trainer to Festo Ireland (Ex Festo Netherlands)
• Technology Training
• Personal Development (Coaching / Train The Trainer)

Relevant Experience:
UTS electrical
Electrical Installation
Machine Safety courses
CE and ATEX advisor

Member of:-
Standard Commission Pneumatic and Hydraulic NC 341031
Platform IEC 60204-1 Standard


Author of Festo Seminars & Books on:-
E-drive training,
Basic electricity,
FST,
Train the Trainer,
Sensor training,
CoDeSys v2.3 training.

Excel tools
Safety calculation tool,
Risk assessment tool,
MD-EHSR annex tool,
Pneumatic calculation tool,
Electrical calculation tool.