

Description and purpose

The course aims to teach participants about the following safety-related aspects of machinery:

- Understand what Directives and standards are, and which ones apply to a given machine.
- Know about the Machinery Directive and Royal Decrees 1215/97 and 2177/04.
- Knowledge of the most important safety standards to be considered for the mechanical design of the machine.
- How do I know if I can modify a machine without making a substantial change to maintain the CE Mark?

Intended for:

- Machine manufacturers who need an in-depth knowledge of the most important standards affecting the mechanical design of machines.

The course is suitable for technical personnel involved in the machinery mechanical engineering process and/or who validate a layout or have to modify or extend a machine.

Examples

Some examples of machinery, partly completed machinery and assemblies of machinery defined in the Machinery Directive are shown below:



Machinery



Partly Completed Machinery



Different machines added to form a Machine

Contents / agenda

Day 1 (4 H):

- Directive, Royal Decrees and Regulations.
- Machinery Directive 2006/42/EC, summary.
- General principles for design, risk assessment and risk assessment, summary.

Day 2 (4H):

- EN ISO 11161 Safety of machinery. Integrated manufacturing systems. Fundamental requirements.
- EN ISO 10218-2 Robots and robotic devices. Safety requirements for industrial robots. Part 2: Robot systems and integration.

Day 3 (4 H):

- EN ISO 13857 Safety of machinery. Safety distances to prevent hazard zones being reached by upper and lower limbs.
- EN ISO 13855, Safety of machinery. Positioning of safeguards with respect to the approach speeds of parts of the human body.

- EN 349 Safety of machinery. Minimum gaps to avoid crushing of parts of the human body.

Day 4 (4H):

- EN ISO 14120 Safety of machinery. Guards. General requirements for the design and construction of fixed and movable guards.
- EN ISO 14122-1 Safety of machinery. Permanent means of access to machinery.
- EN ISO 14122-2 Safety of machinery. Permanent means of access to machinery. Part 2: Working platforms and walkways
- EN ISO 14122-3 Safety of machinery. Permanent means of access to machinery. Part 3: Stairs, stepladders and guard-rails.
- EN ISO 14122-4 Safety of machinery. Permanent means of access to machinery. Part 4: Fixed ladders.
- ISO 4414 and ISO 4413, Pneumatic and hydraulic fluid power.

Documentation

Each student will receive a paper dossier of the course contents, in A4 colour and in Spanish.

A certificate of attendance will be issued.

Speakers

The speakers will be engineers specialising in machinery safety from the company i9s, S.A.



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